22 BUSINESS ORGANIZATIONS

Submission 4040 (William Slocum, Kagel Canyon Civic Association, September 6, 2022)

Palmdale - Burbank - RECORD #4040 DETAIL	
Status :	No Action Required
Record Date :	9/6/2022
Interest As :	Business and/or Organization
First Name :	William
Last Name :	Slocum

Stakeholder Comments/Issues :

4040-7624 The extensive DEIR has too many pages to read in 60 days. We request 120 days.

Response to Submission 4040 (William Slocum, Kagel Canyon Civic Association, September 6, 2022)

4040-7624

Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS.

The commenter acknowledged the availability of the Draft EIR/EIS for review and comment and requested an extension of the public review period to 120 days. Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS, which provides general information regarding the public comment period and the extension of the public comment period. The Draft EIR/EIS was originally made available for review and comment for a 60-day public review beginning on September 2, 2022. In response to agency and stakeholder requests, the Authority extended the comment period by 30 days. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

Submission 4050 (Gloria Sharpsteen, Kagel Canyon Civic Association, September 6, 2022)

Palmdale - Burbank - RECORD #4050 DETAIL

Status :	No Action Required
Record Date :	9/6/2022
Interest As :	Business and/or Organization
First Name :	Gloria
Last Name :	Sharpsteen

Stakeholder Comments/Issues :

4050-7640 I have read Section 3.9, Geology, Soils, Seismicity, and Paleontological Resources for the Palmdale to Burbank Section Draft EIR/EIS, August 2022. I would like to read more of the report, but it is too long for me to read in 60 days and make an informed comment or ask specific questions. I am requesting that more time be allowed for individuals like myself, who are interested in this important project. Thank you.

Response to Submission 4050 (Gloria Sharpsteen, Kagel Canyon Civic Association, September 6, 2022)

4050-7640

Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS.

The commenter requested to extend the public comment period. The commenter's request has been noted. Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS which provides general information regarding the public comment period and the extension of the public comment period. The Draft EIR/EIS was originally made available for review and comment for a 60-day public review beginning on September 2, 2022. In response to agency and stakeholder requests, the Authority extended the comment period by 30 days. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

Submission 4052 (John Joyce, Rosamond News, September 7, 2022)

Palmdale - Burbank - RECORD #4052 DETAIL

Status :	No Action Required
Record Date :	9/7/2022
Interest As :	Business and/or Organization
First Name :	John
Last Name :	Joyce

Stakeholder Comments/Issues :

4052-7641 John Joyce. Rosamond news. [redacted]. Would like A Electronic copy of the draft EIA are the IRS and technical reports for the Palmdale to Burbank Project section. Thank you.

Response to Submission 4052 (John Joyce, Rosamond News, September 7, 2022)

4052-7641

Refer to Standard Response PB-Response-GEN-7: Access to Technical Reports.

Refer to Standard Response PB-Response-GEN-7: Access to Technical Reports. The commenter requested an electronic copy of the Draft EIR/EIS and associated technical reports which the Authority provided. The commenter's request has been noted. The Draft EIR/EIS is available on the Authority website and was made available via hard copy at multiple repository locations during the public review period. Please refer to Standard Response PB-Response-GEN-7: Access to Technical Reports for information about accessing the technical reports. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

Submission 4063 (Jacki Ayer, Acton Town Council, September 8, 2022)

Palmdale - Burbank - RECORD #4063 DETAIL

Status :	Delimited
Record Date :	9/8/2022
Interest As :	Business and/or Organization
First Name :	Jacki
Last Name :	Ayer

Stakeholder Comments/Issues :

From: Genoveva Arellano <garellano@arellanoassociates.com>
Date: September 8, 2022 at 4:50:00 PM PDT
To: Acton Town Council <atc@actontowncouncil.org>
Cc: Jacki Ayer <airspecial@aol.com>, wolterpam@aol.com
Subject: RE: TO: Jacki & Pam: High-Speed Rail Interactive Map

Hi Jacki & Pam:

I was able to get this answered by our Engineering Team. Those elements that extend beyond the route of the HSR are usually utilities easements (water & power) needed for construction purposes. In this case, that alignment is for an easement for water supply. I hope that makes sense. Let me know if you have any other questions.

Thank you.

Genoveva L. Arellano
Principal
Arellano Associates
P • 909.627.2974
E • GArellano@arellanoassociates.com

From: Acton Town Council <atc@actontowncouncil.org>
Sent: Wednesday, September 7, 2022 8:04 AM
To: Genoveva Arellano <garellano@arellanoassociates.com>; Acton Town Council <atc@actontowncouncil.org>
Cc: Jacki Ayer <airspecial@aol.com>; wolterpam@aol.com
Subject: Re: TO: Jacki & Pam: High-Speed Rail Interactive Map

Dear Ms. Arellano;

4063-7662 Thank you very much for the email.
I have gotten on the interactive map, and note that there are many areas outside the rail right of way that are projected to be affected by the project. For instance, with the SR14A all underground alternative, there are project elements that extend along Escondido Canyon Road all the way to downtown Acton (see figure embedded below). Unfortunately however, the map legend does not provide any information on what these project elements are, and I can find no description in the route map volumes. What are these elements and where are they described in the DEIR/DEIS?

Any help you can provide will be greatly appreciated.
Sincerely;
Jacqueline Ayer
Correspondence Secretary

Response to Submission 4063 (Jacki Ayer, Acton Town Council, September 8, 2022)

4063-7662

The commenter inquired about the different project elements that are not explained by the interactive map legend. Detailed descriptions of each of the alignments are provided in Section 2.5.3 of the Draft EIR/EIS. Each resource topic within Chapter 3, features figures with the applicable affected resources. Please refer to the various sections within Chapter 3 for more information. Additionally, Volume 3, Design Plans, provides plan and profile drawings showing the location and design of the project alternatives. The project element noted by the commenter along Escondido Canyon Road is a utility corridor (power and water) that would be located within and along the existing roadway.

Submission 4065 (Matthew Richmond, Angelus Block Co, September 9, 2022)

Palmdale - Burbank - RECORD #4065 DETAIL

Status :	Action Pending
Record Date :	9/9/2022
Interest As :	Business and/or Organization
First Name :	Matthew
Last Name :	Richmond

Stakeholder Comments/Issues :

To Whom It May Concern:

4065-7660

My name is Matthew Richmond and I am a project manager for the sister companies Angelus Block Co., Inc. located at 11374 Tuxford St. and E-Z Mix Inc. located at 11450 Tuxford St. in Sun Valley. After reading the Palmdale to Burbank Draft EIR, we have multiple concerns and questions regarding potential temporary and permanent road closures that would severely impact our ability to do business at our current locations.

I have been trying to get ahold of the right people in the property management division for around a month to discuss our questions and concerns but have received no communication from them. I would like to schedule a call at their earliest convenience to discuss.

Sincerely,
Matthew Richmond
Office: (818) 767-8576 ex. 119
Cell: (818) 383-2400
11374 Tuxford St.
Sun Valley, CA 91352
[cid:image003.png@01D8C42D.6F941DE0]

Response to Submission 4065 (Matthew Richmond, Angelus Block Co, September 9, 2022)

4065-7660

The commenter expresses their concern regarding potential temporary and permanent road closures that would impact ability for continued business operations at multiple locations along Tuxford Street in Sun Valley, California. Specific road crossings for the Palmdale to Burbank Project Section, including the proposed modifications for these roads, are available in Appendix 3.11-B, Existing and Proposed Railroad Crossing Definitions, of this Final EIR/EIS. Impact S&S#1 and Impact S&S#2, in Section 3.11.6 of Chapter 3.11, Safety and Security, include discussions of temporary and permanent road closures resulting from the project, respectively. The project will include a Construction Transportation Plan (CTP) (TR-IAMF#2), which will establish procedures to maintain 24-hour access to residences and business during construction, including detour provisions for temporary road closures, provisions for safe pedestrian and bicycle passage or convenient detours, limiting road closures to hours that are least disruptive to access for adjacent properties, and provisions for 24-hour access by emergency vehicles (please refer to Appendix 2-E, Impact Avoidance and Minimization Features, of this Final EIR/EIS for further descriptions of project IAMFs).

In the vicinity of the two properties that are the subject of this comment, the following are the transportation network changes proposed along Tuxford Street: replacement of a railroad bridge, realignment of the Vulcan Industrial lead railroad track, realignment of the Metrolink tracks, modifications to a pump station and storm drain, and other minor changes. The Authority understands that the Angelus Block Co. buildings currently have a path that allows trucks to drive in from Tuxford Street and out to San Fernando Road. After construction, the overall configuration of Tuxford Street would not change.That would ensure permanent access to the parcel. Unfortunately, the project would require closing access to San Fernando Road, and that closure may require the company to reconfigure the buildings, to change its method for loading trucks, to use access to other roads, or otherwise to modify its operations.

The Authority does not see any feasible method for keeping vehicular access from the parcels to San Fernando Road. Doing so would require crossing underneath the I-5 freeway. At the freeway, the Sun Valley overhead is a five-span structure comprised of a reinforced concrete deck on simply supported composite welded steel plate girders on reinforced concrete abutments and column bents, all supported on spread footings. It carries the I-5 freeway over the San Fernando Road, Metrolink Antelope Valley Line

4065-7660

tracks, and the proposed California High Speed Rail alignment. Constructing roadway access to San Fernando Road would require extensive analysis and modifications of the I-5 freeway. Because the abutment is supported on a shallow foundation, any roadway would likely require major temporary works during construction and final installation of a robust earth retaining system. That project would impact I-5 traffic during construction. Therefore, continuing roadway access from the parcels to San Fernando Road is not feasible due to the major cost, schedule, impacts on key existing transportation facilities, and third-party impacts associated with this alternative

Nevertheless, the Authority will provide the affected property and business owners a high level of individualized assistance and within the limits established by law and regulation, minimize the economic disruption that could be caused to property owners by the project.

Submission 4066 (Wendy Schiff, Antelope Valley Conservancy, September 9, 2022)

Palmdale - Burbank - RECORD #4066 DETAIL

Status :	Unread
Record Date :	9/9/2022
Interest As :	Business and/or Organization
First Name :	Wendy
Last Name :	Schiff

Stakeholder Comments/Issues :

Ms. DeCamillo:

4066-7659

The Antelope Valley Conservancy was previously in contact with Rick Simon, who had informed us that there was an alternative route, labeled SR14A, that would cause the HSR to run east of 15th Street East in Palmdale. We understand Mr. Simon is no longer involved with the project, and, for that reason, we are requesting a current alignment parcel level map in order to get a clearer depiction of the various HSR route options. We are specifically looking for a close-up map that offers a street view with street names listed, if possible.

Thank you for your time. I look forward to hearing back from you.

Sincerely,
Wendy Schiff, Assistant Administrator

Antelope Valley Conservancy
P.O. Box 8
Lake Hughes, CA 93532-0008
(661) 943-9000
www.avconservancy.org
This email is private and confidential, intended for addressee only. It is not to be forwarded or distributed.

Response to Submission 4066 (Wendy Schiff, Antelope Valley Conservancy, September 9, 2022)

4066-7659

The commenter requested an alignment and parcel map. The commenter's request has been noted and a member of the project team provided the requested materials. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

Submission 4067 (Kelly Decker, SAFE, September 3, 2022)

Palmdale - Burbank - RECORD #4067 DETAIL

Status :	Completed
Record Date :	9/9/2022
Interest As :	Local Agency
First Name :	Kelly
Last Name :	Decker
Attachments :	FW_ DEIR - Public Comment Period - Kelly Decker.pdf (136 kb)

Stakeholder Comments/Issues :

Hi Genoveva,

I hope you have been doing well. Thank you for keeping us abreast of CHSRA updates through Cindy Bloom. We always appreciate the heads up.

4067-7658

I am writing today with a complaint/request. As I am sure you could guess, we were all logging on to the website on Friday to check out the Draft EIR documents on the HSR website. Admittedly, Cindy was kind enough to share one of the flash drives with me, so I had an easier time of it than others who had to download 118 separate, individual PDFs. I spent several hours today just cataloguing the chapters to see what they were about and make my own "table of contents".

During this exercise, I happened to do a page count. Do you have any idea how many total pages is the DEIR for the Palmdale to Burbank Project Section? If you guessed 6,959 pages, you would be correct.

If a real human (i.e., me) were to be inclined to read such a document and provide public comment, one would need to read 116 pages every single day for the next 60 days in order to meet the deadline (forget about having any time to actually write a comment). THIS IS NOT REASONABLE. In my opinion, this is evidence that the Authority has no interest but to discourage public participation and comment on this document. Even folks who are dedicated to this mission like I am are understandably daunted by the volume of material here, and it almost seems hopeless and futile to even set about reading 116 pages per day.

What will it take to get the public comment period extended? I think if it were doubled to 120 days, that is still not enough time, but I would take it over 60 days.

Keep in mind that the Authority had YEARS to put this document together. According to the 16-page list of preparers, there were (by my rough count) 171 experts in their respective fields who contributed to this document, and even with all of those people on payroll, the document was still YEARS past its original intended release date. If a government agency gets the benefit of 171 paid employees and YEARS to prepare a document, how is it remotely fair or reasonable that the members of the community that will be impacted by this project only get 60 days to read and comment on this behemoth of a document?

Can you please make a plea to the Authority to extend the public comment period? Or tell me what we need to do to make that happen?

Thank you,
Kelly Decker

From: Genoveva Arellano
To: Laura Hernandez; Matthew Maldonado
Cc: Elisabeth Rosenson
Subject: FW: DEIR - Public Comment Period
Date: Tuesday, September 6, 2022 11:26:32 AM
Attachments: image001.png

Hi Laura/Matt:

I am forwarding this email string for your uploading into Comment Sense for the record. There are three emails I am forwarding (all SAFE reps) who emailed me directly and I responded. Each of these can be closed out, but let me know if you have any questions.

Thanks.

Genoveva L. Arellano
Principal
Arellano Associates
P • 909.627.2974
E • GArellano@arellanoassociates.com

From: Genoveva Arellano
Sent: Monday, September 5, 2022 9:49 PM
To: Kelly Erin Decker <kellyerindecker@aol.com>
Subject: RE: DEIR - Public Comment Period

Hi Kelly,

Thanks for your email. I hope you are doing well, too, and staying cool during these hot days!

I understand your request to extend the 60-day public comment period. The best way to submit this request is through the formal Comment Form here: Palmdale to Burbank Project Section Draft Environmental Impact Report/Draft Environmental Impact Statement Comment Form - English - California High Speed Rail The standard period length is 45 days, so the Authority chose to commence with a 60-day period at the outset to allow for more time. Nevertheless, I understand your points and will be sure to also relay your (and others') concern to the Project Team.

Please stay in touch with any other questions and I will help as much as I can.

Thank you.

Genoveva L. Arellano
Principal

Submission 4067 (Kelly Decker, SAFE, September 3, 2022) - Continued

Arellano Associates
P • 909.627.2974
E • GArellano@arellanoassociates.com

From: Kelly Erin Decker <kellyerindecker@aol.com>
Sent: Saturday, September 3, 2022 8:41 PM
To: Genoveva Arellano <garellano@arellanoassociates.com>
Subject: DEIR - Public Comment Period

Hi Genoveva,

I hope you have been doing well. Thank you for keeping us abreast of CHSRA updates through Cindy Bloom. We always appreciate the heads up.

I am writing today with a complaint/request. As I am sure you could guess, we were all logging on to the website on Friday to check out the Draft EIR documents on the HSR website. Admittedly, Cindy was kind enough to share one of the flash drives with me, so I had an easier time of it than others who had to download 118 separate, individual PDFs. I spent several hours today just cataloguing the chapters to see what they were about and make my own "table of contents".

During this exercise, I happened to do a page count. Do you have any idea how many total pages is the DEIR for the Palmdale to Burbank Project Section? If you guessed 6,959 pages, you would be correct.

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What will it take to get the public comment period extended? I think if it were doubled to 120 days, that is still not enough time, but I would take it over 60 days.

Keep in mind that the Authority had YEARS to put this document together. According to the 16-page list of preparers, there were (by my rough count) 171 experts in their respective fields who contributed to this document, and even with all of those people on payroll, the document was still YEARS past its original intended release date. If a government agency gets the benefit of 171 paid employees and YEARS to prepare a document, how is it remotely fair or reasonable that the members of the community that will be impacted by this project only get 60 days to read and comment on this behemoth of a document?

Can you please make a plea to the Authority to extend the public comment period? Or tell me what we need to do to make that happen?

Thank you,
Kelly Decker

Response to Submission 4067 (Kelly Decker, SAFE, September 3, 2022)

4067-7658

Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS.

The commenter requested to extend the comment period. The commenter's request has been noted. Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS which provides general information regarding the public comment period and the extension of the public comment period. The Draft EIR/EIS was originally made available for review and comment for a 60-day public review beginning on September 2, 2022. In response to agency and stakeholder requests, the Authority extended the comment period by 30 days. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

Submission 4068 (Cindy Bloom, SAFE, September 5, 2022)

Palmdale - Burbank - RECORD #4068 DETAIL

Status :	Completed
Record Date :	9/9/2022
Interest As :	Local Agency
First Name :	Cindy
Last Name :	Bloom
Attachments :	FW_ Palmdale to Burbank DEIR Comment Period - Cindy Bloom.pdf (136 kb)

Stakeholder Comments/Issues :

Hi Genoveva,

Happy Labor Day!

4068-7657

As you can imagine, I am busily reviewing the DEIR and am overwhelmed. It is nearly 7,000 pages and I feel a 60-day comment period is unrealistic, and quite frankly, unfair. To properly review and address the extremely detailed, copious, and challenging issues in this DEIR requires more than 60 days.

The Authority spent years compiling multiple documents, it was delayed several times, and even cites 2015 dollars in some places, with no update. It frequently references other documents which are not necessarily available on your website (especially after the ADA compliancy scrub a few years ago), and requires additional time to hunt those down—if we have them at all. There is not enough time for a Public Records Request either. Based on our prior PRRs, the Authority issued extensions of time which averaged several weeks to comply.

Would it be possible for the Authority to extend the comment period to 90 or 120 days? This is the most important comment period we have encountered to-date, and we need to be thorough. Additionally, I am assuming that this project section is the most complicated section of the statewide system and requires more time for public comment than what was granted for other project sections.

Thanks so much for your continued assistance!

Cindy Bloom
818-445-5602

From: Genoveva Arellano
To: Laura Hernandez; Matthew Maldonado
Cc: Elisabeth Rosenson
Subject: FW: Palmdale to Burbank DEIR Comment Period
Date: Tuesday, September 6, 2022 11:26:51 AM
Attachments: image001.png

Here's 2nd one...

(Cindy Bloom)

Genoveva L. Arellano
Principal
Arellano Associates
P • 909.627.2974
E • GArellano@arellanoassociates.com

From: Genoveva Arellano
Sent: Monday, September 5, 2022 9:59 PM
To: cindy bloom <cbloom571@gmail.com>
Cc: Teresa Lamb <teresa.lamb@mail.house.gov>; Susan Lustig <sjl@acmedigitaldesign.com>
Subject: RE: Palmdale to Burbank DEIR Comment Period

Hi Cindy,

Yes, I hope you had a good Labor Day weekend... I am sure laboring with this relentless heat!

I am in receipt of your request about extending the 60-day public comment period. I understand your request and the best thing to do is to submit it through the formal Comment Form here: Palmdale to Burbank Project Section Draft Environmental Impact Report/Draft Environmental Impact Statement Comment Form - English - California High-Speed Rail. I believe you know that the standard period length is 45 days. The Authority chose to commence with a 60-day period at the outset to allow for more time. Regardless, I understand your points and will be sure to communicate your, Kelly's and Bill's (also received) concern to the Project Team.

Please stay in touch with any other questions and you know I will help as much as I can.

Thanks!

Genoveva L. Arellano
Principal
Arellano Associates
P • 909.627.2974

Submission 4068 (Cindy Bloom, SAFE, September 5, 2022) - Continued

E • GArellano@arellanoassociates.com

From: cindy bloom <cbloom571@gmail.com>
Sent: Monday, September 5, 2022 10:50 AM
To: Genoveva Arellano <garellano@arellanoassociates.com>
Cc: Cindy Bloom <cbloom571@gmail.com>; Teresa Lamb <teresa.lamb@mail.house.gov>; Susan Lustig <sjl@acmedigitaldesign.com>
Subject: Palmdale to Burbank DEIR Comment Period

Hi Genoveva,

Happy Labor Day!

As you can imagine, I am busily reviewing the DEIR and am overwhelmed. It is nearly 7,000 pages and I feel a 60-day comment period is unrealistic, and quite frankly, unfair. To properly review and address the extremely detailed, copious, and challenging issues in this DEIR requires more than 60 days.

The Authority spent years compiling multiple documents, it was delayed several times, and even cites 2015 dollars in some places, with no update. It frequently references other documents which are not necessarily available on your website (especially after the ADA compliancy scrub a few years ago), and requires additional time to hunt those down—if we have them at all. There is not enough time for a Public Records Request either. Based on our prior PRRs, the Authority issued extensions of time which averaged several weeks to comply.

Would it be possible for the Authority to extend the comment period to 90 or 120 days? This is the most important comment period we have encountered to-date, and we need to be thorough. Additionally, I am assuming that this project section is the most complicated section of the statewide system and requires more time for public comment than what was granted for other project sections.

Thanks so much for your continued assistance!

Cindy Bloom
818-445-5602

Response to Submission 4068 (Cindy Bloom, SAFE, September 5, 2022)

4068-7657

Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS.

The commenter requested to extend the comment period to 90 or 120 days. The commenter's request has been noted. Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS which provides general information regarding the public comment period and the extension of the public comment period. The Draft EIR/EIS was originally made available for review and comment for a 60-day public review beginning on September 2, 2022. In response to agency and stakeholder requests, the Authority extended the comment period by 30 days. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

Submission 4069 (William Eick, Eick & Freeborn, LLP, September 5, 2022)

Palmdale - Burbank - RECORD #4069 DETAIL

Status :	Completed
Record Date :	9/9/2022
Interest As :	Business and/or Organization
First Name :	William
Last Name :	Eick
Attachments :	FW_ Palmdale to Burbank DEIR Comment Period Bill Eick.pdf (139 kb)

Stakeholder Comments/Issues :

4069-7656

Actually, War and Peace is only 1.250 pages. The DEIR is almost 6 times as long as War and Peace.

We are going to have a quiz to see if the members of the board have read all 6.900 pages of the draft EIR in 60 days and whether they have any questions. The SAFE coalition knows as much as almost any person on the Board and we definitely need at least 120 days. Even then I do not know if this is a possible task. It is three times the length of War and Peace.

Bill Eick

From: Genoveva_Arellano
To: Laura_Hernandez; Matthew_Maldonado
Cc: Elisabeth_Rosenson
Subject: FW: Palmdale to Burbank DEIR Comment Period
Date: Tuesday, September 6, 2022 11:27:18 AM
Attachments: image001.png

Here's third one...

(William Eick)

Genoveva L. Arellano
Principal
Arellano Associates
P • 909.627.2974
E • GArellano@arellanoassociates.com

From: Genoveva Arellano
Sent: Monday, September 5, 2022 10:04 PM
To: William Eick <bill@eickfreeborn.com>; cindy bloom <cbloom571@gmail.com>
Cc: Teresa Lamb <teresa.lamb@mail.house.gov>; Susan Lustig <sjl@acmedigitaldesign.com>
Subject: RE: Palmdale to Burbank DEIR Comment Period

Hi Bill:

Thank you for your emails! I am not sure if you also received my reply to Cindy on this same topic. The best way to make this request to extend the public comment period is through the formal Comment Form here: Palmdale to Burbank Project Section Draft Environmental Impact Report/Draft Environmental Impact Statement Comment Form - English - California High Speed Rail The standard period length is 45 days, so the Authority chose to commence with a 60-day period at the outset to allow for more time. Please know that I will also be sure to communicate your (and others') request to the Project Team.

Thank you!

Genoveva L. Arellano
Principal
Arellano Associates
P • 909.627.2974
E • GArellano@arellanoassociates.com

From: William Eick <bill@eickfreeborn.com>

Submission 4069 (William Eick, Eick & Freeborn, LLP, September 5, 2022) - Continued

Sent: Monday, September 5, 2022 11:55 AM
To: cindy bloom <cbloom571@gmail.com>
Cc: Genoveva Arellano <garellano@arellanoassociates.com>; Teresa Lamb <teresa.lamb@mail.house.gov>; Susan Lustig <sjl@acmedigitaldesign.com>
Subject: Re: Palmdale to Burbank DEIR Comment Period

Actually, War and Peace is only 1.250 pages. The DEIR is almost 6 times as long as War and Peace.

Bill

On Mon, Sep 5, 2022 at 11:33 AM William Eick <bill@eickfreeborn.com> wrote:

> We are going to have a quiz to see if the members of the board have read all 6.900 pages of the draft EIR in 60 days and whether they have any questions. The SAFE coalition knows as much as almost any person on the Board and we definitely need at least 120 days. Even then I do not know if this is a possible task. It is three times the length of War and Peace.
>
> Bill Eick
>
> On Mon, Sep 5, 2022 at 10:49 AM cindy bloom <cbloom571@gmail.com> wrote:
>
> > Hi Genoveva,
> >
> > Happy Labor Day!
> >
> > As you can imagine, I am busily reviewing the DEIR and am overwhelmed. It is nearly 7,000 pages and I feel a 60-day comment period is unrealistic, and quite frankly, unfair. To properly review and address the extremely detailed, copious, and challenging issues in this DEIR requires more than 60 days.
> >
> > The Authority spent years compiling multiple documents, it was delayed several times, and even cites 2015 dollars in some places, with no update. It frequently references other documents which are not necessarily available on your website (especially after the ADA compliancy scrub a few years ago), and requires additional time to hunt those down—if we have them at all. There is not enough time for a Public Records Request either. Based on our prior PRRs, the Authority issued extensions of time which averaged several weeks to comply.
> >
> > Would it be possible for the Authority to extend the comment period to 90 or 120 days? This is the most important comment period we have encountered to-date, and we need to be thorough. Additionally, I am assuming that this project section is the most complicated section of the statewide system and requires more time for public comment than what was granted for other project sections.
> >
> > Thanks so much for your continued assistance!
> >
> > Cindy Bloom
> > 818-445-5602

--

William E. Eick,
Attorney at law

Eick & Freeborn, LLP
2604 Foothill Blvd. Ste C
La Crescenta, CA 91214
(P) 818-248-0050
(F) 818-248-2473
www.eickfreeborn.com

No e-mails received after 3:00pm on Friday will be checked until Monday morning at the earliest. No e-mails are checked on Holidays. We do not accept ex parte notice by e-mail.

IRS Circular 230 Disclosure: To ensure compliance with requirements imposed by the Internal Revenue Service, we inform you that any U.S. tax advice contained in this communication (including any attachments) is not intended to be used, and cannot be used, for the purpose of (i) avoiding penalties under the Internal Revenue Code or (ii) promoting, marketing, or recommending to another party any transaction or matter addressed herein.

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--

William E. Eick,

Submission 4069 (William Eick, Eick & Freeborn, LLP, September 5, 2022) - Continued

Attorney at law

Eick & Freeborn, LLP
2604 Foothill Blvd. Ste C
La Crescenta, CA 91214
(P) 818-248-0050
(F) 818-248-2473
www.eickfreeborn.com

No e-mails received after 3:00pm on Friday will be checked until Monday morning at the earliest. No e-mails are checked on Holidays. We do not accept ex parte notice by e-mail.

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Response to Submission 4069 (William Eick, Eick & Freeborn, LLP, September 5, 2022)

4069-7656

Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS.

The commenter requested an extension for the public comment period. The commenter's request has been noted. Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS, which provides general information regarding the public comment period and the extension of the public comment period. The Draft EIR/EIS was originally made available for review and comment for a 60-day public review beginning on September 2, 2022. In response to agency and stakeholder requests, the Authority extended the comment period by 30 days. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

Submission 4070 (Cindy Bloom, SAFE, September 6, 2022)

Palmdale - Burbank - RECORD #4070 DETAIL

Status :	Completed
Record Date :	9/9/2022
Interest As :	Business and/or Organization
First Name :	Cindy
Last Name :	Bloom
Attachments :	FW_ Palmdale to Burbank Project Section – Stakeholder Working Group – September 20, 2022 Cindy Bloom.pdf (162 kb)

Stakeholder Comments/Issues :

4070-7655 What does "invitation only" really mean?

From: Genoveva Arellano
To: Laura Hernandez; Matthew Maldonado
Cc: Elisabeth Rosenson
Subject: FW: Palmdale to Burbank Project Section – Stakeholder Working Group – September 20, 2022
Date: Tuesday, September 6, 2022 11:28:15 AM
Attachments: image001.png

And one more from Cindy this morning re: SWG meeting. Should also be in Comment Sense for the record.

Thanks.



Genoveva L. Arellano
Principal
Arellano Associates
P • 909.627.2974
E • GArellano@arellanoassociates.com

From: Genoveva Arellano
Sent: Tuesday, September 6, 2022 10:28 AM
To: cindy bloom <cbloom571@gmail.com>
Cc: Kelly Decker <kellyerindecker@aol.com>; Bill Eick <bill@eickfreeborn.com>
Subject: RE: Palmdale to Burbank Project Section – Stakeholder Working Group – September 20, 2022

Correction to my sentence below… Augh, sorry about that! It was NOT noticed widely, but to the SWG list only. I hope that makes sense.



Genoveva L. Arellano
Principal
Arellano Associates
P • 909.627.2974
E • GArellano@arellanoassociates.com

From: Genoveva Arellano
Sent: Tuesday, September 6, 2022 10:22 AM
To: cindy bloom <cbloom571@gmail.com>
Cc: Kelly Decker <kellyerindecker@aol.com>; Bill Eick <bill@eickfreeborn.com>
Subject: RE: Palmdale to Burbank Project Section – Stakeholder Working Group – September 20, 2022

Hi Cindy,

Thanks for your email… this is a smaller group meeting with agencies and local stakeholders as we have done before. Invitation only means that it was NOT noticed widely to the public like the Open House meetings will be. And we are asking people to RSVP.

Submission 4070 (Cindy Bloom, SAFE, September 6, 2022) - Continued

Let me know if you have any other questions.

Thanks!

Genoveva L. Arellano
Principal
Arellano Associates
P • 909.627.2974
E • GArellano@arellanoassociates.com

From: cindy bloom <cbloom571@gmail.com>
Sent: Tuesday, September 6, 2022 10:11 AM
To: Genoveva Arellano <garellano@arellanoassociates.com>
Cc: Kelly Decker <kellyerindecker@aol.com>; Bill Eick <bill@eickfreeborn.com>
Subject: Fwd: Palmdale to Burbank Project Section – Stakeholder Working Group – September 20, 2022

Hi,

What does "invitation only" really mean?

Cheers

Cindy Bloom
818-445-5602
Sent from my iPhone

Begin forwarded message:

From: California High-Speed Rail Authority <palmdale_burbank@hsr.ca.gov>
Date: September 6, 2022 at 10:02:31 AM PDT
To: cbloom57@ca.rr.com
Subject: Palmdale to Burbank Project Section – Stakeholder Working Group – September 20, 2022
Reply-To: palmdale_burbank@hsr.ca.gov

Palmdale to Burbank Project Section
Stakeholder Working Group - September 20, 2022

The California High-Speed Rail Authority (Authority) invites you to participate in the next Stakeholder Working Group meeting for the San Fernando Valley area of the Palmdale to Burbank Project Section. The purpose of this invitation-only group meeting is to discuss key topics in the Draft Environmental Impact Report/Environmental Impact Statement (Draft EIR/EIS) including traffic, air quality, noise, vibration, aesthetics and more.

The Draft EIR/EIS for **the Palmdale to Burbank Project Section** will be made available for public review and comment starting on September 2, 2022 and ending on November 1, 2022. For more information, visit **link** to access the document and information on how to provide formal comments.

The Palmdale to Burbank Project Section will connect two key population centers in Los Angeles County by linking future multi-modal transportation hubs in Palmdale and Burbank. The Palmdale Station, and the alignment to Spruce Court in Palmdale, were evaluated as part of the Bakersfield to Palmdale Project Section, which was approved by the Authority Board in August 2021. The Burbank Airport Station was evaluated as part of the Burbank to Los Angeles Project Section, which was approved by the Authority Board in January 2022. This project section will provide a critical link between the Bakersfield to Palmdale and the Burbank to Los Angeles Project Sections.

The Draft EIR/EIS evaluates the impacts and benefits of six Build Alternatives including Refined SR14, SR14A, E1, E1A, E2 and E2A. The Preferred Alternative is the SR14A Build Alternative. The Preferred Alternative avoids crossing Una Lake and minimizes impacts to nearby wetlands. Trains operating on the Preferred Alternative alignment would be fully underground through the community of Acton, the Angeles National Forest and the San Gabriel Mountains National Monument.

The Stakeholder Working Group will be held virtually on:

Submission 4070 (Cindy Bloom, SAFE, September 6, 2022) - Continued

Date: Tuesday, September 20, 2022

Time: 10:00 a.m. to 12:00 p.m.

Link **https://us02web.zoom.us/meeting/register/tZUpc-Gugz4jHtz8w2fJbH0kkwD1WuDBk95g**

Passcode: 267876

Please RSVP by September 15, 2022, to Matthew Maldonado of the Palmdale to Burbank Outreach Team via e-mail at **mmaldonado@mbimedia.com**.

Due to public health and safety concerns related to COVID-19, the meetings for the Draft EIR/EIS will be held online. Please check the Authority website (www.hsr.ca.gov) or call (800) 630-1039 for more information on additional opportunities for in-person meetings, if permissible by COVID-19 pandemic public health and safety directives.

Thank you for your time and participation. We look forward to hearing from you and working with you throughout this process.

The Authority is issuing this document as lead agency under CEQA, and also under NEPA pursuant to 23 U.S.C. 327 and a Memorandum of Understanding (MOU) effective as of July 23, 2019. The MOU is between the State of California and the Federal Railroad Administration (FRA) under a program commonly known as NEPA assignment (the MOU assigned FRA's NEPA responsibilities for the project to the State of California).

Sincerely,

LaDonna DiCamillo

Southern California Regional Director

California High-Speed Rail Authority

Palmdale to Burbank Project Section

(800) 630-1039

Palmdale_Burbank@hsr.ca.gov

California High-Speed Rail Authority

palmdale_burbank@hsr.ca.gov

(800) 630-1039

CAHSR | 355 S. Grand Avenue, Suite 2050, Los Angeles, CA 90071

Unsubscribe cbloom57@ca.rr.com

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Sent by palmdale_burbank@hsr.ca.gov

Response to Submission 4070 (Cindy Bloom, SAFE, September 6, 2022)

4070-7655

The commenter inquired how the attendee list was developed for a group meeting with Authority staff and representatives from Acton, California. A member of the project team responded and indicated that the meeting in question was a smaller group meeting with agencies and local stakeholders. 'Invitation only' in this context means that it was not noticed widely to the public like the Open House meetings. The comment does not address technical analysis in the Draft EIR/EIS or suggest edits to the document. No change has been made to the document in response to this comment.

Submission 4093 (Josie Zarate, September 15, 2022)

Palmdale - Burbank - RECORD #4093 DETAIL

Status :	Ready for Delimiting
Record Date :	9/15/2022
Interest As :	Business and/or Organization
First Name :	Josie
Last Name :	Zarate
Attachments :	PB_4093_Zarate_email_Original.pdf (1 kb) HSR_lt_09_14_22 (1).pdf (23 kb)

Stakeholder Comments/Issues :

Good Evening HSR Board,

4093-7683 We the community of Lake View Terrace is requesting an extencion of 90 to 120 days.
Please see attached letter.

Warm regards

blank copy

Josie Zarate,

BOC President

LVT Neighborhood Watch

and Business Watch Captain

josieza@gmail.com

818-448-2791

Josephine Zarate
11367 Goleta St.
Lake View Terrace, Calif.
91342
Tel. (818) 448-2791
josieza@gmail.com

September 14, 2022

Palmdale to Burbank Draft EIR/EIS Comment
California High-speed Rail Authority,
355 S. Grant Ave, suite 2050 Los Angeles, California. 90071

Dear HSR,

4093-7684 I represent various groups including the Business Watch and the community of Lake View Terrace, I (we) are requesting additional time 90 to 120 days to be able to read the reports and make an educated decision.

Sincerely,

Josephine. Zarate

cc: Monica Rodriguez, Council member CD7
Nury Martinez, Council President
Paul Krekorian Coucilmember CD2
blank copy

Response to Submission 4093 (Josie Zarate, September 15, 2022)

4093-7683

Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS.

The commenter requested to extend the public comment period. The commenter's request has been noted. Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS, which provides general information regarding the public comment period and the extension of the public comment period. The Draft EIR/EIS was originally made available for review and comment for a 60-day public review beginning on September 2, 2022. In response to agency and stakeholder requests, the Authority extended the comment period by 30 days. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

4093-7684

Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS.

The commenter requested to extend the public comment period. The commenter's request has been noted. Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS, which provides general information regarding the public comment period and the extension of the public comment period. The Draft EIR/EIS was originally made available for review and comment for a 60-day public review beginning on September 2, 2022. In response to agency and stakeholder requests, the Authority extended the comment period by 30 days. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

Submission 4106 (Cory Lagusker, Reptacular Ranch, September 18, 2022)

Palmdale - Burbank - RECORD #4106 DETAIL

Status :	Action Pending
Record Date :	9/18/2022
Interest As :	Business and/or Organization
First Name :	Cory
Last Name :	Lagusker

Stakeholder Comments/Issues :

4106-7671

Hello. The proposed E2 route is directly going through my property with permanent and temporary structures proposed to be installed.

So are you going to buy my property from me?

What's the plan to use my land?

Thanks
Cory

Response to Submission 4106 (Cory Lagusker, Reptacular Ranch, September 18, 2022)

4106-7671

Refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations.

The commenter expresses concern on property and parcel acquisitions from building the project along the E2 Alternative route alignment. This topic is further discussed in PB-Response-SOCIO-1, Parcel Acquisitions and Relocations.

The Authority has identified the SR14A Build Alternative as the Preferred Alternative for the Palmdale to Burbank Project Section. For further discussion regarding the identification of the Preferred Alternative for the Palmdale to Burbank Project Section, please refer to Chapter 8, Preferred Alternative and Station Sites, of this Final EIR/EIS.

Submission 4108 (Cory Lagusker, Reptacular Animals Corporate, September 14, 2022)

Palmdale - Burbank - RECORD #4108 DETAIL

Status :	Action Pending
Record Date :	9/14/2022
Interest As :	Business and/or Organization
First Name :	Cory
Last Name :	Lagusker

Stakeholder Comments/Issues :

4108-7669

The E2 line from Burbank to Palmdale goes directly through my home and business. Want to buy it? Because I won't allow you to build or stage or do anything, no matter what. So you might as well as buy me out.

I will NOT ride your slow speed train to no where

Response to Submission 4108 (Cory Lagusker, Reptacular Animals Corporate, September 14, 2022)

4108-7669

Refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations, PB-Response-SOCIO-2: Property Values.

The commenter notes that the alignment goes through their home and business, and suggests a preference for the Authority purchasing the properties. Refer to PB-Response-SOCIO-1, Parcel Acquisitions and Relocations; and PB-Response-SOCIO-2, Property Values, which address these concerns. This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

Submission 4110 (Cindy Bloom, SAFE, September 19, 2022)

Palmdale - Burbank - RECORD #4110 DETAIL

Status :	Ready for Delimiting
Record Date :	9/19/2022
Interest As :	Business and/or Organization
First Name :	Cindy
Last Name :	Bloom

Stakeholder Comments/Issues :

From: cindy bloom <cbloom571@gmail.com>
Sent: Monday, September 19, 2022 4:22 PM
To: Genoveva Arellano <garellano@arellanoassociates.com>
Cc: Susan Lustig <sjl@acmedigitaldesign.com>; Kelly Decker <kellyerindecker@aol.com>; Bill Eick <bill@eickfreeborn.com>
Subject: Re: Bad Link to Public Notice

Perfect!!! Thank you! I assume I'll "see" you tomorrow.

Cheers,
Cindy Bloom
818-445-5602
Sent from my iPhone

On Sep 19, 2022, at 3:52 PM, Genoveva Arellano <garellano@arellanoassociates.com> wrote:

Hi Cindy,

Thanks for your email. I appreciate the time that both Susan and you have taken to identify and communicate the concerns with the Authority's notice. As you know, the information presented in the referenced links can be found on the Authority's website at www.hsr.ca.gov. Also, here is the direct link to the English Notice for your use still, as needed: https://hsr.ca.gov/wp-content/uploads/2022/08/2022-0628-P-B_DEIRS_NOA_English.pdf. Please note the information presented at the above link was duplicated in the text of the email you received. The links do not present new or different information than the email.

Regardless, I apologize for the confusion regarding different formats. The Authority endeavors to present the same information in multiple formats for reader convenience.

I appreciate you continuing to stay in touch with me on the project and the document. I assume I will see you online tomorrow for the Stakeholder Working Group meeting. Let me know if there is anything else I can do for you.

Thanks!

Genoveva L. Arellano
Principal

4110-10281

Arellano Associates
P • 909.627.2974
E • GArellano@arellanoassociates.com

From: cindy bloom <cbloom571@gmail.com>
Sent: Sunday, September 18, 2022 11:13 AM
To: Genoveva Arellano <garellano@arellanoassociates.com>
Cc: Cindy Bloom <cbloom571@gmail.com>; Susan Lustig <sjl@acmedigitaldesign.com>; Kelly Decker <kellyerindecker@aol.com>; Bill Eick <bill@eickfreeborn.com>
Subject: Bad Link to Public Notice

Hi Genoveva,

Hope you are doing well.

Susan Lustig brought it to my attention that the link in HSR's Public Notice email containing the text of the Public Notice dated September 2nd ("view this email as a webpage") is not working, that you researched it, and then was told that it "could not be fixed." I then discovered, to my utter dismay, that the separate Public Notice link is also not working! (We had put that particular link on our www.dontrailroad.us website.)

How can this be? All one has to do is update the HSR website with a fresh link. Obviously, since there was a previously-working link to the document, that pdf file or HTML document existed at one time.

When I got the box of documents and flash drives that HSR kindly provided to us, since this is a very important communique, I immediately put the Public Notice up on our website via a link to the HSR website. This link now reads:

"The system is temporarily unavailable. We apologize for any inconvenience. Please try again later."

There are two problems with this message. First, a Public Notice is a legally mandated document. Second, it says "temporarily unavailable" even though we learn, after Susan Lustig spend her volunteer time, I spent my volunteer time, and you spent time from your packed schedule, that it was intentionally permanently removed and further misled the public to think it was a temporary problem. It is not inconceivable that folks tried multiple times (due to the instruction to "try again later") to access it as we've been referring people to our website to learn about the DEIR.

So, I deleted the link to the HSR's website Public Notice, scanned the hard copy, and posted it to our website because (1) it is a public notice; (2) is likely governed by the Brown Act since it has public meeting notices within it; (3) residents must have the ability to access it, and (4) there is NO excuse for whoever is responsible for disseminating information not to provide this essential information in an easy accessible link.

I don't mean to be harsh, but please understand that this is ridiculous. We certainly appreciate your help on

Submission 4110 (Cindy Bloom, SAFE, September 19, 2022) - Continued

4110-10281

everything, including going above and beyond but the public notice should be active on HSR's website until the comment period is closed (it expired in 2 weeks!) Not only does it give a summary of the DEIR, but also as noted above gives notice of two public meetings in October.

Please relay this to appropriate HSR person(s) and have this situation rectified immediately.

As usual, thanks for your help.

Warm regards,

Cindy Bloom
818-445-5602

Response to Submission 4110 (Cindy Bloom, SAFE, September 19, 2022)

4110-10281

The commenter noted an error in an Authority public notice and referenced correspondence with a member of the project team and the correction that was made. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

Submission 4125 (Kristeen Penrod, SC Wildlands, September 26, 2022)

Palmdale - Burbank - RECORD #4125 DETAIL

Status :	Unread
Record Date :	9/26/2022
Interest As :	Business and/or Organization
First Name :	Kristeen
Last Name :	Penrod

Stakeholder Comments/Issues :

Subject: RE: Your California High Speed Rail public records request #22-163 has been closed.

4125-7504

To Marie Hoffman,

I was just informed that my records request dated September 13, 2022, has been closed but I did NOT receive all of the technical documents that I requested. Specifically, I did NOT receive: Palmdale to Burbank Project Section: Wildlife Corridor Assessment Report (2019c).

The file I received, Request_22-163_documents_2022-09-16 00-37-02 +0000.zip included the list of documents shown in the attached image. I have opened and reviewed all of the documents included and the Wildlife Corridor Assessment Report for the Palmdale to Burbank Project Section was not included in this delivery. Please expedite the delivery of said document, which is the MOST important technical document pertaining to my review of the EIS/EIR.

Many thanks in advance for your immediate attention to this matter.

Respectfully submitted,
Kristeen Penrod

From: "Public Records Administrator - CA High Speed Rail Authority" <support@nextrequest.com>
Sent: 9/26/22 10:58 AM
To: kristeen@scwildlands.org
Subject: Your California High Speed Rail public records request #22-163 has been closed.

Your California High Speed Rail public records request #22-163 has been closed.

-- Attach a non-image file and/or reply ABOVE THIS LINE with a message, and it will be sent to staff on this request. --

California High Speed Rail Public Records
Record request #22-163 has been closed. The closure reason supplied was:

All non-exempt public records have been released, and your request has been fulfilled. These are the remainder of the technical documents you requested.

View Request 22-163

https://hsr-ca.nextrequest.com/requests/22-163
The All in One Records Requests Platform
Questions about your request? Reply to this email or sign in to contact staff at California High Speed Rail.

Technical support: See our help page
Too many emails? Change your email settings here

Response to Submission 4125 (Kristeen Penrod, SC Wildlands, September 26, 2022)

4125-7504

Refer to Standard Response PB-Response-GEN-7: Access to Technical Reports.

The commenter followed up on their request for the delivery of the Wildlife Corridor Assessment Report for the Palmdale to Burbank Project Section. The Authority followed up on their request for the delivery of the Wildlife Corridor Assessment Report for the Palmdale to Burbank Project Section and made this document available to the commentor. Please refer to Standard Response PB-Response-GEN-7: Access to Technical Reports. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

Submission 4128 (Jeff Sheldon, Union Pacific Railroad, September 27, 2022)

Palmdale - Burbank - RECORD #4128 DETAIL

Status :	Unread
Record Date :	9/27/2022
Interest As :	Business and/or Organization
First Name :	Jeff
Last Name :	Sheldon

Stakeholder Comments/Issues :

From: Armistead, Bruce@HSR <Bruce.Armistead@hsr.ca.gov>
Sent: Tuesday, September 27, 2022 10:56 AM
To: Jeffrey Sheldon <JDSHELDO@up.com>
Cc: Peggy Harris <PEHARRIS@up.com>; Stanich, Serge@HSR <Serge.Stanich@hsr.ca.gov>; DiCamillo, LaDonna@HSR <LaDonna.DiCamillo@hsr.ca.gov>; Lipkin, Boris@HSR <Boris.Lipkin@hsr.ca.gov>
Subject: RE: Palmdale to Burbank DEIR

Jeff,

Sorry for not getting back to you I was out of country for part of September please let us know what timers work for you and we happily give a presentation of the interfaces.

From: DiCamillo, LaDonna@HSR <LaDonna.DiCamillo@hsr.ca.gov>
Sent: Tuesday, September 27, 2022 10:09 AM
To: Lipkin, Boris@HSR <Boris.Lipkin@hsr.ca.gov>; Jeffrey Sheldon <JDSHELDO@up.com>
Cc: Peggy Harris <PEHARRIS@up.com>; Armistead, Bruce@HSR <Bruce.Armistead@hsr.ca.gov>; Stanich, Serge@HSR <Serge.Stanich@hsr.ca.gov>
Subject: RE: Palmdale to Burbank DEIR

4128-7526

Hi Jeff and Peggy,

It is a pleasure to meet you via email. I checked calendars, and our team currently has the following available (all times Pacific). Let us know what works for you, or if you need some other alternatives.

10/5 11:30-3:00
10/7 10:00-11:00
10/18 9:00-10:30, 11:00-12:00

We look forward to talking with you.

LaDonna DiCamillo
Southern California Regional Director
213-308-0640 cell
ladonna.dicamillo@hsr.ca.gov
www.hsr.ca.gov

From: Lipkin, Boris@HSR <Boris.Lipkin@hsr.ca.gov>
Sent: Tuesday, September 27, 2022 9:45 AM
To: Jeffrey Sheldon <JDSHELDO@up.com>
Cc: Peggy Harris <PEHARRIS@up.com>; Armistead, Bruce@HSR <Bruce.Armistead@hsr.ca.gov>; DiCamillo, LaDonna@HSR <LaDonna.DiCamillo@hsr.ca.gov>; Stanich, Serge@HSR <Serge.Stanich@hsr.ca.gov>
Subject: Re: Palmdale to Burbank DEIR

Hi Jeff (and Peggy),

Thanks for reaching out. That section is in Southern California so that's not my jurisdiction.

Let me introduce you to LaDonna DiCamillo (who is our Southern California Regional Director) and Serge Stanich (Director of Encironmenral Services) who, along with Bruce, would be the best people to talk to about the Draft EIR/EIS for the Palmdale to Burbank section.

Thanks,
Boris

On Sep 27, 2022, at 7:17 AM, Jeffrey Sheldon <JDSHELDO@up.com> wrote:

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Boris:

I think Bruce may be out.

I was wondering if you would be willing to have a meeting with us and walk through any interfaces/interactions between the Preferred Alternative and UP's operations?

If you are not up to speed on the Palmdale to Burbank DEIR, can you refer us to someone at CHSRA that could walk us through it?

Thanks.

From: Jeffrey Sheldon
Sent: Thursday, September 15, 2022 7:18 AM
To: Bruce.Armistead@hsr.ca.gov
Cc: Peggy Harris <PEHARRIS@up.com>
Subject: FW: Palmdale to Burbank DEIR

4128-7527

Immediately below is an update to our calendar availability next week.

Please let me know if any of these times work for you (all in PT). I'll be happy to send out a meeting invitation.

Submission 4128 (Jeff Sheldon, Union Pacific Railroad, September 27, 2022) - Continued

4128-7527

9/19: 1pm-3pm
9/20: 2pm-3pm

If none of these times work, I'll look further out in our calendars.

Thanks.

From: Jeffrey Sheldon
Sent: Monday, September 12, 2022 8:38 AM
To: Armistead, Bruce@HSR <Bruce.Armistead@hsr.ca.gov>
Subject: Palmdale to Burbank DEIR

Bruce:

4128-7528

Good morning.

I see the Palmdale to Burbank DEIR has been published.

I was wondering if you would be willing to have a meeting with us and walk through any interfaces/interactions between the Preferred Alternative and UP's operations?

Below are some dates/times that work for us to meet (all times are PST):

9/15: 10-11am
9/15: noon-1pm
9/15: 2-3pm
9/19: noon-3pm

Please let me know if any of these times work for you. I'll be happy to send out a meeting invitation.

If none of these times work, I'll look further out in our calendars.

Thanks.

Jeff Sheldon
General Director – Network Development
WA, OR, CA, AZ
Union Pacific Railroad
(402) 544-0674
jdsheldo@up.com

Response to Submission 4128 (Jeff Sheldon, Union Pacific Railroad, September 27, 2022)

4128-7526

The commenter requested information about the interfaces/interactions between the Preferred Alternative and UP's operations and the potential to schedule a meeting. As discussed in Section 2.5.1.6. of this EIR/EIS, the freight rail system in the Palmdale to Burbank Project Section is operated by UPRR and BNSF. As discussed in Section 2.5.2., the Preferred Alternative would require the acquisition of rail right-of-way from MP 67.2 to MP 69.1, which is a UPRR parcel up to 25 feet wide to the south. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

4128-7527

The commenter noted their availability for a meeting with Authority staff. The Authority met with the commenter (Union Pacific Railroad) on October 10, 2022, and responded to their questions and provided them with publicly available materials regarding the project. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration, Procedures for Considering Environmental Impacts, section 14(s), 64 Fed. Reg. 28548, 28556 (May 26, 1999)). The commenter has not provided a comment on environmental issues.

4128-7528

The commenter requested information about the interfaces/interactions between the Preferred Alternative and UPRR's operations and the potential to schedule a meeting. As discussed in Section 2.5.1.6. of the Draft EIR/EIS, the freight rail system in the Palmdale to Burbank Project Section is operated by UPRR and BNSF. As discussed in Section 2.5.2 of the Draft EIR/EIS, the Preferred Alternative would require the acquisition of rail right-of-way at from MP 67.2 to MP 69.1, which is a UPRR parcel up to 25 feet wide to the south. Regarding the request for a meeting, the Authority met with the commenter (Union Pacific Railroad) on October 10, 2022, and responded to their questions and provided them with publicly available materials regarding the project. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration, Procedures for Considering Environmental Impacts, section 14(s), 64 Fed. Reg. 28548, 28556 (May 26, 1999)). The commenter has not provided a comment on environmental issues.

Submission 4129 (Gail Joyce, Acton Agua Dulce News, September 28, 2022)

Palmdale - Burbank - RECORD #4129 DETAIL

Status :	Action Pending
Record Date :	9/28/2022
Interest As :	Business and/or Organization
First Name :	Gail
Last Name :	Joyce

Stakeholder Comments/Issues :

4129-7501

This is Gayle Joyce with the Acton/Agua Dulce News. And I understand that there is a high-speed rail meeting in Acton on October 8th. And that it is open for the community. However, we did not receive any kind of a notice to put in the paper to announce it to the community. Is this a private meeting? I don't think so. But please get back with me. My telephone number is [redacted], that's my cell. And I'm working on the issue for October 3rd so I could get an announcement in the paper. Please call me back. Gayle Joyce. Thank you.

Response to Submission 4129 (Gail Joyce, Acton Agua Dulce News, September 28, 2022)

4129-7501

Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS.

The commenter inquired about the in person meeting that occurred on October 8th, 2022 and noted they did not receive a notice about the event. The Authority provided a broad notice of the availability of the Draft EIR/EIS and in person meetings. Notification efforts included an e-blast, notification through social media channels, and promotion through local newspapers in English and Spanish. The Notice of Availability included information about how to join the open house. Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS which provides additional information regarding the outreach efforts conducted by the project team. The comment does not address technical analysis in the Draft EIR/EIS or suggest edits to the document. No change has been made to the document in response to this comment.

Submission 4180 (June Perkins, Acton Town Council, October 8, 2022)

Palmdale - Burbank - RECORD #4180 DETAIL

Status :	No Action Required
Record Date :	10/8/2022
Interest As :	Business and/or Organization
First Name :	June
Last Name :	Perkins

Stakeholder Comments/Issues :

4180-7559 Thank you for today's meeting. Questions were entertained, considered, and important concerns were addressed.

Response to Submission 4180 (June Perkins, Acton Town Council, October 8, 2022)

4180-7559

The commenter noted that questions were entertained and considered, and important concerns were addressed during the meeting. The commenter's feedback on the meeting is appreciated. The comment does not address technical analysis in the Draft EIR/EIS or suggest edits to the document. No change has been made to the document in response to this comment.

Submission 4188 (Kimberly Bick, Bick Law LLP, October 11, 2022)

Palmdale - Burbank - RECORD #4188 DETAIL

Status :	Action Pending
Record Date :	10/11/2022
Interest As :	Individual
First Name :	Kimberly
Last Name :	Bick

Stakeholder Comments/Issues :

4188-7588 I am trying to access the draft EIS for the Palmdale to Burbank Project Section. Can you provide?

Kimberly Bick
Partner

[A picture containing text Description automatically generated]

520 Newport Center Drive Suite 750
Newport Beach. CA 92660
Direct: (949) 432-3502
Cell: (949) 363-3057
Email: kbick@bicklawllp.com<mailto:kbick@bicklawllp.com>

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This message may contain confidential and privileged information. If it has been sent to you in error, please reply to advise the sender of the error and then immediately delete this message.

Response to Submission 4188 (Kimberly Bick, Bick Law LLP, October 11, 2022)

4188-7588

Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS.

Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS. The commenter requested access to the Draft EIR/EIS. The commenter's request was responded to by the Authority. Refer to PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)).CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

Submission 4198 (Wendy Schiff, Antelope Valley Conservancy, October 18, 2022)

Palmdale - Burbank - RECORD #4198 DETAIL

Status :	Delimited
Record Date :	10/18/2022
Interest As :	Business and/or Organization
First Name :	Wendy
Last Name :	Schiff
Attachments :	PB_4198_A_Conservancy_Website-Orignal LTR_HSR_Support_Alternative_SR14A_October_2022.pdf (203 kb) PB_4198_A_Conservancy_Project_Email_Original.pdf (199 kb)

Stakeholder Comments/Issues :

Please find attached Antelope Valley Conservancy's public comment for the Burbank to Palmdale Segment of the HSR.

Sincerely,
Wendy Schiff, Administrative Assistant

Antelope Valley Conservancy
P.O. Box 8
Lake Hughes, CA 93532-0008
(661) 943-9000
www.avconservancy.org
This email is private and confidential, intended for addressee only. It is not to be forwarded or distributed.

4198-8718

ANTELOPE VALLEY CONSERVANCY
Post Office Box 8
Lake Hughes, CA 93532-0008
Tele (661) 943-9000
www.avconservancy.org avconservancy@yahoo.com

October 6, 2022

California High-Speed Rail Authority
Attn: LaDonna DiCamillo, Southern California Regional Director
355 S. Grand Avenue, Suite 2050
Los Angeles, CA 90071

Re: Palmdale to Burbank Segment, Support for Alternative SR14A in southern Palmdale

Ms. DiCamillo and Members, High Speed Rail Authority:

Thank you for this opportunity to express the Antelope Valley Conservancy's support of the preferred alignment through southern Palmdale, designated as Alternative SR14A.

For over a decade, AVC has advocated for the High Speed Rail project to find route alternatives that would avoid impacts to Una Lake, the surrounding wetland complex, and wildlife connectivity in this critical wetland area. AVC is grateful to see that the Build Alternative SR14A for the Palmdale to Burbank segment of the HSR would accomplish these goals. **Therefore, we strongly support the refined SR14A Build Alternative in southern Palmdale and encourage you to approve this route.**

Founded in 2005, Antelope Valley Conservancy is a California public benefit corporation with the primary mission of preserving natural habitat lands for the public good. AVC has been authorized by the California Department of Fish & Wildlife to Hold Mitigation Lands and Endowments since 2008 and has fulfilled mitigation preservation and restoration services for CDFW, the State Water Boards, local counties and cities, as well as local government agencies and private landowners.

Antelope Valley Conservancy truly appreciates your consideration in leaving this small, historic lake and critical wetlands intact when constructing the High Speed Rail.

By Resolution of the
Board of Directors
ANTELOPE VALLEY CONSERVANCY

Attested By Christina Andrews
Corporate Secretary

Response to Submission 4198 (Wendy Schiff, Antelope Valley Conservancy, October 18, 2022)

4198-8718

The commenter expresses support for the Preferred SR14A Build Alternative and encourages the HSRA to approve the Preferred SR14A Build Alternative alignment. The commenter's support is acknowledged.

Submission 4230 (Clyde T. Williams, Citizens Coalition for A Safe Community, November 1, 2022)

Palmdale - Burbank - RECORD #4230 DETAIL

Status :	No Action Required
Record Date :	11/1/2022
Interest As :	Business and/or Organization
First Name :	Clyde T.
Last Name :	Williams

Stakeholder Comments/Issues :

4230-8487 Palmdale-Burbank must first consider a dead straight tunnel from Palmdale to Burbank with appropriate access/ventilation shafts as Open/Rock transitions have too great of impacts and expense. Then compare all other alternatives quantitatively to this base case. Numerical comparisons must be based on a clear set of Goals (1-3) Objectives (10-20), and policies/programs. Current text does not comply with CEQA. Draft EIRs must include a draft mitigation, monitoring, and reporting Plan.

Response to Submission 4230 (Clyde T. Williams, Citizens Coalition for A Safe Community, November 1, 2022)

4230-8487

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process.

The commenter recommends the Draft EIR compare the Build Alternatives against an HSR alignment that would directly tunnel from Palmdale to Burbank. The commenter also suggests that a draft mitigation, monitoring, and reporting plan is required under CEQA. The Authority evaluated and considered many Build Alternatives during the development process of alternatives. Alternatives to be carried forward must first be determined to be feasible from a constructability and technology standpoint. A straight alternative as proposed in the comment is not considered feasible as the design must consider various constraints, which include existing conditions such as topography, geology, and environmental factors as well as design constraints such as profile grade. Please refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process for a discussion of how the Authority evaluated and screened various Build Alternatives before determining the alternatives to be studied in the EIR/EIS and why the SR14A Build Alternative was selected as the preferred alternative. While numerical comparisons are included in the EIR/EIS wherever feasible and necessary for disclosure of environmental impacts, including, but not limited to, transportation, air quality, and noise, quantitative analysis is not always possible or appropriate. In these cases, CEQA allows for qualified analysis based on thresholds. Each impact analyzed within the EIR/EIS includes defined thresholds and presents the appropriate analysis to determine the potential for impacts. Further, CEQA does not require quantified analysis or comparisons to be tied to a clear set of goals, objectives or policies. As required under CEQA, the Draft EIR/EIS compares the project Build Alternatives against the No Project Alternative and includes a reasonable range of alternatives. An MMRP will be prepared prior to potential decision-making on the project, and in preparation for the Record of Decision.

Submission 4234 (Jacqueline Ayer, Acton Town Council, October 21, 2022)

Palmdale - Burbank - RECORD #4234 DETAIL

Status : Delimited
Record Date : 11/2/2022
Interest As : Business and/or Organization
First Name : Jacqueline
Last Name : Ayer

Attachments :

Stakeholder Comments/Issues :

4234-10282

Hello Genoveva!

We are working feverishly on our DEIR comments, and find some clarification is needed regarding the tunnel construction plan and I am hoping you will forward this email to the Engineers for further clarification. Specifically, I cannot find in the EIR where there is a description of TBM start and stop locations, but from the meeting on Sept 27, it sounded like:

A) For the SR14 A alternative, 2 TBMs will begin tunneling from the Acton Window. If true, will they be tunneling toward Palmdale (in which case there will be no TBMs tunneling from Palmdale toward Acton)? Or will they be tunnelling toward Agua Dulce (in which case there will be two TBMs tunneling from Palmdale toward Acton and the TBMs in Agua Dulce will be tunneling from the point west of Agua Dulce Canyon road toward Santa Clarita)?

B) For the Refined SR14 alternative: 2 TBMs will begin tunneling from Acton and 2 TBMs will begin tunneling from Agua Dulce. If true, will the TBMs that start in Acton be tunneling toward Palmdale (in which case there will be no TBMs tunneling from Palmdale toward Acton)? Or will they be tunnelling toward Agua Dulce (in which case there will be two TBMs tunneling from Palmdale toward Acton and the TBMs in Agua Dulce will be tunneling from the point west of Agua Dulce Canyon road toward Santa Clarita)?

C) For the E routes, Acton will have 4 tunnel portals and one window (located on the property owned by TNC); for these alternatives, where will the TBMs start and in which direction will they be tunnelling?

These questions are important because they will largely dictate the source of water used for tunnel construction. Until we understand the actual tunnel construction plan, it is not possible to provide substantive or cogent comments on the project.

Thank you for your time and assistance
Jacqueline Ayer
Correspondence Secretary

Response to Submission 4234 (Jacqueline Ayer, Acton Town Council, October 21, 2022)

4234-10282

The commenter has several comments regarding tunnel construction sequence in the Acton area.

For the SR14A Build Alternative, two TBMs (one for each tube of the twin bored tunnel) will be assembled at the Intermediate Window near Acton and will excavate the tunnel towards Palmdale. These TBMs will be dismantled at the portal located approximately 1.5 miles south of the California aqueduct. No TBMs will be tunneling in the direction from Palmdale to Acton. Also two TBMs (one for each tube of the twin bored tunnel) will be assembled at the portal just south of Vasquez Rocks and east of Agua Dulce Canyon Rd and will excavate the tunnel towards Acton. These TBMs will be dismantled at the Intermediate Window near Acton.

For the Refined SR14 Build Alternative, two TBMs (one for each tube of the twin bored tunnel) will be assembled at the tunnel portal east of Red Rover Mine Rd and will excavate the first tunnel towards Palmdale. These TBMs will be dismantled at the portal located just north the California Aqueduct. No TBMs will be tunneling in the direction from Palmdale to Acton. Also two TBMs (one for each tube of the twin bored tunnel) will be assembled at the portal near Big Springs Rd in Agua Dulce and will excavate the second tunnel towards Acton. These TBMs will be dismantled at the portal west of the intersection between Escondido Canyon Rd and 53rd St W near Acton.

For the E Build alternatives (E1, E1A, E2 and E2A), since all of them have the same alignment in the northern section of the project the construction sequence will be the same for all of them in the northern tunnels. Two TBMs (one for each tube of the twin bored tunnel) will be assembled at the Intermediate Window located in Arrastre Canyon and will excavate southwards towards the San Fernando Valley. The section of the tunnel between Aliso Canyon and Arrastre Canyon (2.3 miles) would be a mined tunnel excavated through conventional methods, since TBMs are more efficient for long tunnels, over 3 miles long.

Submission 4247 (Liliana Sanchez, Big Tujunga Canyon Organization, October 18, 2022)

Palmdale - Burbank - RECORD #4247 DETAIL

Status :	No Action Required
Record Date :	11/8/2022
Interest As :	Business and/or Organization
First Name :	Liliana
Last Name :	Sanchez

Stakeholder Comments/Issues :

4247-7768 Hi.· My name is Liliana Sanchez.· I'm a local activist here in Sunland Tujunga, and I'm with Save Big Tujunga Canyon Organization.

I'm speaking today to oppose all routes.

The deep bore tunneling through our Angeles National Forest, this tunneling will impact the Angeles National Forest by dewatering.· This project will jeopardize our

4247-7769 natural mountain springs, Big Tujunga Wash and the Haines Canyon Creek, which are key parts of Los Angeles water supply, also net pollution and damage to our forest wildlife, loss of habitat by impeding migration patterns from our -- from excessive noise by construction areas.

Just further, we -- our environment is being jeopardized right now by climate warming, and we need to protect our wildlife, our fauna, wild fauna.· So please -- this is a terrible project and especially during this time.· So further information on how will our wildlife be impacted as well -- and our water, the most precious resource that we have.

Thank you and look forward to hearing more from you.

hands or choose star 9 on your phone in order to indicate that you're ready to provide a public comment.

Now, I see an additional hand raised in the queue. Up next, we have Liliana Sanchez. So I'd like to recognize you, Liliana. If you can please make sure you're unmuted, and state your name fully, any affiliation, and go right ahead to provide us your public comment.

THE PUBLIC SPEAKER: Hi. My name is Liliana Sanchez. I'm a local activist here in Sunland Tujunga, and I'm with Save Big Tujunga Canyon Organization.

I'm speaking today to oppose all routes. The deep bore tunneling through our Angeles National Forest, this tunneling will impact the Angeles National Forest by dewatering. This project will jeopardize our natural mountain springs, Big Tujunga Wash and the Haines Canyon Creek, which are key parts of Los Angeles water supply, also net pollution and damage to our forest wildlife, loss of habitat by impeding migration patterns from our -- from excessive noise by construction areas.

Just further, we -- our environment is being jeopardized right now by climate warming, and we need to protect our wildlife, our fauna, wild fauna. So please -- this is a terrible project and especially

Submission 4247 (Liliana Sanchez, Big Tujunga Canyon Organization, October 18, 2022) - Continued

during this time. So further information on how will our wildlife be impacted as well -- and our water, the most precious resource that we have.

Thank you and look forward to hearing more from you.

MS. ARELLANO: Liliana, thank you very much for participating today and for your comment. Thank you.

I'd like to encourage anyone else who's in attendance, if you are ready to provide a public comment, please do so. Please indicate by raising your hand on screen or by choosing star 9 on your phone.

There are a variety of ways for the Authority to receive your formal comment during the public comment period of the Palmdale to Burbank Project section. We are currently in our formal public comment period which lasts 90 days. It commenced on Friday, September 2nd, and was extended an additional 30 days now ending on Thursday, December 1st.

We have five different ways for you to provide public comment, today being one of the ways folks who like to provide oral comment, and this virtual public hearing is designed to receive the public's oral public comments on the project at any time this evening until eight o'clock.

Please raise your hand by choosing that

Response to Submission 4247 (Liliana Sanchez, Big Tujunga Canyon Organization, October 18, 2022)

4247-7768

Commenter is concerned with impacts associated with tunneling. Section 3.8.6.3 of the EIR/EIS indicates that while project construction could temporarily affect groundwater conditions in certain High Risk Areas, this effect would not interfere substantially with groundwater recharge such that the project may impede sustainable groundwater recharge in a groundwater basin. Additionally, groundwater intrusion into tunnels would be mitigated by HYD-IAMF#5 (tunnel boring machine design features), HYD-IAMF#6 (tunnel lining systems), and HYD-IAMF#7 (grouting), therefore, mitigating the depletion of groundwater resources due to tunnel construction.

4247-7769

Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter expresses concerns related to water supply, pollution, noise, climate warming, flora and fauna, wildlife connectivity, and crossing opportunities. The commenter is also concerned about impacts to natural mountain springs, Big Tujunga Wash and the Haines Canyon Creek. Big Tujunga Wash and the Haines Canyon Creek are only crossed by alternatives E2 and E2A, which are not the preferred alternative. The commenter also feels the project is a terrible project during this time. As described in the WCA, over 80 percent of the project is permeable for wildlife movement since most of the project would be constructed underground in tunnels or elevated on viaducts, which would not have adverse noise effects on wildlife. Wildlife would be exposed to noise with the potential to alter behavior where the alignment would occur above ground and the threshold for disturbance (that noise levels above 100 decibels (dBA) Sound Exposure Level (SEL)) is met. As discussed in PB-Response-N&V-3, these impacts would be effectively reduced with implementation of Mitigation Measure N&V-MM#8. The effect of tunneling under the Angeles National Forest, and the associated hydrogeological impacts, are evaluated in the EIR/EIS. This analysis and its results are further explained in PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest. Section 3.8, Hydrology and Water Resources, describes the IAMFs and mitigation measures, such as HYD-IAMF#3, that would be implemented to reduce or avoid any contamination or polluted runoff with the potential to degrade water quality.

See Section 3.3, Air Quality and Global Climate Change, for the Global Climate Change Effect Analysis that was conducted for the project. The analysis found that after a maximum of 6 months, the Build Alternatives would result in net annual emissions reductions and a GHG benefit.

Submission 4303 (Anitra Kass, Pacific Crest Trail Association, November 21, 2022)

Palmdale - Burbank - RECORD #4303 DETAIL

Status :	No Action Required
Record Date :	11/21/2022
Interest As :	Business and/or Organization
First Name :	Anitra
Last Name :	Kass
Attachments :	PCTA Comment Palmdale to Burbank Draft EIR-EIS.pdf (163 kb)

Stakeholder Comments/Issues :

To Whom It May Concern,
I have attached our comment pertaining to the Palmdale to Burbank Draft EIR/EIS.
Thank you,
Anitra

Anitra Kass (she/her)
why pronouns matter<https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.mypronouns.org%2Fwhat-and-why&data=04%7C01%7Cakass%40pcta.org%7C7262204ea8294217606a08d926170790%7C6f0721fe2c0e4f08b9cc3320aa6e0ea1%7C0%7C0%7C637582702621651208%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=JEirV2ykmdCLTzLdbSqMBHHvJ7kUtsfLptUoACtNtaQ%3D&reserved=0>
Southern California Regional Representative
Pacific Crest Trail Association
916-285-1846 main line
951-257-4100 direct line
www.pcta.org<http://www.pcta.org/>

Ensure the future of the PCT by including the PCTA in your estate plans.

[cid:image001.png@01D8FD9A.89D0C0E0]

Pacific Crest Trail Association

November 21, 2022

Southern California Regional Office
Attn: Palmdale to Burbank Draft EIR/EIS Comment
355 S. Grand Avenue Suite 2050
Los Angeles, CA 90071

This letter submitted to: Palmdale_Burbank@hsr.ca.gov

RE: Pacific Crest Trail Association Palmdale to Burbank Draft EIR/EIS Comment

To Whom It May Concern:

4303-7840

We are submitting this comment in response to the Palmdale to Burbank Project Section Draft EIR/EIS on behalf of the 15,400 member Pacific Crest Trail Association (PCTA). PCTA is the primary private partner in the management and maintenance of the Pacific Crest National Scenic Trail (PCT). PCTA is part of a long-standing partnership with the USDA Forest Service, California State Parks, the National Park Service, and the Bureau of Land Management that is formalized in a Memorandum of Understanding (15-MU-11132424-003). The foundation for this private-public partnership in the operation of National Scenic Trails (NSTs) is rooted in the 1968 National Trails System Act. Section 11 of the Act, titled "Volunteer Trails Assistance" states in Sec. 11(a), "… the head of any Federal agency administering Federal lands, are authorized to encourage volunteers and volunteer organizations to plan, develop, maintain, and manage, where appropriate, trails throughout the Nation." As the Authority is aware, PCTA, Bureau of Land Management and the Angeles National Forest have a strong partnership with the management and maintenance of the PCT.

We appreciate the opportunity to work collaboratively with the Authority to ensure that the project meets the purpose and needs, while still protecting the nature and purposes for which the PCT was designated a National Scenic Trail. The PCT's nature and purposes are documented on page 9 of the **PCT Foundation Document.** Additionally, the trail's significance and fundamental resources and values, which build from the nature and purposes statement, are detailed in the Foundation Document. Our comments are to ensure that project activities and impacts are minimized on the PCT and the recreation opportunities the trail provides.

4303-7841

We have no objections or concerns for SR14A, E1, E1A, and E2A Build Alternatives, as they intersect the PCT with alignments located in a tunnel several hundred feet below the ground, thereby crossing underneath the PCT and precluding surface impacts to the trail and trail experience.

If Refined SR14 is decided upon as the final alternative, then PCTA would need to revisit previous conversations about realignment of the trail to sufficiently mitigate the project's impacts on the trail and to the trail experience. Should we need to pursue this option, PCTA is confident in the agreed upon alternate trail alignment, however we must

2150 River Plaza Dr.
Sacramento, CA 95833
916-285-1846 (Main Office)
www.pcta.org

Submission 4303 (Anitra Kass, Pacific Crest Trail Association, November 21, 2022) - Continued

Pacific Crest Trail Association

4303-7841 confirm details and mitigation funds and determine if needed land acquisition is a feasible option.

4303-7842 My only concern is page 4-95 of Chapter 4 Draft Section 4(f) and Section 6(f) Evaluations. Table 4-6 Parks and Recreation: Summary of Preliminary Section 4(f) Use Determinations indicates that, regarding the PCT, Refined SR14 is "no use" and SR14A is "de minimis". On page 4-76 of the document under ***Preliminary Summary of Findings*** it states "Refined SR14A Build Alternative would be *de minimis* because the features and attributes that qualify the resources for protection under Section 4(f) would not be diminished." This inconsistent language needs to be corrected and clarified.

4303-7843 While PCTA's priority must be the experience offered by the PCT to the public, we are committed to working with the Authority to ensure the purposes of this project are met while protecting the PCT experience.

As always, the PCTA wishes to offer our assistance as this project moves forward.

Thank you,



Anitra I. Kass
Southern California Regional Representative
Pacific Crest Trail Association

CC: Justin Kooyman, PCTA, Associate Director of Trail Operations
Lindsey Steinwachs, U.S. Forest Service, Pacific Crest Trail Program Administrator

Response to Submission 4303 (Anitra Kass, Pacific Crest Trail Association, November 21, 2022)

4303-7840

Refer to Standard Response PB-Response-PR-1: Impacts on the Pacific Crest Trail (Refined SR14 Build Alternative Only).

This commenter presents introductory material and reiterates the importance of ensuring that project activities and impacts are minimized on the Pacific Crest Trail (PCT) and to the recreation opportunities the trail provides. The Authority appreciates the comments received from the Pacific Crest Trail Association (PCTA). Please refer to Responses to Comments #7841 through #7843 for additional discussion of the PCT. The only Build Alternative that would cross the PCT at grade and impact the trail is the Refined SR14 Alternative. This is not the Authority's Preferred Alternative. As discussed in Chapter 8, Preferred Alternative and Station Sites of the Draft EIR/EIS, the Authority's Preferred Alternative is the SR14A Alternative, which would cross the PCT underground in a bored tunnel and would have no effect on the existing trail. Please also refer to Standard Response PB-Response-PR-1: Impacts on the Pacific Crest Trail (Refined SR14 Build Alternative Only) for additional discussion of the impacts associated with the Refined SR14 Build Alternative. The Authority will continue to coordinate with the PCTA and will notify the public as the project moves forward.

4303-7841

Refer to Standard Response PB-Response-PR-1: Impacts on the Pacific Crest Trail (Refined SR14 Build Alternative Only).

The commenter expresses no objections to the SR14A, E1, E1A, and E2A Build Alternatives. The commenter indicates that, if the Authority selects the Refined SR14 Build Alternative as the preferred alternative, then the Pacific Crest Trail Association (PCTA) would need additional coordination with the Authority related to realignment of the Pacific Crest Trail (PTC). The PCTA also expresses confidence in the agreement made with the Authority regarding the trail realignment. Additional information regarding the PCT realignment can be found in Table 3.15-4 in Section 3.15 of the Draft EIR/EIS, and in Standard Response PB-Response-PR-1: Impacts on the Pacific Crest Trail (Refined SR14 Build Alternative Only). The Authority expects that the Refined SR14 Build Alternative would not inhibit access or the desirability of the PCT overall, to the extent that it would decrease use. It would not increase or decrease PCT use and would not lead to physical deterioration of the PCT. The Authority acknowledges coordination with the PCTA regarding the PCT realignment in Standard Response PB-Response-PR-1: Impacts on the Pacific Crest Trail (Refined SR14 Build Alternative Only).

4303-7842

The commenter notes inconsistencies in Table 4-6 in the Draft EIR/EIS with regard to the findings for the Pacific Crest Trail (PCT). The commenter is correct, Table 4-6 in the Draft EIR/EIS incorrectly labeled the Refined SR14 Build Alternative as "No Use" and the SR14A Build Alternative as a "de minimis impact." The analysis explains that the Refined SR14 Build Alternative would result in a de minimis impact because it would require relocating a portion of the PCT. All other Build Alternatives would cross the PCT in a bored tunnel, which would not result in any impacts at the surface or to the trail and as such no use would occur. Table 4-6 in the Final EIR/EIS has been revised to correctly note that the Refined SR14 Build Alternative would result in a de minimis impact on the PCT and that the SR14A Build Alternative would result in no use of the PCT. The SR14A Build Alternative is the Authority's Preferred Alternative.

Response to Submission 4303 (Anitra Kass, Pacific Crest Trail Association, November 21, 2022) - Continued

4303-7843

Refer to Standard Response PB-Response-PR-1: Impacts on the Pacific Crest Trail (Refined SR14 Build Alternative Only).

The commenter expresses willingness to work with the Authority to ensure project objectives are met and the Pacific Crest Trail (PCT) experience is protected. The Authority appreciates the opportunity to work with the Pacific Crest Trail Association (PCTA). The only Build Alternative that would cross the PCT at grade and impact the trail is the Refined SR14 Build Alternative. This is not the Authority's Preferred Alternative. As discussed in Chapter 8, Preferred Alternative and Station Sites of the Draft EIR/EIS, the Authority's Preferred Alternative is the SR14A Build Alternative, which would cross the PCT underground in a bored tunnel and would have no effect on the existing trail. Please refer to Standard Response PB-Response-PR-1: Impacts on the Pacific Crest Trail (Refined SR14 Build Alternative Only) for additional discussion of the impacts associated with the Refined SR14 Build Alternative. Also refer to Section 3.15, Parks, Recreation, and Open Space, of the Draft EIR/EIS for a discussion regarding mitigation measures that would be implemented to avoid and mitigate potential impacts to the PCT during project construction.

Submission 4313 (Christopher Palas, California Public Utilities Commission, November 22, 2022)

Palmdale - Burbank - RECORD #4313 DETAIL

Status :	Action Pending
Record Date :	11/22/2022
Interest As :	Business and/or Organization
First Name :	Christopher
Last Name :	Palas
Attachments :	SCH 2014071074 California High Speed Rail Palmdale to Burbank.pdf (138 kb)

Stakeholder Comments/Issues :

4313-7832

Dear HSR:

The California Public Utilities Commission has jurisdiction over rail crossings in California. The Commission's Rail Crossings Engineering Branch is in receipt of the joint document Palmdale to Burbank Project Section Draft Environmental Impact Report (EIR / Environmental Impact Statement (EIS).

Please accept and review the attached comment letter regarding this project. You may contact me with any questions or concerns.

Thank You,

[cid:image003.png@01D8FE8E.8D8E3D30]Christopher Palas
Utilities Engineer
Rail Crossings & Engineering Branch - Rail Safety Division
California Public Utilities Commission
320 W 4th St, Suite 500 | Los Angeles, CA 90013
Cell (213) 999-3403

From: Palas, Christopher
Sent: Tuesday, November 22, 2022 3:49 PM
To: serge.stanich@hsr.ca.gov
Cc: state.clearinghouse@opr.ca.gov; Kenneth Tom <ktom@up.com>; huangd@scrra.net; Clugston, Roger N. <roger.clugston@cpuc.ca.gov>; Truong, Anh <Anh.Truong@cpuc.ca.gov>; Bond, Matthew <Matthew.Bond@cpuc.ca.gov>
Subject: CPUC Comment Letter to SCH No. 2014071074 Draft EIR/EIS

Dear Serge Stanich:

The California Public Utilities Commission has jurisdiction over rail crossings in California. The Commission's Rail Crossings Engineering Branch is in receipt of the joint document Palmdale to Burbank Project Section Draft Environmental Impact Report (EIR / Environmental Impact Statement (EIS).

Please accept and review the attached comment letter regarding this project. You may contact me with any questions or concerns.

Thank You,

[cid:image004.png@01D8FE8E.8D8E3D30]Christopher Palas
Utilities Engineer
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California Public Utilities Commission
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Cell (213) 999-3403

Submission 4313 (Christopher Palas, California Public Utilities Commission, November 22, 2022) - Continued

STATE OF CALIFORNIA — Gavin Newsom, *Governor*

PUBLIC UTILITIES COMMISSION
320 WEST 4TH STREET, SUITE 500
LOS ANGELES, CA 90013

4313-7836

November 22, 2022

CORS2022110004

Mr. Serge Stanich
California High-Speed Rail Authority
770 L Street, Suite 620, MS-1
Sacramento, CA 95814

Re: California High-Speed Rail – Palmdale to Burbank Project Section
SCH 2014071074 — *Draft Environmental Impact Report / Environmental Impact Statement*

Dear Mr. Serge Stanich:

4313-7833

The California Public Utilities Commission (Commission/CPUC) has jurisdiction over rail crossings (crossings) in California. CPUC ensures that crossings are safely designed, constructed, and maintained. The Commission's Rail Crossings Engineering Branch (RCEB) is in receipt of the *Draft Environmental Impact Report (DEIR) / Environment Impact Statement (EIS)* for the proposed California High-Speed Rail – Palmdale to Burbank Project Section. California High-Speed Rail Authority (Authority) is the lead agency.

The Palmdale to Burbank Project Section will provide a High-Speed Rail (HSR) connection from the city of Palmdale near the vicinity of Spruce Court just west of Sierra Highway in the north, to the city of Burbank in the south. The Palmdale to Burbank Project Section includes a station in the city of Burbank near the Hollywood Burbank Airport (formerly Bob Hope Airport). Chapter 2 of the DEIR/EIS outlines the Palmdale to Burbank (P-B) Build Alternatives SR14, SR14A, E1, E1A, E2, and E2A. The DEIR/EIS states that the Preferred Alternative for the proposed project is the SR14A Build Alternative, which includes the Burbank Station (Refer to Chapter 8, Preferred Alternative and Station Sites).

4313-7834

CPUC General Orders set forth regulations governing construction and design for new crossings or alteration of existing crossings. As such, DEIR/EIS Appendix 2-A Roadway and Grade Separation and Appendix 2-B Railroad Crossings should include CPUC General Orders under Applicable Design Standards for alteration of existing state and local roadways.

CPUC General Order (GO) 88-B establishes criteria for altering existing crossings, including roadway realignment, reconstruction or modification of grade-separated structures, and construction of a grade-separated structure that eliminates an existing grade crossing. The Authority will be required to submit a GO 88-B request for alteration of each existing crossing on the corridor unless an application to the Commission is required. Requests to alter existing crossings may be approved by RCEB staff, provided completion of request as outlined in GO 88-B, Section 5, and consensus among parties. Roadways closed at the HSR corridor may require GO 88-B authorization if a nearby grade crossing remains in place. Under Commission GO 75-D, CPUC shall be notified of the closure of any existing crossings.

GO 88-B also establishes cases for which the Authority must apply to the Commission for authorization, including construction of new highway-rail or rail-rail crossings. Refer to the CPUC Rules of Practice and Procedure (www.cpuc.ca.gov/rpp/), Rule 3.9 Railroad Across Public Road and Rule 3.10 Railroad Across Railroad, for new crossing application requirements. You may consult with RCEB staff to determine the need for authorization by GO 88-B or by formal application to the Commission at each proposed crossing on the corridor.

4313-7835

DEIR/EIS Chapter 2: Alternatives and Chapter 8: Preferred Alternative and Station Sites detail proposed typical cross-sections with minimum clearances. All grade-separated structures, including rail-rail structures, are subject to minimum vertical and horizontal clearance requirements outlined in Commission GO 26-D, Section 2, Section 3, and Section 4. Clearance between parallel tracks is governed by GO 26-D, Section 5. Public roads, highways, and streets crossing under tracks and over tracks are subject to GO 26-D, Section 12 and Section 13, respectively.

Serge Stanich
SCH 2014071074
November 22, 2022

The overhead contact system (OCS) powering the HSR is subject to clearance requirements stated in GO 95 and GO 176. Construction and maintenance of walkways adjacent to track is subject to Commission GO 118-A, which details standards for vegetation abatement, surface materials, slope, track clearance, and width. GO 72-B details the rules governing the construction and maintenance of crossings at grade of railroads with public streets, roads, and highways.

4313-7837

A diagnostic meeting is required for each crossing alteration or construction. The diagnostic team consists of representatives from the railroads, roadway agencies, local government agencies, CPUC, and other stakeholders. You may contact RCEB staff to schedule diagnostic meetings and to discuss preliminary designs of all proposed crossings. Section 3.2.7 Mitigation Measures includes considerations for changes to traffic signal operations and roadway alignments during construction, including existing highway-rail crossings approaches. Such alterations to crossing roadway approaches and traffic signal phasing or preemption timing require CPUC review and may require GO 88-B authorization prior to implementation.

4313-7838

Appendix 2-A provides plans sheets for roadway, grade separations, access roads and Appendix 2-B: Railroad Crossings, lists proposed roadway crossings of high-speed rail, modifications, and closures. According to GO 75-D, Section 2, CPUC's policy is to reduce the number of at-grade crossings of freight and passenger railroad mainlines. RCEB recommends that the entire HSR corridor be grade separated with no at-grade highway-rail crossings. Grade separated crossings provide a greater level of safety, for both the roadway users as well as railroad employees, than at-grade highway-rail crossings.

4313-7839

Please continue to keep RCEB informed of the project's development. If you have any questions or require clarification on CPUC's role in rail crossings projects, you may contact Chris Palas at Christopher.palas@cpuc.ca.gov.

Sincerely,



Chris Palas
Utilities Engineer
Rail Crossings and Engineering Branch
Rail Safety Division

CC: State Clearinghouse, state.clearinghouse@opr.ca.gov
Kenneth Tom (UPRR), ktom@up.com
David Huang (Metrolink), huangd@scrra.net
Roger Clugston (CPUC), roger.clugston@cpuc.ca.gov

Response to Submission 4313 (Christopher Palas, California Public Utilities Commission, November 22, 2022)

4313-7832

The commenter confirmed receipt of the Palmdale to Burbank Project Section Draft EIR/EIS and provided an attachment featuring comments on the Draft EIR/EIS. No change has been made to the document in response to this comment.

4313-7833

The commenter defined the jurisdiction of the California Public Utility Commission over rail crossings in California, and also reiterated HSR project alternatives from the Draft EIR/EIS. The comment is acknowledged. No change has been made to the document in response to this comment.

4313-7834

The commenter states that the Authority would be required to submit a General Order (G.O.) 88-B request to the California Public Utilities Commission (CPUC) for alteration of an existing crossing on the corridor, unless an application to the Commission is required. It also states that the CPUC requires the Authority to apply for authorization to construct new highway-rail or rail-rail crossings. This discussion has been added to the EIR/EIS for consistency. The Authority will follow the steps required by CPUC prior to design approval. Refer to Table 2-39 in Chapter 2 of this Final EIR/EIS which identifies the approvals required from the CPUC to construct the project.

4313-7835

The commenter noted the project would need to adhere to California Public Utilities Commission, Commission GO 26-D. As noted in Chapter 2, Alternatives of the Final EIR/EIS, if the engineering design for new or upgraded SCE facilities results in new or different significant environmental impacts, the Authority would comply with NEPA and CEQA as applicable, including evaluating the potential for an environmental reexamination and/or a Supplemental EIR/EIS, prior to engaging with the California Public Utilities Commission permit application process.

4313-7836

The commenter noted the project would need to adhere to California Public Utilities Commission, Commission GO 72-B, 95, 118-A, and 176.As noted in Chapter 2, Alternatives of the final EIR/EIS, if the engineering design for new or upgraded SCE facilities results in new or different significant environmental impacts, the Authority would comply with NEPA and CEQA as applicable, including evaluating the potential initiate for an environmental reexamination and/or a Supplemental EIR/EIS, prior to engaging with the California Public Utilities Commission permit application process.

4313-7837

The comment indicates that a diagnostic meeting is required for crossing alterations or construction at all highway-rail crossings, and it asserts that GO 88-B would require CPUC review and, perhaps, authorization for changes to traffic signal operations and roadway alignments during construction. The commenter states that a diagnostic meeting is required for each crossing alteration or construction. Diagnostic meetings for all crossings will be held early in the next phase of the design with all key stakeholders to discuss potential impacts and proposed improvements. Each of the Build Alternatives in the HSR Palmdale to Burbank Section would be fully grade-separated.

Response to Submission 4313 (Christopher Palas, California Public Utilities Commission, November 22, 2022) - Continued

4313-7838

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process.

The commenter recommended the entire HSR corridor to be grade separated with no at grade crossings. Unlike existing passenger and freight trains in the project vicinity, the Palmdale to Burbank Project Section would not include at-grade road crossings, nor would the rail alignment be shared with freight trains. Where the Build Alternatives would be at grade and parallel to state facilities, access would be severed where an at-grade leg of an intersection crosses a Build Alternative. Therefore, road overcrossings would be required to maintain the function of the state highway and local road systems. Intersecting roads would be realigned horizontally and adjusted vertically to cross over the HSR. The possibility of encroaching into the Caltrans right-of-way would depend on the placement of the overcrossing columns. The design intent of these crossings is to maintain the existing intersection and traffic patterns during construction. However, some short-term closures could be required; in such cases, local traffic would use one of the other overcrossings or intersections in the vicinity. Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, for a discussion of how alternatives were selected.

4313-7839

The commenter asked the Authority to keep their agency informed on the development of the Project. the Authority will continue to keep CPUC informed regarding the California HSR System. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

Submission 4358 (Jeffrey Sheldon, Union Pacific Railroad, November 30, 2022)

Palmdale - Burbank - RECORD #4358 DETAIL

Status :	Unread
Record Date :	11/30/2022
Interest As :	Business and/or Organization
First Name :	Jeffrey
Last Name :	Sheldon
Attachments :	UP Comments on CHSRA Palmdale to Burbank DEIR 113022.pdf (88 kb)
Stakeholder Comments/Issues :	

4358-8572

Jeff Sheldon
General Director - Network Development
WA, OR, CA, AZ
Union Pacific Railroad
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jdsheldo@up.com

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UNION PACIFIC BUILDING AMERICA

November 30, 2022

Attn: Palmdale to Burbank Project Section Draft EIR/EIS Comment; California High-Speed Rail Authority
355 S Grand Ave, Suite 2050
Los Angeles, CA 90071

To Whom It May Concern:

Union Pacific Railroad Company (UPRR) submits these comments in response to the California High-Speed Rail Authority's (CHSRA) Draft Environmental Impact Report/Environmental Impact Statement (DEIR/DEIS): Palmdale to Burbank Project Section.

UPRR owns and operates a common carrier freight railroad network in the western two thirds of the United States, including the State of California. Specifically, UPRR owns and operates rail mainlines connecting the San Francisco Bay Area to Sacramento and points east and north, and to Los Angeles and points east and southeast. UPRR is the largest rail carrier in California in terms of both mileage and train operations. UPRR also has a multitude of public private partnerships across the state, including active and planned projects with various state agencies and passenger rail partners. UPRR's network in California is vital to the economic health of the state and the nation as a whole, and its rail service to California customers is crucial to the current and future success and growth of those customers.

UPRR has been actively engaged in discussions with CHRSA for many years in order to ensure that the safety and efficiency of the UPRR system, including UPRR's ability to serve current and future customers, is preserved during the planning, construction, and operation of the California high-speed rail project. UPRR and CHSRA have entered into several agreements that reflect these interests, including the Memorandum of Understanding and Implementing Agreement Related to High-Speed Rail Development in California dated July 11, 2012 (MOU) and the Engineering, Construction, and Maintenance Agreement Related to the California High-Speed Rail Authority Project Merced to Bakersfield Segment dated December 23, 2014.

UPRR has also submitted formal comments in response to proposals at several points during the environmental permitting process for various aspects of the high-speed rail project. That communication has included comments on plans for the proposed Fresno to Bakersfield high-speed rail segment, the Downtown Bakersfield High-Speed Rail Station Area Plan, the DEIR/DEIS submittals for the Bakersfield to Palmdale high-speed rail segment, the San Jose to Merced project segment, and the Burbank to Los Angeles project segment.

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Submission 4358 (Jeffrey Sheldon, Union Pacific Railroad, November 30, 2022) - Continued

4358-8573

CHSRA's Palmdale to Burbank DEIR/DEIS proposes a Preferred Alternative (SR 14A) alignment that seeks to utilize some of an existing railroad right-of-way, resulting in a blended system and operations. The Preferred Alternative alignment touches a complex mix of UPRR owned right-of-way, in addition to corridors not owned by UPRR but where UPRR retains and exercises its freight operating rights. These corridors host UPRR premium freight service along with several freight rail served customers and facility infrastructure.

A shared corridor concept raises several operating, engineering, real estate and commercial franchise challenges through these corridors. Except where UPRR has, following negotiation with CHSRA, implemented significant capacity improvements and other mitigation measures to address adverse impacts to its franchise, UPRR will not allow any part of the high-speed rail system to be located on UPRR-owned property or diminish UPRR operating rights on corridors owned by others. For these reasons CHSRA must develop viable alternatives that protect for freight, as the Preferred Alternative shown here is not acceptable to UPRR.

With these general principles as context, UPRR offers these specific points:

- In this congested corridor, existing & future capacity must be preserved (including currently unused right-of-way). CHSRA must acquire the requisite property to preserve this capacity. It is absolutely necessary to protect commuter and freight traffic growth, and the Preferred Alternative directly conflicts with commuter and freight traffic growth.

- Proposals to remove or degrade capability of spur tracks or otherwise degrade the freight capability network are not acceptable. 4358-8576

- Any new facilities that cross UPRR's right of way in relation to the project, including new or realigned roads, must be grade-separated and comply with UPRR's then-current minimum engineering standards.

- Depending on the design and proximity of the CHRSA facilities to the UPRR right of way, special conditions such as safety barriers may be required.

- There may be new and modified bridges to be constructed as a result of accommodating the Preferred Alternative. CHSRA must share in the maintenance of existing and new structures.

- CHSRA cannot further constrain the existing clearances on tracks, and any realignment must preserve or enhance existing clearances.

- To comply with the terms of the MOU, CHSRA must design its alignment in a manner that does not interfere with UPRR's access to current or future customers. Section 2(A)(2) of the MOU says CHSRA "will take all steps available under law to avoid

4358-8573

impeding UPRR's commercially reasonable access to current and potential customers and the access of current and potential customers to UPRR along the corridor." Drawings for the Preferred Alternative from Palmdale to Burbank depict the CHSRA alignment realigning UPRR track infrastructure and right of way in various segments, thereby impacting existing UPRR spur tracks and facilities owned or operated by current UPRR customers.

4358-8574

The proposed alignment also appears to separate UPRR from developable property adjacent to the UPRR main line at various points along the proposed route. Impacts to existing and future freight rail customers associated with the proposed Preferred Alternative alignment are unacceptable. UPRR will require modification of the route per the terms of the MOU so that there are no impacts to our ability to serve existing or future customers.

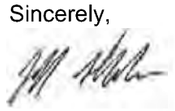
4358-8575

- It is not clear whether the DEIR/DEIS has examined the impact that construction of the CHSRA alignment may have on the future ability of cities or other road authorities to grade-separate roads that cross the UPRR tracks along the route. State and federal policies encourage the elimination of railroad grade crossings for the benefit of safety and the efficient movement of trains and vehicular traffic. The design of the CHSRA alignment and its proximity to the UPRR right of way under the Preferred Alternative may permanently prevent roads that currently cross the freight tracks at grade from being grade-separated in the future. UPRR requests that an analysis be completed to determine the extent of these potential impacts and that the results be formally communicated to the respective roadway authorities who might be impacted and to UPRR.

Considering the potentially serious and detrimental impacts to UPRR facilities, operations, current and future customer access, and to long-term roadway accessibility over UPRR tracks along the Preferred Alternative route, UPRR encourages CHSRA to continue working with UPRR to develop an alignment that meets UPRR safety and engineering guidelines, addresses the concerns identified in this letter or that have yet to be identified, and meet the obligations outlined in our standing agreements. If CHSRA does select the Preferred Alternative route, then CHSRA must mitigate any and all impacts to UP and our customers. CHSRA must provide solutions to overcome the impacts to UPRR noted above and any others UPRR identifies as the design of the Preferred Alternative route is developed in more detail.

Thank you for considering our comments.

Sincerely,



Jeff Sheldon
General Director Network Development

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Response to Submission 4358 (Jeffrey Sheldon, Union Pacific Railroad, November 30, 2022)

4358-8572

This comment contains introductory material and describes the intersections of Union Pacific Railroad Company (UPRR) operation and the project section and the longstanding cooperation between the Union Pacific Railroad Company (UPRR) and the Authority. Thank you for your comment. The Authority will continue to coordinate with UPRR on the project where intersections occur. Responses are provided for each substantive comment in this comment letter.

4358-8573

Refer to Standard Response PB-Response-TRA-5: Connection to Existing Transportation Infrastructure.

Refer to Standard Response PB-Response-TRA-5: Connection to Existing Transportation Infrastructure. The commenter states that the SR14A Build Alternative touches a mix of UPRR owned right-of-way, and rights-of-way used for freight operating, and expresses concern about the impacts the SR14A Build Alternative will have on freight operations, meeting customer needs, and access to potential future customers. The commenter also states that CHSRA must work with UPRR for UPRR right-of-way safety, protecting UPRR freight capacity, complying with UPRR engineering standards, and complying with the terms of the MOU. Additionally, the commenter states that the Preferred Alternative directly conflicts with commuter and freight traffic growth.

The Palmdale to Burbank Project Section will not have blended operations with UPRR or other railroads. As noted in Section 2.3.1 of Chapter 2 of the Draft EIR/EIS, the HSR system will use a dedicated right of way. The HSR Palmdale to Burbank Project Section will pass under the SCRRA/UPRR alignment near Palmdale Avenue S, there is an overcrossing near the California Aqueduct and the HSR alignment will be on viaduct south of Soledad Canyon passing over the SCRRA/UPRR alignment. As discussed in Section 2.5.2., the Preferred Alternative would also require the acquisition of rail right-of-way from MP 67.2 to MP 69.1, which is a UPRR parcel up to 25 feet wide, and would realign UPRR in that area. TR-IAMF#9, Protection of Freight and Passenger Rail during Construction, in Section 3.2, Transportation of the Draft EIR/EIS, describes the Authority's commitment to repairing any structural damage to freight or public railways that may occur during the construction period and return damaged sections to their original structural condition or better. With implementation of TR-IAMF#9, Section 3.2, Transportation concludes that the Existing (2015) Plus Construction Conditions for the Preferred Alternative would not permanently interfere with freight rail, passenger rail, or transit services in the Palmdale to Burbank Project Section region.

The California HSR System alignment would be fully access-controlled, meaning that the public would be able to access the system only at the station platforms. Access-control barriers and railway/roadway vehicle barriers along the right-of-way would prevent intrusion into the right-of-way. A minimum separation of 29 feet is required

Response to Submission 4358 (Jeffrey Sheldon, Union Pacific Railroad, November 30, 2022) - Continued

4358-8573

between centerlines of HSR and adjacent railroad tracks, and this separation requires a physical intrusion barrier. When intrusion protection is needed, the minimum total height must be 10 feet with ditch plus berm, concrete wall plus screen, or only a concrete wall. The Authority would regularly perform maintenance along the track and railroad right-of-way, as well as on the power, train control, signalizing, communications, and other vital systems required for safe operation of the California HSR System. . Other than those mentioned above pertaining to the SCRRA/UPRR Antelope Valley alignment, no new or modified UPRR bridges will be constructed in the Palmdale to Burbank Project Section in any of the six Build Alternatives. The UPRR track in the section between south of Avenue R in Palmdale and the UPRR Colton Cutoff connection runs parallel and east to the existing SCRRA track. The SCRRA track will be realigned and displaced west of its existing location. Therefore the clearance between the existing UPRR track and the proposed SCRRA track realignment will be maintained or increased.

For other concerns regarding connections to existing transportation networks, refer to Standard Response PB-Response-TRA-5: Connection to Existing Transportation Infrastructure. The Authority is committed to coordinating with UPRR with regard to future right-of-way acquisition and grade separations and throughout the environmental process.

4358-8574

The commenter states that to comply with the terms of the Memorandum of Understanding (MOU), the Authority must design its alignment in a manner that does not interfere with UPRR's access to developable property adjacent to the UPRR main line along the proposed route. The HSR alignment makes every effort to protect UPRR's existing and future freight rail customers and the Authority will continue to honor commitments made pursuant to its agreements, including the referenced 2012 MOU.

Chapter 3.2, Transportation, of the Draft EIR/EIS includes analysis of rail and transit services and addresses modifications to portions of existing freight and passenger railroad facilities between Palmdale and Burbank, implementing track reconfigurations, bridge modifications, and grade-separated roadway crossings. Project design includes implementation of TR-IAMF#9 Protection of Freight and Passenger Rail during Construction, which involves construction of a "shoofly" track to allow existing freight and passenger rail lines to bypass areas closed for project construction.

The current preliminary engineering design includes the relocation of the existing rail access to customers along the proposed Build Alternatives alignments if impacted by the project. This includes the siding and unloading facility for Vulcan Materials Company in Sun Valley. Beyond this existing rail access the Authority is unaware of any existing or future developable property near MP 67.2 to MP 69.1 for placement of UPRR freight rail customers

Response to Submission 4358 (Jeffrey Sheldon, Union Pacific Railroad, November 30, 2022) - Continued

4358-8575

The commenter requests that an analysis be completed to determine potential impacts to future roadways that may cross UPRR tracks, including the potential to preclude future grade separation from railroad tracks.

There are no at-grade crossings on rail lines owned by UPRR within the Palmdale to Burbank Project Section. However, UPRR operates on the SCRRA Antelope Valley Line. As shown on the project alignment plans included in Volume 3 of the Draft EIR/EIS and as further elaborated in this response to comment, it can be concluded that the project would not preclude future grade separations of the existing SCRRA Antelope Valley line tracks.

At the Olinda Street at-grade crossing, the SR14A, Refined SR14, E1 and E1A Build Alternatives would cross underneath the existing road, not precluding a future grade separation, as either Olinda Street or the SCRRA track vertical alignment could be modified for that purpose.

The existing at-grade crossing at Penrose Street would be eliminated by the SR14A, Refined SR14, E1 and E1A Build Alternatives.

The SR14A, Refined SR14, E1 and E1A Build Alternatives would result in grade separating Sheldon Street from the existing SCRRA rail tracks, as well as the HSR proposed alignment.

The existing at-grade crossing between SCRRA and Branford Street is located at enough distance from the SR14A, Refined SR14, E1 and E1A Build Alternatives alignment to allow for a future grade separation.

From Branford Street to Sierra Highway (south of Palmdale), there are no at-grade crossings in the vicinity of the HSR Build Alternatives and, therefore, the project would not preclude a future grade separation.

At the at-grade crossing between the SCRRA track and the service access road to the east side of Soledad Siphon, the SR14A, E1A and E2A Build Alternatives would not preclude a future grade separation, as the horizontal and vertical alignment of the

4358-8575

service road could be modified for that purpose. A future grade separation at this location is already constrained by the proximity between SCRRA track and Sierra Highway.

The Sierra Highway at-grade crossings are located at enough distance from all Build Alternatives to allow for a future grade separation.

At the at-grade crossing between the SCRRA track and Barrel Springs Road, E1, E2 and Refined SR14 Build Alternatives would not preclude a future grade separation, as the road horizontal and vertical alignment could be modified for that purpose. A future grade separation at this location is already constrained by the proximity between SCRRA track and Sierra Highway.

Avenue S would be modified to cross over the proposed HSR Build Alternatives and SCRRA, resulting in the grade separation of Avenue S and the SCRRA track.
For concerns regarding connections to existing transportation networks, refer to Standard Response PB-Response-TRA-5: Connection to Existing Transportation Infrastructure.

As demonstrated in this response to comment, the HSR Palmdale to Burbank Project Section would grade separate some existing at-grade crossings and would not preclude the ability for other grade separations to occur in the future. The Authority will continue to coordinate with UPRR with regard to future grade separations and throughout the environmental process.

Response to Submission 4358 (Jeffrey Sheldon, Union Pacific Railroad, November 30, 2022) - Continued

4358-8576

The commenter encourages ongoing coordination with the Authority and identifies Union Pacific Railroad (UPRR) safety and engineering guidelines, the concerns raised in this comment letter, and obligations provided for in existing agreements as areas that will benefit from continued coordination. The Authority is committed to continued work with UPRR regarding these issues and the design of the HSR Palmdale to Burbank Project Section. The commenter also states that if the Authority constructs the Preferred Alternative, any and all impacts to UPRR and its customers must be mitigated. The Authority is committed to implementing the mitigation measures described in the MMRP and MMEP that will incorporate all mitigation measures in this Final EIR/EIS, and the Authority will continue to coordinate with UPRR.

Submission 4359 (Susan Bolan, Glendale Homeowners Coordinating Council, November 30, 2022)

Palmdale - Burbank - RECORD #4359 DETAIL

Status :	Action Pending
Record Date :	11/30/2022
Interest As :	Business and/or Organization
First Name :	Susan
Last Name :	Bolan
Attachments :	GHCC Letter to CAHSRA 11-2022 FINAL.pdf (144 kb)

Stakeholder Comments/Issues :

To CAHSRA,
Please find attached comments for Palmdale to Burbank Project Section Draft EIR/EIS.
Grant Michals, PresidentSusan Bolan, SecretaryGlendale Homeowners Coordinating Council

Glendale Homeowners Coordinating Council

November 30, 2022

California High-Speed Rail Authority
ATTN: Palmdale to Burbank Draft EIR/EIS Comment
355 S Grand Avenue, Suite 2050
Los Angeles, CA 90071

4359-8566

The Glendale Homeowners Coordinating Council (GHCC) and our Member Associations are deeply committed to uniting our neighborhoods, preserving our rich history, and protecting our high quality of life throughout the City of Glendale. One of the collective goals of our membership is to ensure that development is sensitive to and compatible with our neighborhoods and nearby open space and does not cause undo harm to our residents and wildlife.

In the broader scope, the GHCC has an interest in CAHSR because the City of Glendale is one of the members of the Burbank-Glendale-Pasadena Airport Authority and home to the Larry Zarian Transportation Center, a multimodal station on the National Register of Historic Places. But the main, more important focus, is that the GHCC represents the interests of the Glendale residents whether living their daily lives at home, commuting to work, or traveling to the airport to catch a flight. Thank you for the opportunity to comment on this project, potentially the most significant one in our lifetime.

Based on inadequate environmental review due to project segmentation and evidence of substantial, long-term environmental impacts, we believe the only viable alternative is No Build.

4359-8567

Segmentation Minimizes Full Project Impact Resulting in False Assumptions

The Rail Authority has divided the massive high-speed rail project into smaller area sections to focus on design, environmental review, infrastructure, funding, and implementation. However, this process segments the project thereby not taking into consideration the combined cumulative effect of such a large-scale operation and the practical and environmental challenges throughout the entire region.

Taking sections out of order and studying each in isolation, disregards the substantial regional impact, presents skewed data and distorts final results. To fully understand the magnitude of effects to the whole region, the Rail Authority should have studied the southern half of the Bakersfield to Palmdale section as well as the Palmdale to Burbank, and the Burbank to Los Angeles sections all as one unit. This is a significant error.

Aside from this point, the public has been advised that the proposed rail transportation stations in Palmdale and Burbank have already been finalized and approved in previous EIRs and therefore, no comment can be made on them now. We wholeheartedly disagree. The Palmdale to Burbank section, at the very least, should be examined from station-to-station and should not just address

Submission 4359 (Susan Bolan, Glendale Homeowners Coordinating Council, November 30, 2022) - Continued

4359-8567

the huge tunnels between them. This decision to disregard the stations as they relate to the rest of the section and other sections, further divides the project and misrepresents the full impact to the municipalities and unincorporated areas.

4359-8568

Inadequate Mitigation for Substantial Air Quality and Noise Impacts

For a city like Glendale that is sandwiched between the Palmdale to Burbank and the Burbank to Los Angeles sections, the deleterious effects on air quality and noise levels will likely impact residents for upwards of 20 years. Our construction-weary cities have already seen a decade of simple highway and rail projects that have taken significantly longer than scheduled so there is little trust that a comprehensive project like the CAHSR will be completed before the half-century mark.

The CAHSR project route in our region will cross at least seven freeways and countless arterial highways within a 50-mile stretch. During construction, every rail/vehicle exchange will need to be reconfigured and/or rebuilt to provide grade separation, high-speed capability and accommodate extra tracks. Three rail transportation centers will be built/reconstructed. Raw materials and spoils at every location and along the route will be delivered and removed primarily by trucks using area freeways. Tunnel portals, surface staging areas, conveyor systems and dump sites will produce concentrated levels of airborne debris. Utility infrastructure will be significantly augmented throughout the project areas and new lines/equipment will pepper the urban and natural landscape.

The environmental document does not adequately address mitigation for the high level of debris that will be airborne during construction. The draft EIR/EIS summary states, "Construction period emissions would exceed the applicable SCAQMD and AVAQMD CEQA thresholds for all Build Alternatives." In the report, a suggested mitigation for poor air quality in general is to "secure emission offsets." This is not an acceptable solution especially considering that "cap and trade" offset fees are helping to fund the project. This is circular logic -- paying fees into the fund that pays for the project. It does nothing to improve the quality of the air. The suggested mitigation of "near zero emission technology for 25 percent of light-duty on-road vehicles" doesn't go far enough to reduce vehicle pollutants. Heavy earth moving equipment and tunnel boring machines typically do not utilize near zero emission technologies.

The environmental document does not adequately address mitigation for long-term effects from noise levels above those acceptable for humans and wildlife during construction and train operation. The draft EIR/EIS summary states, "HSR construction activities would expose residences near the HSR construction footprint to construction noise that exceeds recommended threshold criteria" and "Build Alternatives would result in startle effects on horses." While we appreciate that, "The Authority will implement noise barriers, sound insulation, and noise easements as mitigation for noise impacts," residents and businesses adjacent to the project will most definitely be exposed to long-term vibration and noise disruption that cannot fully be mitigated. The report also suggests that for noise level mitigation for wildlife, the Authority will "post signage to warn users of upcoming train crossings and the approximate time for the crossing at equestrian facilities…reducing noise impacts on domestic animals to less than significant." This is frankly, absurd.

4359-8570

The draft EIR/EIS defines the construction period as "temporary." How long is temporary? No one will know what that means until all sections in our region are completed. The new US Link Station designed to be built at Union Station in Los Angeles is not projected to have high-speed trains come through until the year 2040. That's at least 17 years, if everything goes according to plan. A great many respiratory conditions can develop in 17 years, especially in children.

4359-8568

This colossal proposal is not a straightforward linear enterprise by any standard. It is a multilayered, multijurisdictional, megaproject like never seen before. It is quite common for megaprojects less complicated than this one in the U.S. and abroad to have extended timelines and huge cost overruns. The estimated costs for the CAHSR project are growing daily and future funding is uncertain. To date, no private funding mechanism has presented itself and based on history, it is highly likely that taxpayers will need to subsidize future operations and ridership to keep fees affordable. The cumulative, long-term detrimental effects of the CAHSR project cannot be weighed against the very small carbon benefit of perhaps enticing some people out of their vehicles who might otherwise drive to another part of the state. When looking at the big picture of impact vs. benefit, the only acceptable choice for our region is the No Build option.

4359-8569

CAHSRA Must Coordinate with the Airport Authority and City of Burbank

Like Glendale, the greater Burbank area has seen a lot of change in the past 100 years, from horse ranches and open land to the early beginnings of the movie industry; World War II aviation manufacturing; the post-war housing boom; freeway construction; and the surge of both large-scale and small-scale retail outlets and services. Burbank has always been a premier destination for families, employment, medical care, shopping, dining, and recreation while it has maintained its small-town charm and respect for its history and the natural environment.

The City of Burbank is most proud of the Hollywood Burbank airport, self-described as "the friendliest, most convenient airport for flying to or from Los Angeles, Hollywood, and the San Fernando Valley." Built in 1930, the airport is currently preparing for an expansion project called ***Elevate BUR*** to increase passenger and operational safety, replacing an outdated terminal layout. The Burbank-Glendale-Pasadena Airport Authority ("Airport Authority") intends to build a 14-gate, 355,000 square foot replacement passenger terminal on the property and demolish the existing terminal.

On February 17, 2022, the Airport Authority filed a lawsuit against the Rail Authority referring to the environmental study for Burbank to Los Angeles stating, "The draft EIR failed to fully analyze, disclose, and mitigate potential project impacts on the airport, including to the safety of the airport's operations." The City of Burbank agreed that the Rail Authority proposal needed further study and coordination with the Elevate BUR plan and regular airport operations.

In reviewing both the Palmdale to Burbank and Burbank to Los Angeles EIR/EIS and the Burbank Station schematics, the GHCC Member Associations understand that it is imperative that the entities coordinate plans moving forward or abandon the idea of a rail station at the Burbank airport altogether. The City of Burbank will suffer significant disruption on every street from construction and rail operations for years to come as well as substantial loss of parcels (AKA "conversion to transportation use.") The business and residential landscape will be forever changed. The Rail Authority must ensure buy-in from all three cities of the Airport Authority, especially the City of Burbank, to be able to build the rail project. A similar arrangement should be made with the City of Palmdale and Palmdale Airport when planning for the rail station located there.

4359-8570

Community Outreach Has Been Abysmal

Public participation is mandated and an essential component of the CEQA process. For megaprojects like the CAHSR, it is critical that the lead agency take very broad actions to ensure the public is aware of the project, has full access to source materials, and provides a forum for the public to comment. Outreach methods should utilize but not be limited to print, broadcast and online media; direct mail, email, newsletters and flyer communiques; community forums and

Submission 4359 (Susan Bolan, Glendale Homeowners Coordinating Council, November 30, 2022) - Continued

4359-8570

meetings; and providing informational meetings and public hearings within the affected communities.

Outreach by the CAHSRA for the Burbank to Los Angeles section was so poor during the first summer of the pandemic that no Member Associations of the GHCC knew the draft EIR/EIS had been released on May 29, 2020, nor had the opportunity to attend the single online meeting on June 18 or the online public hearing on July 8. No GHCC Member Associations knew to draft comments by the August 31, 2020 deadline. Some individuals were able to scramble at the last minute and submit comments during the last week after becoming aware of the deadline through word of mouth. We hope that any lack of comments submitted for the Burbank to LA section by the GHCC Member Associations did not get misconstrued as there were no objections and that residents approved the proposals for the six Build Alternatives.

For the Palmdale to Burbank section, GHCC members were notified of the release of draft EIR/EIS by email and only if they had signed up for notifications from CAHSRA. No other notifications were seen in the usual media outlets except on the hsr.ca.gov website. The release announcement took place at the least favorable time – the Friday of Labor Day weekend, September 2, 2022.

There was one scheduled online open house October 6 followed by one online public hearing October 18, 2022. At the October 6 meeting, it was announced that two in-person meetings had been added -- one for October 8 in Acton and another October 12 in Pacoima. Not only was this very short timing to encourage more participation but the announcement was made only to attendees of the online informational meeting. It did not get sent out via email or broadcast anywhere else. It finally appeared on the hsr.ca.gov website late in the afternoon on October 12. Both in-person meetings had approximately 30 people in attendance, some of whom were likely consultants. The information shared was limited in scope and specific only to that particular community.

Considering the sheer magnitude of this project, it is reprehensible for the CAHSRA to have such poor communication with the public. There were no public meetings held in Palmdale, Agua Dulce, Santa Clarita, San Fernando, Lake View Terrace, Sunland-Tujunga, Sun Valley, or Burbank. Participants in Pacoima were shocked by the proposed disruption to their neighborhoods and businesses with absolutely no proposed benefit to their town. Many residents, who felt they were being targeted and dismissed, stated plausibly that they would be victims of social/environmental injustice due to the traditionally lower-income communities of color that surround the project area. The CAHSRA completely fell short of a comprehensive outreach effort.

Thank you for considering these comments of the Glendale Homeowners Coordinating Council as part of the draft environmental review process for the California High-Speed Rail, Palmdale to Burbank section. Please include them in the final document and provide response to our concerns.

Sincerely,

Grant Michals, President
Glendale Homeowners Coordinating Council
grant@michals.com

Susan Bolan, Secretary
Glendale Homeowners Coordinating Council
sbolan1@aol.com

Response to Submission 4359 (Susan Bolan, Glendale Homeowners Coordinating Council, November 30, 2022)

4359-8566

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process.

The majority of the comment describes the interests of the Glendale Homeowners Coordinating Council and their Member Associations; the remainder of the comment expresses that they support the No Build Alternative since they believe the environmental review was inadequate due to project segmentation and evidence of substantial, long-term environmental impacts. Regarding project segmentation, the Authority disagrees with this characterization. The Authority has used a tiered environmental review process and prepared a programmatic EIR/EIS examining the effects of the entire nearly 800-mile statewide HSR system. (Draft EIR/EIS, Section 1.1.2, Decision to Develop a Statewide High-Speed Rail System.) Draft EIR/EIS, Section 1.1.3.5 explains that the statewide HSR system was then divided into individual project sections for further environmental review. Each segment of the statewide California HSR System has independent utility and purpose, even if the adjacent sections were not completed. Therefore, the project has not be segmented. While the commenter mentions substantial, long-term environmental impacts, the commenter does not identify in its introductory comment what substantial, long-term environmental impacts it believes were not disclosed in the EIR/EIS. Therefore, no additional response is needed. Please refer to Standard Response PB-Response-GEN-4: General Opinions, Opposition or Support. The commenter's preference for the No Build Alternative is acknowledged and included in the record for consideration by decisionmakers.

4359-8567

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process.

The commenter states that dividing the statewide HSR system into smaller sections segments the project and fails to consider the combined cumulative effects throughout the region. The commenter further states that taking sections out of order and studying each in isolation disregards the substantial regional impact, presents skewed data, and distorts final results. The commenter suggests the Authority should have conducted a study of the southern portion of the Bakersfield to Palmdale Section, Palmdale to Burbank, and Burbank to Los Angeles as one unit. The commenter also expressed their belief that the public should be able to comment on the proposed station improvements as well as that the independent review of the proposed stations further fragments and misrepresents the full impact of the HSR project. Regarding the commenters specific issue about analyzing each section independently, one of the three criteria used by the Authority to determine the scope of a project to be considered in an EIS was the independent utility of each project section. Each project section was determined to be a usable and reasonable expenditure even if no additional transportation improvements are made which is why the environmental impacts for each project section were studied separately. For additional discussion about the independent utility of each project section, please refer to Section 2.1.2, Independent Utility and Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process. Additionally, please refer to Section 3.19, Cumulative Impacts which provides an overview of the cumulative impacts of the Palmdale to Burbank Project Section along with the adjacent Bakersfield to Palmdale and Burbank to Los Angeles Project Sections. In response to the commenter's specific point about analyzing the station impacts, the impacts of the Palmdale Station were evaluated in the Bakersfield to Palmdale Project Section EIR/EIS while the impacts of the Burbank Airport Station were evaluated in the Burbank to Los Angeles Project Section EIR/EIS. A draft version of the Burbank to Los Angeles Project Section EIR/EIS document was circulated for public comment beginning on May 29, 2020, and concluded on August 31, 2020 while a draft version of the Bakersfield to Palmdale Section EIR/EIS was circulated for public comment beginning on February 28, 2020 and ending on April 28, 2020. No changes to the proposed station area designs for the Burbank Airport Station or the Palmdale Station have been made since these public review periods and the Authority approvals of each station. Information about the

Response to Submission 4359 (Susan Bolan, Glendale Homeowners Coordinating Council, November 30, 2022) - Continued

4359-8567

impacts of these stations was included in this Palmdale to Burbank EIR/EIS for informational purposes. Please refer to Section 2.5.2.2 for a description of the previously approved stations.

4359-8568

The commenter believes the project construction will take 20 years, and they ask how long the construction will last. The Authority expects the construction period for the entirety of the Palmdale to Burbank segment will vary between 8.33 and 9.25 years, depending on the alternative (Draft EIR/EIS, p. 2-198).

The commenter states that three rail transportation centers will be built. It is unclear what "rail transportation centers" are being referred to. The EIR/EIS analysis does not include the Palmdale Station, as that station was approved as part of the Bakersfield to Palmdale project section in 2021. The construction emissions included in the Draft EIR/EIS include the emissions associated with the construction of the Burbank station. No other stations or transportation centers are located within the Palmdale to Burbank project section, and no other transportation centers are analyzed in this EIR/EIS.

The commenter states that a "high level of debris . . . will be airborne during construction." The construction will require moving dirt, soils, and spoil. The Authority is implementing impact avoidance and minimization features and other mitigation measures to reduce air quality impacts from construction. Ultimately, construction of the project would lead to significant and unavoidable impacts even after implementation of AQ-IAMF#1 through AQ-IAMF#6 and AQ-MM#1 through AQ-MM#3. See Table 3.3-48 in Section 3.3 of the Draft EIR/EIS (showing that for Impact AQ#2, Impact AQ#3, and Impact AQ#5). All other air quality impacts related to construction (Impacts AQ#1, AQ#4, and AQ#12) would be less than significant. For impacts to regional air quality during construction (Impact AQ#2) and compliance with air quality plans during construction (Impact AQ#3), only two of six pollutants would exceed applicable thresholds: NOx and CO. VOCs, SO2, PM10, and PM2.5 would not exceed regional thresholds. The Draft EIR/EIS further found that localized impacts from particulate matter (PM) (Impact AQ#5) would result in exceedances of PM10 in only three out of six worst-case construction scenarios, despite implementation of IAMFs and MMs (see pages 3.3-113 to 3.3-114). Although this represents a significant and unavoidable impact, the exceedances would be temporary and relatively minor, ranging from a 0.2 to 1.8 exceedance of the annual average CAAQS threshold for PM10 (see Table 3.3-35 of the Draft EIR/EIS).

The commenter asserts that heavy earth-moving equipment and tunnel boring machines "typically do not utilize near zero emission technologies." Here, however, the tunnel

Response to Submission 4359 (Susan Bolan, Glendale Homeowners Coordinating Council, November 30, 2022) - Continued

4359-8568

boring machines would be electrically-powered, generating no direct criteria pollutant emissions. Furthermore, the health risk assessment (HRA) conducted for project construction takes into account the various phases of construction and the exposure of sensitive populations over the full course of project construction. Projected health risks are below applicable thresholds. For more details on the project's HRA, see pages 3.3-105 to 3.3-106 of the Draft EIR/EIS. In addition, all operational air emissions impacts (Impacts AQ#6, AQ#7, AQ#8, AQ#9, AQ#10, AQ#11, and AQ#13) would be less than significant.

Regarding the commenter's concern about noise, at locations where severe noise impacts have been identified, mitigation measures, as described in Section 3.4.7 of the Draft EIR/EIS, will be implemented in accordance with the CA HSR Noise Mitigation Guidelines, which are included as Appendix 3.4-C of the Draft EIR/EIS. The primary form of noise mitigation would be noise barriers. The CA HSR Noise Mitigation Guidelines outline where noise barriers would be constructed. Barriers would need to achieve between 5 and 15 dB of noise reduction and meet cost thresholds to be considered reasonable and benefit a minimum number of impacted locations. In areas where barriers are not effective or not feasible, sound insulation of buildings could be considered. In some cases, the mitigation measures may not be fully effective, and locations exist where sound walls would not be feasible, based on the mitigation guidelines. Some unavoidable adverse noise effects would result from implementation of the Build Alternatives.

4359-8569

Refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations, PB-Response-TRA-1: Temporary Traffic Associated with Construction, PB-Response-TRA-5: Connection to Existing Transportation Infrastructure.

The commenter requested continuing coordination with the Airport Authority and City of Burbank on issues related to the Burbank Airport Station including the need for further study and coordination with the Elevate BUR Plan and regular airport operations. The commenter also expresses concern regarding traffic impacts due to construction and rail operations, changes to the business and residential landscape, and the loss of parcels from conversion to transportation use. As discussed in Draft EIR/EIS, Chapter 2, Section 2.5.2.2, the Burbank Airport Station was evaluated as part of the Burbank to Los Angeles Project Section. The Final EIR/EIS for the Burbank to Los Angeles Project Section was released on November 5, 2021. The Authority's Board approved the Burbank to Los Angeles Project Section Preferred Alternative, including the Burbank Airport Station on January 20, 2022. The information and analysis in this Palmdale to Burbank EIR/EIS about the Burbank Airport Station is for information and reference. The Authority has been in coordination with the Burbank-Glendale-Pasadena Airport Authority (BGPAA) and FAA since 2014 and will continue to work closely with the FAA and BGPAA through final design and construction to avoid impacts to the airport and airport operations to the greatest extent practicable. This coordination is required as part of SS-IAMF#6: Stakeholder Coordination for the Hollywood Burbank Airport, which is discussed in Section 3.11, Safety and Security of the Draft EIR/EIS. SS-IAMF#6 requires continued coordination with the FAA and BGPAA to avoid conflicts due to overlapping construction schedules and future operations at the Hollywood Burbank Airport. The purpose of this ongoing stakeholder coordination is to ensure that the design, construction, and operation of the HSR Build Alternative takes into consideration the Airport Layout Plan and any future improvements to the Hollywood Burbank Airport identified in SCAG's 2020-2045 Regional Transportation Plan/Sustainable Community Strategy (SCAG 2020) and to ensure that construction and operation of the HSR Build Alternative do not negatively impact these future improvements. The Burbank to Los Angeles Project Section Final EIR/EIS can be accessed on the Authority website using the following link: https://hsr.ca.gov/programs/environmental-planning/project-section-environmental-documents-tier-2/burbank-to-los-angeles-project-section-draft-environmental-impact-report-environmental-impact-statement/.

Response to Submission 4359 (Susan Bolan, Glendale Homeowners Coordinating Council, November 30, 2022) - Continued

4359-8570

Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS.

The commenter expresses disappointment in the public outreach effort associated with the California HSR System, specifically related to the public meetings and public comment period for the Burbank to Los Angeles Project Section and public meetings for the Palmdale to Burbank Project Section. The commenter also notes that residents attending the public meeting in Pacoima stated they would be victims of social/environmental injustice.

CEQA Guidelines Section 15087 identifies the requirements for providing notice of availability of a Draft EIR, including notices be given by at least one of the following procedures: 1. Publication at least one time by the public agency in a newspaper of general circulation in the area affected by the proposed project. If more than one area is affected, the notice shall be published in the newspaper of largest circulation from among the newspapers of general circulation in those areas. 2. Posting of notice by the public agency on and off the site in the area where the project is to be located. 3. Direct mailing to the owners and occupants of property contiguous to the parcel or parcels on which the project is located. Owners of such property shall be identified as shown on the latest equalized assessment roll. In addition, CEQA Guidelines Section 15087 identifies the requirement to post the Notice of Availability with the County Clerk and the State Clearinghouse.

As described in Chapter 9 of the Draft EIR/EIS, the Authority met these CEQA requirements and in fact, provided more public outreach opportunities than required under CEQA. CEQA requires only one of the three methods listed above to be used to provide the notice of availability; however, the Authority provided notices on newspapers, as well as postcards in multiple languages to properties located near the various Build Alternatives. Please refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS, which discusses the various ways of noticing including publication in newspapers, direct mailing, e-mail, and filed electronic notices pursuant to CEQA Guidelines Sections 15086 and 15087 and FRA's Procedures for Considering Environmental Impacts (Fed. Register, Vol 64 No. 101) and the Council on Environmental Quality's NEPA regulations (40 CFR parts 1500–1508 (1978)). A list of

4359-8570

public meetings for the Palmdale and Burbank Project Section can be found in Table 9-5 of Chapter 9 of the EIR/EIS. Additionally, following the direction of U.S. Executive Order (USEO) 12898, and the U.S. Department of Transportation (USDOT) Order 5610.2C, the Authority conducted specific outreach efforts to low-income and minority populations. EJ outreach has been accomplished through a range of efforts, starting with bilingual English-Spanish meeting flyers that also included information about how to access the meetings in additional languages. Please refer to Table 9-1 and Table 9-2 of Chapter 9 for a list of media publications and public meetings held at various locations, including Palmdale, Agua Dulce, Santa Clarita, San Fernando, Lake View Terrace, Sunland-Tujunga, Sun Valley, and Burbank. The Authority understands the concerns expressed by the commenter and takes them seriously. While CEQA requirements for public notice were met and exceeded for the Draft EIR/EIS, the Authority will continue to explore opportunities for additional outreach in the future.

Submission 4378 (Tiffany Yap, Center for Biological Diversity - Oakland, November 30, 2022)

Palmdale - Burbank - RECORD #4378 DETAIL

Status :	No Action Required
Record Date :	11/30/2022
Interest As :	Business and/or Organization
First Name :	Tiffany
Last Name :	Yap
Attachments :	CBD HSR Burbank to Palmdale DEIR comments 11-30-2022.pdf (272 kb)

Stakeholder Comments/Issues :

Hi there,

4378-8692

On behalf of the Center for Biological Diversity, I am submitting comments on the Draft Environmental Impact Report/Environmental Impact Statement for the Palmdale to Burbank Project Section of the California High-Speed Rail Project (attached).

References cited can be found here:
[?Folder icon] CBD Comments References - High Speed Rail Burbank to Palmdale DEIR<https://centerforbiologicald-my.sharepoint.com/:f:/g/personal/tyap_biologicaldiversity_org/EgsL6N-qnbhDnKuEguJ5VoMBLsK9eAEL9UR8qAfndDHWoQ?e=9gxAyc>

Please confirm receipt of the comments and ability to access the link to references. 4378-8693

Thank you for your time and consideration,

Tiffany

Tiffany Yap, DEnv/PhD
Senior Scientist, Wildlife Connectivity Advocate
Urban Wildlands Program
Center for Biological Diversity - Oakland
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CENTER for BIOLOGICAL DIVERSITY

November 30, 2022

Sent via email

Attn: Palmdale to Burbank Project Section Draft EIR/EIS Comment
California High-Speed Rail Authority
Southern California Regional Office
355 S. Grand Avenue, Suite 2050
Los Angeles, CA 90071
Palmdale_Burbank@hsr.ca.gov

Re: Comments on Draft Environmental Impact Report/Environmental Impact Statement for the Palmdale to Burbank Project Section of the California High-Speed Rail Project

Dear California High-Speed Rail Authority:

These comments are submitted on behalf of the Center for Biological Diversity (the "Center") regarding the Draft Environmental Impact Report/Environmental Impact Statement (DEIR) for the Palmdale to Burbank Project Section of the California High-Speed Rail Project ("Project)" proposed by the High Speed Rail Authority (the "HSRA"). The Center is encouraged to see that much of the alignment is underground to reduce impacts to terrestrial habitat connectivity; however, we remain concerned about tunneling impacts to hydrology, surface waters, and the species and habitats that rely on those waters throughout the region. With ongoing climate change and extensive drought throughout the state, we urge the HSRA to comprehensively study and assess the Project's potential impacts prior to Project approval and monitor the region's hydrological systems during Project construction and implementation. In addition, mitigation for significant impacts to wildlife connectivity, particularly in identified important connectivity areas where the alignment is at-grade, is inadequate. Given the importance of the area for habitat connectivity and gene flow for mountain lions and statewide biodiversity, more must be done to adequately mitigate the Project's impacts.

While the Center sees some benefits to high-speed rail transportation, high-speed rail must be planned to adequately avoid and minimize impacts to sensitive species, habitats, and connectivity between and among heterogeneous habitats, even in areas where connectivity is constrained. More robust mitigation must be required to adequately offset the Project's significant impacts to habitat and wildlife movement and forward the State's 30 by 30 goals to combat climate change and advance biodiversity conservation. The proposed mitigation does not adequately minimize impacts to local and regional connectivity to less than significant. At a time when the world is facing both an extinction crisis and a climate crisis, the Center urges state agencies like the HSRA to take on more responsibility to assess and learn from our previous land-use planning mistakes and plan for a future that has the greatest chances of maintaining and

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amplifying ecosystem health and climate change resilience. Tackling the climate crisis must include ensuring landscape connectivity that provides multiple pathways for animals and plants to adapt to shifting climates as climate change worsens. We urge the HSRA to increase the proposed mitigation to adequately mitigate the Project's impacts to special-status species, sensitive habitats, wildlife movement, and habitat connectivity.

The Center is a non-profit, public interest environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has over 1.7 million members and online activists throughout California and the United States. The Center and its members have worked for many years to protect imperiled plants and wildlife, open space, air and water quality, and overall quality of life for people in the region and throughout California.

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I. The DEIR must assess a more expansive definition of species habitat to adequately assess impacts to special-status species and wildlife movement.

The DEIR focuses the analysis for the Wildlife Corridor Assessment ("WCA") on five species, including mountain lions, mule deer, desert tortoise, American badger, and San Joaquin kit fox. According to the WCA, "The suitable core-and-patch habitat was clipped by the known species ranges (California Wildlife Habitat Relationships System [CWHRS] 2016) or urban development edge (as shown the Fire and Resource Assessment Program - FRAP vegetation map" (WCA at 4-11). While using data and information from state agencies like the California Department of Fish and Wildlife ("CDFW") is a good starting point for the analysis, the CWHRS does not use species distribution models and may not capture all areas of the state the species may use or move through. The DEIR's reliance on just the CWHRS and FRAP vegetation map excludes other important data and some of the best available science that would help inform the Project's impacts assessments. In these species' cases, such exclusions lead to an underestimate of the impacts to these sensitive species. The DEIR analysis should include the best available data and information to adequately assess and mitigate the Project's potential impacts to sensitive species and wildlife connectivity. While CDFW's CWHRS provides some valuable information, there are other important sources of data that must be included to more fully represent existing conditions and how the Project could impact these species and the connectivity they rely on for survival.

For example, Figure 2-12 in the WCA Supplement excludes most if not all of the Verdugo Mountains in the species range for mountain lions (WCA Supplement Figure 2-12 at 2-34). Yet there is ample scientific evidence that indicates otherwise. The Santa Monica Mountains National Park Service ("NPS") biologists were monitoring P-41 for several years; his home range encompassed almost the entirety of the Verdugo Mountain Range (NPS, 2017). Scientists (NPS, 2017)speculate he came from the San Gabriel mountains, which highlights the valuable mountain lion connectivity in the area of the Project. At least two other mountain lions (not part of the NPS study) have been documented in the Verdugo Mountains, named Nikita and Adonis (Cardine, 2018), and multiple sightings or other evidence of mountain lions (i.e., paw prints, scat) have been documented in the Verdugo Mountains on iNaturalist.[1]

[1] iNaturalist mountain lion observations available at: https://www.inaturalist.org/observations?taxon_id=42007. Accessed November 16, 2022.

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Mountain lions are wide-ranging species with large home ranges that include heterogeneous habitats. Such information is critical to consider when assessing the Project's potential impacts to this candidate species under the California Endangered Species Act (CESA). By excluding the Verdugo Mountains as suitable mountain lion habitat, the DEIR underestimates the Project's impacts to mountain lion habitat (Table 3.7-20, DEIR at 3.7-149) and mountain lion movement. Such calculations affect the proposed mitigation, particularly BIO-MM#97, which provides compensatory mitigation for permanent impacts to suitable mountain lion habitat (DEIR at 3.7-238). By only accounting for a fraction of the mountain lion habitat that the Project is impacting, the DEIR underestimates the Project's impacts to suitable mountain lion habitat, which will lead to fewer acres of compensatory mitigation required. Like the WCA Supplement does with American badger (WCA Supplement Figure 2-14 at 2-37), the entire Project area should be assumed to be in mountain lion habitat/range. The Project's impacts to mountain lion habitat and movement are not adequately disclosed, assessed, or mitigated.

Similarly, the WCA analysis for mule deer excludes the Verdugo mountains as suitable habitat within the species range (WCA Supplement Figure 2-13 at 2-35). Mule deer have been documented throughout the Verdugo Mountains, as evidenced by iNaturalist data.[2] The DEIR's WCA analysis should expand the assessment to incorporate the Verdugo Mountains as suitable habitat for these wide-ranging species.

The WCA also under-represents the potential range of desert tortoise. The species range provided in Figure 2-15 of the WCA Supplement (at 2-39) should extend more west and encompass both at-grade and tunneled portions of the alignment not currently included in the EIR analysis. The DEIR states that the analysis used the desert tortoise habitat model developed for the Desert Renewable Energy Conservation Plan; however, it appears the DEIR used the "predicted occupied habitat," which does not fully encompass suitable habitat that desert tortoises have the potential to occur in. According to the USFWS, desert tortoise has potential to occur further west towards where Agua Dulce Canyon Road intersects with SR-14 (USFWS, 2011)[3]. In addition, the DEIR fails to mention that the portion of the alignment east of Agua Dulce Canyon Road lies entirely within the Western Mojave Recovery Unit for desert tortoise (USFWS, 2011). This is important to consider because this federally- and state-threatened species continues to hurtle towards extinction due to habitat loss and fragmentation, vehicle strikes, increasing raven populations, military maneuvers, disease, drought, extreme heat, wildfires, illegal marijuana grows, and development of massive solar farms (Sahagun, 2022). Therefore, for a species to recover, it is important to assess impacts to areas where the species may currently occur as well as areas where there is suitable habitat and the species has potential to occur, establish, or re-establish. Both at-grade and tunneled segments have the potential to impact desert tortoise movement and foraging and refuge habitat, and the Project's impacts to desert tortoise habitat is greater than the 99 acres calculated for Table 3.7-22 (DEIR at 3.7-158). Such calculations affect the proposed mitigation, including BIO-MM#53's compensatory

[2] iNaturalist mule deer observations available at: https://www.inaturalist.org/observations?taxon_id=42220. Accessed November 21, 2022.
[3] See also Conservation Biology Institute's Desert Tortoise – Species Distribution Model Map, DRECP available at: https://databasin.org/maps/385dd726e56b4a7eac8b46ccb3389e24/. Accessed November 29, 2022.

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mitigation plan. Therefore, the Project's impacts to desert tortoise habitat and movement are not adequately disclosed, assessed, or mitigated.

II. The DEIR fails to adequately mitigate impacts to mountain lions and other special-status species and sensitive habitats

A. Mountain lions

The DEIR fails to adequately assess and mitigate the Project's impacts to mountain lions. As mentioned above, excluding a large portion of mountain lion habitat (i.e., the Verdugo Mountains) from the analyses significantly reduces the amount of acres reported as impacted by the Project footprint (see Table 3.7-20, DEIR at 3.7-149). The acres of impacted mountain lion habitat should be more like 790-859 acres for the SR14A alignment, as is the case for American badgers, for which the species range was assumed to be "the entirety of the state" (WCA Supplement at 2-37). Under-reporting the amount of acres of mountain lion habitat impacted by the Project will lead to less compensatory mitigation required in BIO-MM#97.

In addition, the compensatory mitigation ratios required in BIO-MM#97 are too low and the language is vague and unclear. BIO-MM#97 states that "Habitat will be replaced at a minimum ratio of 2:1 for permanent impacts on breeding/foraging habitat and high-priority foraging and dispersal habitat, and at a ratio of 1:1 for low-priority foraging and dispersal habitat" (DEIR at 3.7-238), but it is unclear how "high-priority" and "low-priority" habitat will be defined or identified. Also, the MM only mentions permanent impacts, though the DEIR claims BIO-MM#97 would "ensure permanent and temporary impacts on mountain lion habitat would be offset" (DEIR at 3.7-156). This must be clarified. The HSRA should provide compensatory mitigation to any type of mountain lion habitat, including but not limited to breeding, foraging, or dispersal habitat (permanent or temporary) at a minimum ratio of 3:1 for preservation and 5:1 for restoration, enhancement, or creation. Connectivity for gene flow and climate adaptability among and between suitable habitat must be prioritized.

As discussed below, the proposed mitigation for the Project's impacts to wildlife connectivity is insufficient, which could lead to devastating impacts to struggling mountain lions. The Project area is within a region that serves not only to connect the Southern California and Central Coast subpopulations within the proposed Evolutionarily Significant Unit (ESU), but to connect the ESU with all other California mountain lions(Gustafson et al., 2018, 2021; Yap et al., 2019). Gustafson et al. (2021) state:

> "this region is of critical importance for maintaining statewide puma gene flow. Enhancing connectivity through the Transverse Ranges (including the Tehachapi Mountains, Sierra Pelona, San Gabriel Mountains, and San Bernardino Mountains: **Fig. 1B**) is a critical conservation priority in order to maintain gene flow between the Southern Coast populations and the Sierra Nevada or Central Coast groups" (Gustafson et al., 2021).

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Maintaining and enhancing the connection between the San Gabriel Mountains and the Sierra Pelona Mountains is of the highest importance. As the Project is currently proposed, the at-grade segments that go through the important San Gabriel-Castaic design linkage, which connects the Sierra Pelona and San Gabriel mountains, will degrade critical remaining puma connectivity and inhibit much needed connectivity enhancements.

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B. Other special-status species and sensitive habitats

Although the Center acknowledges that the design is at just 15% and estimated impacts can change to more or less impacts, more detail and information is required for the public and decisionmakers to determine whether the Project's impacts to special-status species and sensitive habitats are adequately assessed and mitigated. For example, BIO-MM#53 requires the HSRA to prepare a Compensatory Mitigation Plan for Species and Species Habitat (DEIR at 3.7-222), and it includes encouraging language by referencing providing descriptions of success criteria (which should be *measurable*), adaptive management approaches, funding mechanisms/financial assurances. However, as currently written, there is no way to determine if future descriptions will adequately assess and mitigate the Project's impacts. In addition, there is no guarantee a prepared CMP will be implemented; the DEIR states "The Authority will prepare a CMP…." but does not require the HSRA to implement the CMP (DEIR at 3.7-222). BIO-MM#53 is insufficient and amounts to improperly deferred mitigation.

Compensatory mitigation ratios are too low for special-status species and sensitive habitats. Provided mitigation ratios vary by species, habitat, whether impacts are permanent or temporary, whether impacts are to breeding or foraging habitat, etc. An overarching theme is the mitigation ratios are too low and lack specificity. They fail to adequately mitigate the Project's impacts. For example, the DEIR provides a mere 1:1 compensatory mitigation ratio for listed plant species (BIO-MM#38), vernal pool fairy shrimp and vernal pool tadpole shrimp habitat (BIO-MM#39), and "active primary foraging habitat" for Swainson's hawk (less for "active secondary foraging" and "active tertiary foraging habitat," BIO-MM#43). The DEIR provides a 2:1 compensatory mitigation for "permanent impacts" to riparian habitat (BIO-MM#46) and active burrowing owl burrows and habitat (BIO-MM#44), which is also insufficient. These and other sensitive species and habitats have protected status for a reason: further destruction and degradation of these habitats, particularly in an area where there are identified significant ecological areas (SEAs) and there is important wildlife connectivity, will cause further harm to sensitive species and habitats and reduce their chances of recovery and resilience to climate change. The HSRA should provide compensatory mitigation for impacts to any type of suitable habitat, including but not limited to breeding, foraging, or dispersal habitat (permanent or temporary) at a minimum ratio of 3:1 for preservation and 5:1 for restoration, enhancement, or creation. Such mitigation should apply to suitable habitat whether it is occupied, potentially occupied, historically occupied, or within an area that would allow for species to adapt to climate change. Connectivity for gene flow and climate adaptability among and between suitable habitat must be prioritized. In addition, any mitigation should prioritize occurring onsite, within the impacted watershed, or within important connectivity areas that the alignment slices through.

Wildlife suffering from barotrauma from major air pressure changes caused by human infrastructure is a growing concern that has not been assessed in the DEIR. A 2019 study

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estimated that an Amazonian rail operation kills about 10,000 toads every year (they were struck, desiccated, or died of barotrauma) (Dornas et al., 2019). A 2011 study found that wind turbines were killing bats via direct collisions and barotrauma (Grodsky et al., 2011). Major air pressure changes could occur with high speed rail, and given that there will be portions of the alignment at-grade and on viaduct, such potential impacts to wildlife should be considered and assessed.

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III. The DEIR requires additional wildlife crossings to adequately mitigate the Project's impacts to wildlife movement.

As high-speed rail slices through much of the state, it is critical to minimize impacts to wildlife connectivity as much as possible to preserve any remaining intact habitats and allow for enhancement and recovery of areas with constrained connectivity. Protecting and improving connectivity will improve chances for sensitive species to survive and adapt to climate change while improving the State's chances to reach its 30 by 30 goals.

A. Connectivity is critical for healthy species and populations

The proposed Project will result in habitat loss and fragmentation and edge effects that will degrade a critical connectivity area between the San Gabriel Mountains and the Sierra Pelona Mountains/Castaic area.

As detailed in a 2021 Center Report (Yap et al., 2021), transportation infrastructure and development create barriers that lead to habitat loss and fragmentation, which harms native wildlife, plants, and people. As barriers to wildlife movement, poorly-planned development and roads can affect an animal's behavior, movement patterns, reproductive success, and physiological state, which can lead to significant impacts on individual wildlife, populations, communities, landscapes, and ecosystem function (Brehme et al., 2013; Ceia-Hasse et al., 2018; Haddad et al., 2015; Marsh & Jaeger, 2015; Mitsch & Wilson, 1996; Trombulak & Frissell, 2000; van der Ree et al., 2011). For example, habitat fragmentation from roads and development has been shown to cause mortalities and harmful genetic isolation in mountain lions in Southern California and along the Central Coast (Ernest et al., 2014; Gustafson et al., 2018, 2021; Riley et al., 2014; Saremi et al., 2019; Vickers et al., 2015). Habitat fragmentation has also been found to increase local extinction risk in amphibians and reptiles (Brehme et al., 2018; Cushman, 2006; Delaney et al., 2021), cause high levels of avoidance behavior and mortality in birds and insects (Benítez-López et al., 2010; Kantola et al., 2019; Loss et al., 2014), and alter pollinator behavior and degrade habitats (Aguilar et al., 2008; Goverde et al., 2002; Trombulak & Frissell, 2000).

Habitat fragmentation also severely impacts plant communities. An 18-year study found that reconnected landscapes had nearly 14% more plant species compared to fragmented habitats, and that number is likely to continue to rise as time passes (Damschen et al., 2019). The authors conclude that efforts to preserve and enhance connectivity will pay off over the long-term (Damschen et al., 2019). In addition, connectivity between high quality habitat areas in heterogeneous landscapes is important to allow for range shifts and species migrations as climate changes (Cushman et al., 2013; Heller & Zavaleta, 2009; Krosby et al., 2018). Loss of wildlife connectivity decreases biodiversity and degrades ecosystems while reducing climate change resilience.

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Edge effects of development in and adjacent to critical linkage areas, like the proposed Project, will likely impact key, wide-ranging predators, such as mountain lions and bobcats (Crooks, 2002; Delaney et al., 2010: Lee et al., 2012: Riley et al., 2006: Smith et al., 2015, 2017; Vickers et al., 2015; Wang et al., 2017), as well as smaller species with smaller home ranges, such as song birds, bats and other small mammals, and herpetofauna (Benítez-López et al., 2010; Bunkley & Barber, 2015; Cushman, 2006; Delaney et al., 2010; Gray, 2017; Kociolek et al., 2011; McClure et al., 2013; Slabbekoorn & Ripmeester, 2008; Ware et al., 2015). Limiting movement and dispersal can affect species' ability to find food, shelter, mates, and refugia after disturbances like fires or floods. Individuals can die off, populations can become isolated, sensitive species can become locally extinct, and important ecological processes like plant pollination and nutrient cycling can be lost. Negative edge effects from human activity, such as traffic, lighting, noise, domestic pets, pollutants, invasive weeds, and increased fire frequency, have been found to be biologically significant up to 300 meters (~1000 feet) away from anthropogenic features in terrestrial systems (Environmental Law Institute, 2003).

B. Mitigation must include movement studies, more wildlife crossings, and land acquisition in important connectivity areas

Despite acknowledging that the SR14A alignment goes through several areas identified as important for connectivity and biodiversity, including the San Gabriel-Castaic linkage design and the designated San Andreas and Santa Clara River significant ecological areas (SEAs) (CDFW, 2018; SC Wildlands, 2008),[4] the DEIR downplays the importance of those areas to wildlife connectivity. Instead, the DEIR focuses on existing constraints from existing infrastructure, whether it is the SR-14 freeway, the California Aqueduct, or fencing at Una Lake and Lake Palmdale (DEIR at 3.7-190). For example, the DEIR asserts:

> "for all practical purposes, the SR 14 freeway serves as a barrier to wildlife movement. Numerous bridges and culverts provide potential crossing opportunities under the SR 14 freeway. However, because of their width and height, many bridges and culverts would not facilitate wildlife movement due to lack of vegetative cover and due to the design of the bridge/culvert." (EIR at 3.7-93).

Yet the DEIR does not provide any studies or other evidence to support such claims, nor does it acknowledge that there are varying degrees of permeability, as some species are more adaptable to human development and infrastructure than others. The DEIR also does not provide the dimensions of the culverts and bridges that they purport would not facilitate wildlife movement. While indeed roads and other infrastructure may present significant barriers to wildlife movement, no fieldwork was conducted for the Wildlife Corridor Assessment (WCA Supplement at 2-4). And according to the WCA, Caltrans does not collect roadkill data for SR-

[4] See also Biodiversity Atlas of LA Significant Ecological Areas available at: https://biodiversitycla.org/conservation/significant-ecological-areas/. Accessed Nov 29, 2022.

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14 (WCA at 4-7). Therefore, these analyses were provided with limited movement data and without conducting any movement or on-the-ground studies along the alignment.

Although the SR-14 likely serves as a barrier to some wildlife movement, it is not impermeable (i.e., there is no 10-foot fence) and some valuable wildlife movement in the area likely persists (e.g., animals may successfully cross when there is low or no traffic). Without documenting roadkill, conducting targeted species movement studies, and/or conducting studies to determine if existing culverts and bridges are being used by wildlife, the DEIR cannot rightfully conclude that SR-14 is a complete barrier to wildlife movement. However, placing segments of a noisy, vibrating, at-grade high speed rail alignment with 10-foot tall fencing along the SR-14 will be a formidable barrier that will fortify any existing barriers and preclude opportunities to enhance connectivity, gene flow, and climate change resilience in this critical connectivity area.

Even if the SR-14 is currently a significant barrier to wildlife movement, that simply underscores how important preserving ***existing*** connectivity and restoring ***formal*** connectivity is for the Project Area. The DEIR should not unduly minimize the value of compromised movement opportunities; indeed, the fact that the use of a highly constrained opportunity for movement between natural areas might be made more difficult by a project should ***always*** be considered a potentially significant impact, requiring mitigation. If an existing movement opportunity on the SR-14 lacks a vegetated approach or sufficient culverts, crossings, or other features to facilitate movement, that doesn't mean it doesn't pose an ***opportunity*** for movement.

Mitigation should include conducting movement studies to inform the placement and design of more wildlife crossings for the at-grade segments of the proposed Project. A wildlife connectivity technical working group comprising of members from the HSRA, the Center, Caltrans, CDFW, The Nature Conservancy, Wildlands Network, University of California, Davis, the U.S. Fish and Wildlife Service, as-needed species-specific experts, and other appropriate stakeholders should be established, coordinated, and consulted with by the HSRA. And more wildlife crossings should be included to adequately mitigate the Project's impacts to both large, wide-ranging species as well as small, less-mobile species.

The DEIR's approach is also inconsistent with the HSRA's obligations under state law. AB 2344 establishes a state policy to "protect, ***restore***, and enhance the functioning of fish, wildlife, and habitat connectivity in connection with the planning, construction, and improvement of transportation infrastructure throughout the state and, where feasible, the operation and maintenance of transportation infrastructure throughout the state." As a state agency tasked with designing and implementing transportation infrastructure, the HSRA may not simply consider the baseline connectivity conditions and seek to maintain them; it must affirmatively take steps to ***restore*** connectivity, particularly when connectivity has been degraded by other state agencies (here, Caltrans). In addition, it would be a grievous misstep to preclude Caltrans from being able to effectively retrofit SR-14 to enhance connectivity in the area.

HSRA has an opportunity to mitigate the Project's impacts to wildlife connectivity – and restore connectivity degraded by other state projects – in the area by enhancing connectivity at

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existing barriers. The DEIR points to undercrossings that align with adjacent tunneled and viaduct segments of the at-grade rail near Bee Canyon: however, according to the WCA Supplement, at-grade segments of the SR14A alignment will go through a significant portion (~30% or more) of the San Gabriel-Castaic linkage design and the modeled least cost corridors for mountain lions and mule deer (WCA Supplement at 2-27, 2-28, 2-32). Therefore, more mitigation is needed to adequately offset the Project's impacts. Mitigation should include upgraded culverts and/or a wildlife overpass or underpass on SR-14, acquired adjacent lands where SR14A is at-grade near Bee Canyon (at the western side of the San Gabriel-Castaic linkage design), and a wildlife overpass over the rail. In addition, much of the area along SR-14 is vulnerable to development (Yap & Rose, 2020): therefore, the HSRA should also prioritize compensatory mitigation to be acquired within the design linkage or in areas where future on-the-ground movement studies determine connectivity is important.

In addition, while the DEIR commits the HSRA to build two wildlife crossings along the rail near Una Lake and the Soledad Siphon, it is not clear what size or type of crossings these will be, and the target species for the crossings are not specified. As mentioned in the DEIR, "The recommended wildlife crossing spacing interval is 1.0 mile for large crossings and 0.3 mile for small crossings" (DEIR at 3.7-189). Two unspecified crossings on a 3-mile stretch of at-grade rail is insufficient to meet those recommendations. Additional crossings for specified target species, including but not limited to desert tortoise, San Joaquin kit fox, mountain lions, western pond turtle, and other bird, reptile, amphibian, mammal, and invertebrate special-status species must be considered.

Providing corridor redundancy, even when connectivity is already constrained, can benefit numerous sensitive species and habitats. If properly planned, it can help to mitigate the Project's impact to connectivity. Corridor redundancy is important because it allows for improved functional connectivity and resilience at a regional scale. Compared to a single pathway, multiple connections between habitat patches increase the probability of movement across landscapes by a wider variety of species, and they provide more habitat for low-mobility species while still allowing for their dispersal (Mcrae et al., 2012; Olson & Burnett, 2008; Pinto & Keitt, 2008). In addition, corridor redundancy provides resilience to uncertainty, impacts of climate change, and extreme events, like flooding or wildfires, by providing alternate escape routes or refugia for animals seeking safety (Cushman et al., 2013; Mcrae et al., 2008; Mcrae et al., 2012; Olson & Burnett, 2008; Pinto & Keitt, 2008).

Corridor redundancy is critical when considering the impacts of climate change on wildlife movement and habitat connectivity. Climate change is increasing stress on species and ecosystems, causing changes in distribution, phenology, physiology, vital rates, genetics, ecosystem structure and processes, and increasing species extinction risk (Warren et al., 2011). A 2016 analysis found that climate-related local extinctions are already widespread and have occurred in hundreds of species, including almost half of the 976 species surveyed (Wiens, 2016). A separate study estimated that nearly half of terrestrial non-flying threatened mammals and nearly one-quarter of threatened birds may have already been negatively impacted by climate change in at least part of their distribution (Pacifici et al., 2017). A 2016 meta-analysis reported that climate change is already impacting 82 percent of key ecological processes that form the foundation of healthy ecosystems and on which humans depend for basic needs

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(Scheffers et al., 2016). Genes are changing, species' physiology and physical features such as body size are changing, species are moving to try to keep pace with suitable climate space, species are shifting their timing of breeding and migration, and entire ecosystems are under stress (Cahill et al., 2012; Chen et al., 2011; Maclean & Wilson, 2011; Parmesan, 2006; Parmesan & Yohe, 2003; Root et al., 2003; Warren et al., 2011). Thus, mitigation that includes on-the-ground movement studies and implementing more wildlife crossings on the at-grade segments of the alignment and adjacent roadways like SR-14 would more sufficiently mitigate the Project's significant impacts to wildlife movement and habitat connectivity in this critically important area for statewide connectivity for mountain lions, other wildlife, and overall biodiversity.

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IV. Conclusion

Although these comments are not comprehensive, the Center presents some key concerns regarding insufficient impact analyses and mitigation for special-status species, sensitive habitats, and wildlife connectivity. High-speed rail must be planned to adequately avoid and minimize impacts to sensitive species, habitats, and connectivity between and among heterogeneous habitats, even in areas where connectivity is constrained. More robust mitigation is needed to adequately offset the Project's significant impacts to sensitive species and habitat and wildlife connectivity to forward the State's 30 by 30 goals to combat climate change and advance biodiversity conservation.

At a time when the world is facing both an extinction crisis and a climate crisis, the Center urges state agencies like the HSRA to take on more responsibility to assess and learn from our previous land-use planning mistakes and plan for a future that has the greatest chances of maintaining and amplifying ecosystem health and climate change resilience. Tackling the climate crisis must include ensuring landscape connectivity that provides multiple pathways for animals and plants to adapt to shifting climates as climate change intensifies. We urge the HSRA to increase the proposed mitigation to adequately mitigate the Project's impacts to special-status species, sensitive habitats, wildlife movement, and habitat connectivity.

Thank you for the opportunity to submit comments on the DEIR for the Burbank to Palmdale Project Section of the California High-Speed Rail Project. Please include the Center on your notice list for all future updates to the Project and do not hesitate to contact the Center with any questions at the email addresses listed below.

Sincerely,

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Response to Submission 4378 (Tiffany Yap, Center for Biological Diversity - Oakland, November 30, 2022)

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The commenter notes that they are submitting attached comments on behalf of the Center for Biological Diversity, and provides a link to where references cited can be found. Comment noted. Responses are provided for each substantive comment in the attached comments.

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Refer to Standard Response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife, PB-Response-BIO-3: Wildlife Movement Corridors, PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the ANF.

The commenter expresses concerns related to adequacy of mitigation measures needed to account for the project's impact on hydrological systems, wildlife connectivity, sensitive species, and climate change. The Authority has developed 12 Impact Avoidance and Minimization Features (IAMF) described in Appendix 2-E and over 100 mitigation measures described in Section 3.7.7, which are designed to avoid, minimize, and offset impacts to special-status species, sensitive habitats, wildlife movement, and habitat connectivity.

Each of the six Build Alternatives would traverse the ANF, including the SGMNM, underground in a tunnel. Because of the high mountains, faulting, hard rock formations, and potentially high water pressures that could be encountered, tunnel construction under the ANF could alter hydrogeological conditions, resulting in inflows of groundwater into the tunnel and the subsequent change in groundwater levels. The Authority's analysis of hydrogeological effects from tunnel construction involved a detailed assessment of known hydrogeologic and hydrologic conditions of the western San Gabriel Mountains; the professional judgment of experts in the field of hydrogeology, hydrology, and tunnel construction; and reviews of case studies of similar types of tunnel construction projects. Based on the findings of this analysis, potential risk areas were identified and mapped in the tunnel construction RSA in the ANF, with relative rankings of High Risk, Moderate Risk, and Low/No Risk of impacts on subsurface, surface, and other water resources. The Authority will use state-of-the-art design features and construction methods to avoid and minimize impacts on hydrologic resources, such as HYD-IAMF#5 (TBM Design Features), HYD-IAMF#6 (Tunnel Lining Systems), and HYD-IAMF#7 (Grouting). Notwithstanding these measures, in High-Risk Areas, which are zones associated with tunnels intersecting areas with faults and high hydrostatic pressure, groundwater inflow into the tunnels would likely occur during construction. Although actions would be implemented during construction to reduce the indirect impacts on special-status species and to minimize the loss of habitat resulting from

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tunnel construction, the project could result in loss and degradation of habitat. To address this impact, the Authority would implement an AMMP. BIO-MM#93 will involve implementation of the bioresource portions of the AMMP prepared under HYD-MM#4, which will require monitoring of groundwater-dependent surface water resources and associated habitat within the tunnel construction RSA, providing supplemental water where needed, and remediating or compensating for any adverse effects identified during monitoring in a timely manner. If the Authority determines, through direct monitoring or data interpretation, that substantial disruption (i.e., loss of 0.5 acre or greater) to habitat supporting special-status species has likely occurred during or after construction and that habitat restoration efforts did not achieve success criteria or that restoration was determined unfeasible, compensatory mitigation to offset the loss of habitat would be provided. With implementation of these mitigation measures, the Build Alternatives would not result in a substantial adverse effect on special-status species and habitat as a result of indirect impacts from tunnel construction.

Please refer to Standard Responses PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, and PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the ANF for further information regarding concerns about hydrologic impacts that could potentially result from tunneling under the ANF, including areas within the SGMNM, as well as concerns regarding the ongoing availability of water supply.

Please refer to Standard Response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife regarding concerns about project construction and operations impacts to special-status plants and wildlife and habitat.

The Palmdale to Burbank Project Section: Wildlife Corridor Assessment Report (Authority 2019c) highlights permanent effects on wildlife movement that would result from operation of the Build Alternatives. Despite existing constraints (SR 14 and suburban land uses), a majority of the Build Alternatives would be permeable (i.e., no impediments to wildlife movement) outside of the urban areas of Palmdale and the San Fernando Valley. These permeable areas occur where the Build Alternatives would be elevated on a viaduct or underground in a tunnel because wildlife can travel above tunneled segments or under elevated viaducts. Tunnels and viaducts provide almost

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unimpeded connectivity for wildlife and would have no impact on wildlife movement and connectivity. The Authority (2019c) concluded that as long as there is a viaduct/tunnel/at-grade transition and/or drainage structure within 1.0-mile intervals for large crossings and 0.3-mile intervals for small crossings, wildlife movement would not be impeded.

Despite the extensive tunnel and viaduct segments, the Authority determined that mitigation measures were required to address significant impacts related to at-grade segments near Una Lake and the California Aqueduct (See Draft EIR/EIS Section 3.7.6.3). The Authority developed BIO-MM#64 to require installation of one wildlife crossing south of the California Aqueduct and one wildlife crossing east of Una Lake to improve the permeability of SR14A. Other mitigation measures were also developed to further reduce impacts, including: preparation and implementation of a restoration and revegetation plan (BIO-MM#6); installations of aprons or barriers within security fencing (BIO-MM#36); minimize effects on wildlife movement corridors during construction (BIO-MM#37); establish environmentally sensitive areas (BIO-MM#58); limit vehicle traffic and construction site speeds (BIO-MM#60); implement wildlife height requirements for enhanced security fencing (BIO-MM#77); install wildlife jump-outs (BIO-MM#78); and implementation of measures to reduce, avoid and minimize effects on wildlife movement (BIO-MM#83). Standard Response PB-Response-BIO-3: Wildlife Movement Corridors, provides detailed information regarding the methodology and analysis used to analyze the project's effects on wildlife movement. Maintaining habitat connectivity among the natural lands that exist in the Antelope Valley, the San Gabriel Mountains, and the San Bernardino Mountains is recognized as a key tool in ensuring the long-term population viability of special-status and non-special-status species. The Authority recognizes that this is a high conservation priority identified by both regulatory agencies and conservation groups. In recognition of this conservation priority, the Authority is committed to addressing wildlife connectivity based on the best available science and based on input from knowledgeable stakeholders in the region. The Authority undertook an extensive review of information on regional wildlife movement and integrated substantial wildlife crossing opportunities into the project design.

The commenter also references the ongoing climate crisis and urges the Authority to take more responsibility in maintaining and amplifying ecosystem health and climate

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change resilience. See Section 3.3, Air Quality and Global Climate Change, for the Global Climate Change Effect Analysis that was conducted for the project. The analysis found that after a maximum of 6 months, the Build Alternatives would result in net annual emissions reductions and a GHG benefit.

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The commenter expresses that the Draft EIR/EIS must assess a more expansive definition of species habitat to adequately assess impacts to special-status species and wildlife movement. The Authority acknowledges there are limitations to the California Wildlife Habitat Relationships System (CWHRS) 2016, but this is the best available dataset applicable to the extent of the Resource Study Area (RSA) and identified by the California Department of Fish and Game as the species' ranges.

The commenter is concerned that the suitable core and patch habitat was clipped by the known species range (CWHRS) and urban development edge. The Authority disagrees with the commenter's assertion that the model underestimates mountain lion impacts. The species predictive model overestimates the potential habitat for this species within the RSA by using large blocks of CWHRS vegetation communities that assumes all areas within the community are habitat. The urban edge and CWHRS data are large scale regional data sets appropriate for a project of this scale. It is acknowledged that individual animals will stray outside of the known species range; however, the data set captures the overall trends and provides opportunities for updates upon review by the wildlife agencies. In addition, the urban edge is a general boundary of urban development. Individual mountain lion may utilize backyard habitat, but backyards are generally not considered suitable mountain lion habitat. Furthermore, the CWHRS has not yet decided whether to incorporate the individual mountain lion records from NPS and iNaturalist from the Verdugo Mountains, into their species range.

The commenter is concerned that the Verdugo Mountains are not included within the CWHRS mountain lion species range and impacts to mountain lion movement. The Refined SR14, SR14A, E1, and E1A Build Alternatives do not cross the Verdugo Mountains. Alternatives E2 and E2A are the only alignments that cross the Verdugo Mountains and they are not the preferred alternative. Modifying the species range would not change the result of the analysis for the preferred alternative. Alternatives E2 and E2A traverse the approximate 1.77-mile distance across the Verdugo Mountains either underground in tunnel or elevated on viaduct, allowing wildlife to cross the HSR alignment. There is a 0.038 mile (200 foot) at-grade section that would be fenced and impermeable; however, it is assumed that a highly mobile mammal such as mountain lion would be able to traverse around this small segment.

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The commenter is concerned the Draft EIR/EIS underestimates the project impacts on mountain lion habitat (Table 3.7-20, Draft EIR/EIS page 3.7-149) and mountain lion movement. Impacts on mountain lion breeding, foraging, and dispersal habitat are shown in Figure 3.7-25 and in Table 3.7-20 of the Draft EIR/EIS.

The commenter correctly notes the desert tortoise data used was from the Desert Renewable Energy Conservation Plan (DRECP). The DRECP data does not show suitable desert tortoise habitat within the project alignment. In addition, the DRECP does not show any occurrences south or west of Palmdale. Generally, disturbed areas are not considered desert tortoise habitat. The commenter states USFWS determined that desert tortoise has the potential to occur where Agua Dulce Canyon Road intersects the SR 14 freeway; however, desert tortoise is not known to occur south and west of Palmdale. No records for desert tortoise occur in the California Natural Diversity Database west and south of Palmdale. In addition to Palmdale being urban, the California Aqueduct, and the SR 14 freeway restrict tortoise movement south and west of Palmdale. The commenter also states that a portion of the HSR occurs within the Western Mojave Recovery Unit for desert tortoise. These recovery areas are used as policy planning areas for the recovery of the species and include developed and urbanized areas in the City of Palmdale and Lancaster. It is not expected that desert tortoise would be re-established in urban and developed areas even though they are within the Mojave Recovery unit.

The commenter is concerned that the acreage calculated for impacts on desert tortoise habitat is greater than the amount shown in Table 3.7-32 of the Draft EIR/EIS. The desert tortoise species model was created by USGS. The USGS model is a statistical habitat model for parts of the Mojave and Sonoran Deserts and was created by inputting environmental and occurrence data into Maxent (v3.3.3e).

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Refer to Standard Response PB-Response-BIO-3: Wildlife Movement Corridors.

The commenter states the opinion that the Draft EIR/EIS fails to adequately address the project's impact on mountain lions. Specifically, the commenter states that excluding the Verdugo Mountains from the analysis reduces the area of reported impacts.

The breeding, foraging, and dispersal habitats for mountain lion and American badger are defined in Table 3.7-7 in Section 3.7, Biological and Aquatic Resources of the Draft EIR/EIS and are based on the CWHR vegetation communities and CWHR species ranges. The impact calculations in Table 3.7-20 reflect the total potential habitat within the Core Habitat RSA (1,000 feet from Build Alternative). The Preferred Alternative, SR14A, and the Refined SR14, E1, and E1A Build Alternatives do not cross the Verdugo Mountains. Build Alternatives E2 and E2A are the only alternatives that cross through the Verdugo Mountains. The E2 and E2A Build Alternatives traverse the approximately 1.77-mile distance across the Verdugo Mountains either underground in tunnel or elevated on viaduct, allowing wildlife to cross the HSR alignment. There is a 0.038-mile (200-foot) at-grade section that would be fenced and would be impermeable; however, a highly mobile mammal such as mountain lion would be able to traverse around this small segment. Impacts on mountain lion breeding, foraging, and dispersal habitat are shown in Figure 3.7-25 and with data provided in Table 3.7-20 of the Draft EIR/EIS. Habitat acreage for mountain lion and American badger, as with other species, are based on a variety of factors, including historically known ranges, vegetation community affiliations taken from CWHR, elevation, and topography. Impacts to species habitat are based on where the direct project footprint or larger indirect effects area (wildlife resource study area) overlap with the species habitat acreage. As such, impact acreages are taken directly from geographic information systems analysis of project feature overlap with species habitat overlap, and then are subsequently reviewed for accuracy. This provides an objective and robust estimate of project impacts. American badger tend to be more extensive in their use of land than mountain lion, including urban and other developed lands, and have a historically broader range than mountain lion; therefore, badger is expected to have a larger impact acreage than mountain lion. BIO-MM#97 (Provide Compensatory Mitigation for Impact on Mountain Lion Habitat) includes a compensatory mitigation plan prepared and implemented to address impacts to mountain lion habitat following the methodology in BIO-MM#53 (Prepare and Implement a CMP for Species and Species Habitat).

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The commenter requests clarification regarding whether compensatory mitigation will be
provided for temporary impacts as well as permanent impacts. As described in Draft EIR/EIS Section 3.7.6.3, for the purposes of quantifying acreages of habitat impacts, temporary impacts are considered to be permanent impacts due to the length of the construction period. Therefore, implementation of BIO-MM#97 would cover temporary impacts as well as permanent impacts.

The commenter also requests clarification on how "high-priority" and "low-priority" mountain lion habitat will be defined or identified to ensure permanent and temporary impacts are offset by BIO-MM#97. The Final EIR/EIS has been revised to provide a distinction between "high-priority" and "low-priority" habitat as relates to mountain lion by identifying the vegetation layers that correspond with high and low priority habitat. The commenter also states that the Authority should provide compensatory mitigation for mountain lion habitat at a 3:1 ratio for preservation and 5:1 ratio for restoration, enhancement, or creation, and that gene flow and climate adaptability among and between suitable habitat must be prioritized. As described in BIO-MM#97, habitat will be replaced at a minimum ratio of 2:1 for permanent impacts on breeding/foraging habitat and high-priority foraging and dispersal habitat (CRC, MCH, SGB, CSC, COW, DSW, DSC, AGS, JUN, VRI, LAC), and at a ratio of 1:1 for low-priority foraging and dispersal habitat (BAR, DOR/VIN), unless a higher ratio is required by regulatory authorizations issued under CESA. Compensatory mitigation concentrates on high value habitat acquisition, with a focus on factors such as location, function, conservation value, and development threat, rather than acreage ratios. A 2:1 ratio for permanent impacts on breeding/foraging habitat and high-priority foraging and dispersal habitat, and a 1:1 for low-priority foraging and dispersal habitat are standard minimum ratios and sufficient to provide equivalent replacement of potentially lost functions and values of mountain lion habitat. Nevertheless, through ongoing coordination with CDFW, higher ratios that provide superior replacement of potentially lost functions and values of habitat may be required.

The commenter states the maintaining and enhancing the connection between the San

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Gabriel Mountains and the Sierra Pelona Mountains is of the highest importance. The Build Alternatives maintain wildlife movement connectivity across the extensive series of tunnels and viaducts that correspond with existing crossing opportunities along the existing constrained SR 14 freeway. The lengths of those tunnels and viaducts are listed in Table 6-6 in the WCA (Authority 2019c) and Table 2-13 of the supplemental WCA (Authority 2019c). The SR14A Build Alternative includes six permeable segments that include 13.25-mile, 8.28-mile, and 1.04-mile tunnel segments where wildlife can cross over the alignment. Furthermore, the SR14A Build Alternative includes 0.43-mile, 0.40-mile, and 0.19-mile elevated viaduct segments where wildlife can cross underneath the HSR alignment. Similarly, the Refined SR14 Build Alternative includes 13.06-mile, 7.21-mile, 3.14-mile, 1.62-mile, 0.99-mile, and 0.51-mile tunnel segments where wildlife can cross over the alignment. Furthermore, the Refined SR14 Build Alternative includes 0.68-mile, 0.65-mile, 0.44-mile, 0.37-mile, 0.32-mile, 0.16-mile, 0.06-mile, and 0.03-mile elevated viaduct segments where wildlife can cross underneath the HSR alignment. As described above, the extensive number of crossing opportunities at the tunnels, viaducts, and designated wildlife crossings are viable movement opportunities for wildlife.

Both the SR14A Build Alternative and Refined SR14 Build Alternative are 83 percent permeable for wildlife movement. Wildlife movement will be further enhanced at two proposed wildlife crossing locations - one located near East Barrel Springs Road (east of Una Lake) and a second crossing south of the Soledad Siphon (south of the California Aqueduct) and will be designed as indicated in BIO-MM#64 (Establish Wildlife Crossings). The E1 Build Alternative is 80 percent permeable, and the E1A Build Alternative is 83 percent permeable. The E2 Build Alternative is 79 percent permeable, and the E2A Build Alternative is 82 percent permeable. In addition to the extensive tunnels in these HSR alternatives, Alternatives E1 and E2 include the one proposed wildlife crossing south of the California Aqueduct, and Alternative E1A includes the one proposed wildlife crossing near East Barrel Springs Road (east of Una Lake). Alternative E2A also includes both of the proposed wildlife crossings. While there could be an overall cumulative significant impact to wildlife movement resulting from all past, present, and foreseeable projects, given the design of the HSR Palmdale to Burbank Section to be permeable, the HSR Palmdale to Burbank Section would add wildlife movement opportunities, as well as implement other relevant mitigation described

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below. Specifically, the SR14A Build Alternative (Preferred Alternative) would not have a cumulative impact with SR14 given the alignment is primarily underground and provides movement corridor opportunities where it transitions above ground.

The Final EIR/EIS provides mitigation measures specific to mountain lion to avoid, minimize, and otherwise, mitigate impacts to the species and its habitat. These measures include, but are not limited to: BIO-MM#77 (Implement Wildlife Height Requirements for Enhanced Security Fencing), which establishes requirements for security fencing to direct wildlife species, including mountain lion, to movement corridors where wildlife would not become entrapped or harmed within the right-of-way; BIO-MM#96 (Conduct Pre-Construction Surveys and Implement Avoidance and Minimization Measures for Mountain Lion Dens), which includes measures that would avoid or minimize disturbance from construction to mountain lion individuals; and BIO-MM#97 (Provide Compensatory Mitigation for Impact on Mountain Lion Habitat), which will ensure permanent and temporary impacts on mountain lion habitat would be offset.

In addition, other mitigation measures not specific to mountain lion but would benefit the species are provided in detail in Section 3.7.7, including BIO-MM#37 (Minimize Effects on Wildlife Movement Corridors During Construction), BIO-MM#50 (Implement Measures to Minimize Impacts During Off-Site Habitat Restoration, or Enhancement, or Creation on Mitigation Sites), BIO-MM#53 (Prepare and Implement a CMP for Species and Species Habitat), BIO-MM#56 (Conduct Monitoring of Construction Activities), BIO-MM#58 (Establish Environmentally Sensitive Areas and Nondisturbance Zones), BIO-MM#60 (Limit Vehicle Traffic and Construction Site Speeds), BIO-MM#63 (Work Stoppage), BIO-MM#64 (Establish Wildlife Crossings), BIO-MM#78 (Install Wildlife Jump-outs), BIO-MM#83 (Measures Intended to Reduce, Avoid, and Minimize Effects on Animal Movement), BIO-MM#99 (Implement Lighting Minimization Measures During Construction), and BIO-MM#100 (Implement Lighting Minimization Measures for Operations). Section 3.7.7.1 provides an assessment of potential impacts from implementation of mitigation measures during various stages of the project.

Please also refer to Standard Response PB-Response-BIO-3: Wildlife Movement Corridors for more detail. Based on the information provided above, including implementation of the extensive suite of mitigation measures, impacts to mountain lions

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and other special-status species, sensitive habitats, and wildlife movement would remain less than significant.

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Refer to Standard Response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife, PB-Response-GEN-6: Impacts on the Santa Clara River.

The commenter expresses concern that more detail is required for the public and decision makers to determine whether the Project's impacts to special-status species and sensitive habitats are adequately assessed and mitigated, including that "…there is no guarantee a prepared CMP will be implemented…" and "BIO-MM#53 is insufficient and amounts to improperly deferred mitigation."

BIO-MM#53 (Prepare and Implement a CMP for Species and Species Habitat) has been revised in the Final EIR/EIS to include a commitment to "implement" the Compensatory Mitigation Plan (CMP). Furthermore, language has been added to BIO-MM#53 that states, where compensatory mitigation is identified as the preferred approach, mitigation ratios for federal and state listed species will be identified pursuant to regulatory authorizations issued under FESA and CESA. Furthermore, the Authority will commit to all mitigation through adoption of a Mitigation Monitoring and Reporting Plan.

The commenter also states that compensatory mitigation ratios are too low for special-status species and sensitive habitats. The mitigation outlined in the Draft EIR/EIS is adequate to offset the impacts and is consistent with the mitigation provided in other sections of the High-Speed Rail program with previously certified EIR/EIS documents.

In summary, during the compensatory mitigation planning process, subsequent permitting efforts, and consultation with regulatory agencies, consideration will be given to whether mitigation should apply to suitable habitat whether it is occupied, potentially occupied, historically occupied, or within an area that would allow for species to adapt to climate change, as well as considerations for gene flow and climate adaptability among and between suitable habitats. Please also refer to Standard Responses PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife and PB-Response-GEN-6: Impacts on the Santa Clara River.

In response to the comment regarding barotrauma, the Authority has reviewed the commenter's cited sources on barotrauma impacts. The cited studies find that injury or

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mortality resulting from bat strikes are more common than a pressure differential generated by the increased pressure at the front of the train and reduced pressure at the rear of the train causing barotrauma. Implementation of BIO-MM#98 (Minimize Permanent Intermittent Impacts on Aerial Species Wildlife Movement) will result in a design of aerial structures and tunnel portals to discourage bats from roosting in expansion joints, light tunnel entrances, or other crevices, and are specified in detail in the Wildlife Corridor Assessment Report (Authority 2019c). These design features would minimize the presence of roosting bats where effects from barotrauma may be experienced. Impact BIO#14 (Section 3.7 Biological and Aquatic Resources) analyzes bat strikes associated with operation of the Build Alternatives. Please also refer to Standard Responses PB-Response-GEN-6: Impacts on the Santa Clara River –Aquatic and Biological Resources - Significant Ecological Areas and PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife for more information.

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Refer to Standard Response PB-Response-BIO-3: Wildlife Movement Corridors.

The commenter states that additional wildlife crossings are required to adequately mitigate the Project's impacts on wildlife movement. The commenter describes the high-speed rail as slicing through much of the state, emphasizes minimizing impacts to wildlife connectivity as much as possible to preserve any remaining intact habitat and allow for enhancement and recovery of areas with constrained connectivity. The commenter goes on further to highlight the importance of protecting and improving connectivity to improve the chances for sensitive species to survive and adapt to climate change while improving the State's chances of reaching the goal of conserving 30% of California's lands and coastal waters by 2030 - known as the 30x30 California initiative. The Climate Adaptation and Resiliency Program in the 30x30 California initiative is described as follows:

Program: Climate Adaptation and Resiliency Program. *The intent of the Climate Adaptation and Resiliency Program is to fund projects that provide climate adaptation and resilience on California's natural and working lands throughout the state. Funding priorities focused on the protection and/or conservation of lands that facilitate wildlife adaptation to projected climate impacts by providing transitional habitat features and habitat linkages that enable wildlife movement to and from adjacent wildlife corridors and open space areas.*

The commenter states the importance of wildlife connectivity for healthy species and populations, and that the project will result in habitat loss, fragmentation, and edge effects that will degrade a critical connectivity area between the San Gabriel Mountains and the Sierra Pelona Mountains/Castaic Area. The commenter cites the 2021 Center for Biological Diversity Report (Yap et al., 2021), identifying transportation infrastructure and development as creating barriers that lead to habitat loss and fragmentation, which harms native wildlife, plants, and people. In addition, the commenter provides additional citations that describe how poorly planned development and roads can affect an animal's behavior, movement pattern, reproductive success, and physiological state which can lead to a significant impact on individual wildlife, populations, communities, landscape, and ecosystem function.

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The commenter states that mitigation must include movement studies, more wildlife crossings, and land acquisitions in important connectivity areas. The Wildlife Crossing Assessment (WCA) includes a robust analysis of wildlife connectivity and movement both with and without the project. Electronic copies of the WCA, WCA Supplement, and other technical reports are available through submitting a request on the Public Records Act portal (available at: https://hsr-ca.nextrequest.com/). The WCA compiled extensive studies on wildlife movement, including the SC Wildlands least cost corridor data that was used to identify the importance of the San Gabriel-Castaic Linkage Design. The WCA acknowledges the importance of the Linkage Design, and Table 6-6 in the WCA and Table 2-13 in the WCA Supplement highlight the extent of the wildlife movement opportunities maintained through a series of tunnels and viaducts to maintain movement corridors that align with existing crossing opportunities along the SR 14 freeway shown on Figure 5-7 in the WCA.

The commenter states the Draft EIR/EIS downplays the importance of the Linkage Design, and the Los Angeles County San Andreas and Santa Clara River Significant Ecological Areas (SEA). The commenter states that the Draft EIR/EIS focuses on existing constraints from existing infrastructure, specifically the SR 14 freeway, the California Aqueduct, or fencing at Una Lake and Lake Palmdale. The SR 14 freeway, the California Aqueduct, or fencing at Una Lake and Lake Palmdale do provide significant barriers to wildlife movement. However, the individual impact of the Project was evaluated and disclosed separately from existing barriers to movement, such as the SR 14 freeway. The local permeability analysis did not factor the SR 14 freeway, the California Aqueduct, or fencing at Una Lake and Lake Palmdale into the calculations of reduced permeability; if it had done so, the result would have been a reduction in permeability lower than what was disclosed.

The commenter highlights that no roadkill or field data was completed to verify that roads and other infrastructure may prevent significant barriers to wildlife movement. The South Coast Missing Linkages Project: A Linkage Design for the San Gabriel - Castaic Connection (Penrod et al. 2004) identifies the SR 14 freeway as the largest impediment to wildlife movement in the Linkage Design. Section 5.3.1 and Figure 4-5 in the WCA identify existing crossing structures such as bridges under the SR 14 freeway that provide movement opportunities but also serve as bottlenecks for wildlife movement.

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The commenter states the Draft EIR/EIS lacks dimensions of the culverts and bridges along the SR 14 freeway. Potential crossing opportunities across the SR 14 freeway are provided below and photographs of these locations are provided in Appendix C in the WCA:

- California Aqueduct undercrossing of the SR 14 freeway
- SR 14 undercrossing south of California Aqueduct
- Sierra Highway-SR 14 undercrossing
- Mountain Springs Road-SR 14 overcrossing
- Sierra Highway-SR 14 overcrossing
- Santiago Road-SR 14 undercrossing
- Crown Valley Road-SR 14 undercrossing
- Red Rover Mine Road-SR 14 undercrossing
- Culvert under SR 14 near Red Rover Mine Road
- Ward Road-SR 14 undercrossing
- Culvert under SR 14 near Ward Road
- Puritan Mine Road-SR 14 undercrossing
- Escondido Canyon Road-SR 14 overcrossing
- Pacific Crest Trail SR 14 undercrossing
- Culvert under SR 14 near Vasquez Rocks
- Agua Dulce Canyon Road-SR 14 undercrossing
- Culvert under SR 14 near Agua Dulce Canyon Road
- Stone Crest Road-SR 14 undercrossing
- Soledad Canyon Road-SR 14 undercrossing

Furthermore, Figure 4-5 in the WCA shows the spatial relationship between these wildlife crossing opportunities at the existing bridges on the SR 14 freeway and the alignment with the adjacent permeable elevated and underground HSR segments that maintain wildlife movement opportunities.

The commenter highlights that Caltrans does not collect roadkill data for the SR 14 freeway and therefore concludes that the analysis is limited due to the lack of on-the-ground studies. Field studies were not conducted due to the lack of access at the time the WCA was developed. The commenter suggests that because of the lack of Caltrans roadkill data, the analyses were provided with limited movement data and without field

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studies. The WCA analysis used the same base data (topography, vegetation, road density, and elevation) that the least cost corridors and the Linkage Design developed for the South Coast Missing Linkages Project: A Linkage Design for the San Gabriel - Castaic Connection was based on.

The commenter asserts that since the SR 14 freeway is not impermeable (i.e., there is no 10-foot-tall fence), some valuable wildlife movement in the area likely persists (e.g., animals may successfully cross when there is low or no traffic). Subsequent to the development of the WCA, the University of California Davis, Road Ecology Center created the Real-time Deer Incidents &Wildlife-Vehicle Conflict (WVC) Hotspot maps, with live data feeds from the California Roadkill Observation System (CROS) and the California Highway Incident Processing System (CHIPS) (UC Davis 2023) (Figure 1, below). The map does not show wildlife species. The data shows the following rate of incidents per mile per year:

- East Avenue S (north and south adjacent to Lake Palmdale) –0.3 incidents per mile per year
- E Barrel Springs Road (Lake Palmdale to across the CA Aqueduct) –0.5 incidents per mile per year.
- Sierra Highway to Mountain Springs Road –0.5 incidents per mile per year
- Soledad Canyon Road to Santiago Road –0.3 incidents per mile per year
- Red Rover Mine Road to Ward Road –0.5 incidents per mile per year
- Escondido Road –0.3 incidents per mile per year
- Stonecrest Road to Soledad Canyon Road –0.5 incidents per mile per year

No large roadkill or deer incidents were reported along the stretch of the SR 14 freeway between Palmdale and Santa Clarita, concluding that the hotspots listed above are comprised of small to medium wildlife. The nearest deer incident reported on CHIP was on Placerita Canyon Road near Santa Clarita, east of the SR 14 freeway, recorded on September 16, 2023 (Figure 1, below).

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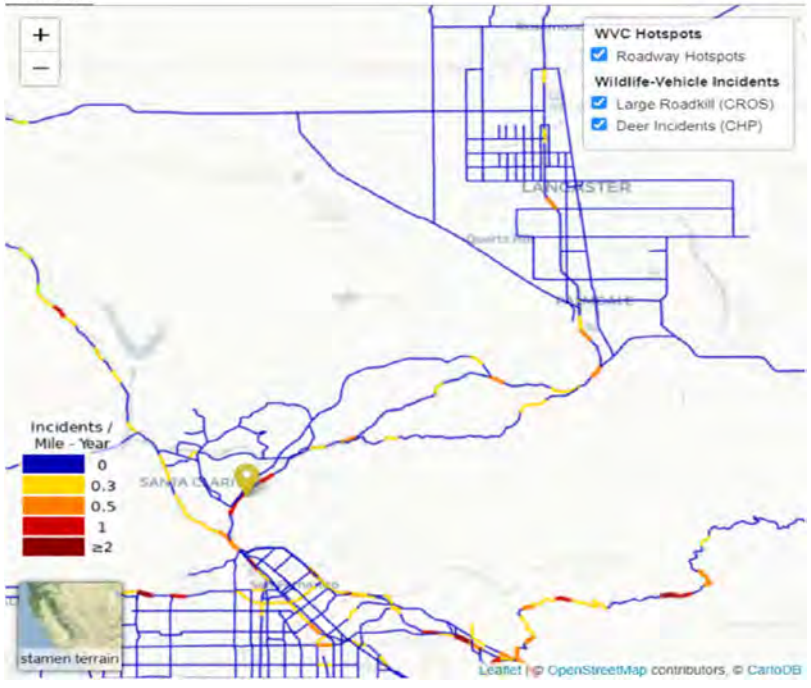


Figure 1. Real-time Deer Incidents &Wildlife-Vehicle Conflict (WVC) Hotspot maps, with live data feeds from the California Roadkill Observation System (CROS) and the California Highway Incident Processing System (CHIPS), University of California Davis, Road Ecology Center, September 16, 2023.

With respect to the discussion in the Draft EIR/EIS of existing crossing opportunities, the Draft EIR/EIS unintentionally combined bridges with culverts in providing reasons why some of the existing culverts are not conducive for wildlife movement, as described in the WCA. The Draft EIR/EIS has been revised to remove the word "bridge" from that sentence to accurately reflect what was stated in the WCA, which is that most of the existing culverts under the SR 14 freeway do not appear to function as wildlife crossings because of their opening and steep grade under the freeway, whereas the bridges do

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provide crossing opportunities.

The commenter states the lack of field studies does not support the conclusion that the SR 14 freeway constitutes a complete barrier to wildlife movement. The WCA noted that the SR 14 freeway acts as a semipermeable barrier, as evidenced by the numerous undercrossings described in the WCA. However, in the area adjacent to Bee Canyon, there is substantial evidence to indicate that the SR 14 freeway constitutes a complete barrier. The 2014 annual average daily traffic volume (AADT) for the SR 14 freeway ranges between 71,000 and 99,000 vehicles in Palmdale and Santa Clarita, which is seven to ten times the volume that Clevenger and Huijser (2009) found to repel wildlife due to the almost constant level of disturbance and heavy traffic volume. In addition, the steep road cuts and steep terrain along the SR 14 freeway between Stonecrest Road and Agua Dulce Canyon Road make the freeway less likely to facilitate wildlife movement as highlighted in the high wildlife use hotspot areas compiled by UC Davis (UC Davis 2023). Examples of the steep road cuts are provided in the Google Streetview images below (Figure 2).

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Figure 2. Looking north at the steep cut slopes along the SR 14 freeway adjacent to Bee Canyon.

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Figure 3. Looking north at the steep natural terrain and steep road cuts along the SR 14 freeway adjacent to Bee Canyon.

The commenter describes that placing a noisy, vibrating, at-grade high speed rail alignment with a 10-foot tall fence along the SR 14 freeway would be a formidable barrier and preclude opportunities to enhance connectivity, gene flow, and climate resiliency. The extensive series of tunnels and viaducts that maintain wildlife movement opportunities are listed (Table 6-6 in the WCA and Table 2-13 of the WCA Supplement) and align with the existing bridges on the SR 14 freeway. Figure 5-4 in the WCA identifies the existing bridges on the SR 14 freeway that provide wildlife crossing opportunities that align with tunnel and viaduct segments to facilitate wildlife movement. Areas along the SR 14 freeway that would be conducive to the enhancement of crossing

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opportunities are not impeded by the project, which has extensive tunnels and viaducts in those areas.

The commenter continues that even if the SR 14 freeway is currently a significant barrier to wildlife movement, that underscores how important preserving existing connectivity and restoring former connectivity is for the project area. The commenter is of the opinion that a highly constrained opportunity for movement between natural areas might be made more difficult and should be considered a significant impact, requiring mitigation. Again, the SR14A Alternative and the SR14 Refined Build Alternative both provide movement opportunities directly adjacent to the existing freeway bridge crossings. Figures 4 and 5, below, further illustrate wildlife movement opportunities across the SR 14 freeway at the existing undercrossings and the adjacent permeable tunnel and viaduct segments for the SR14A Build Alternative to maintain gene flow.

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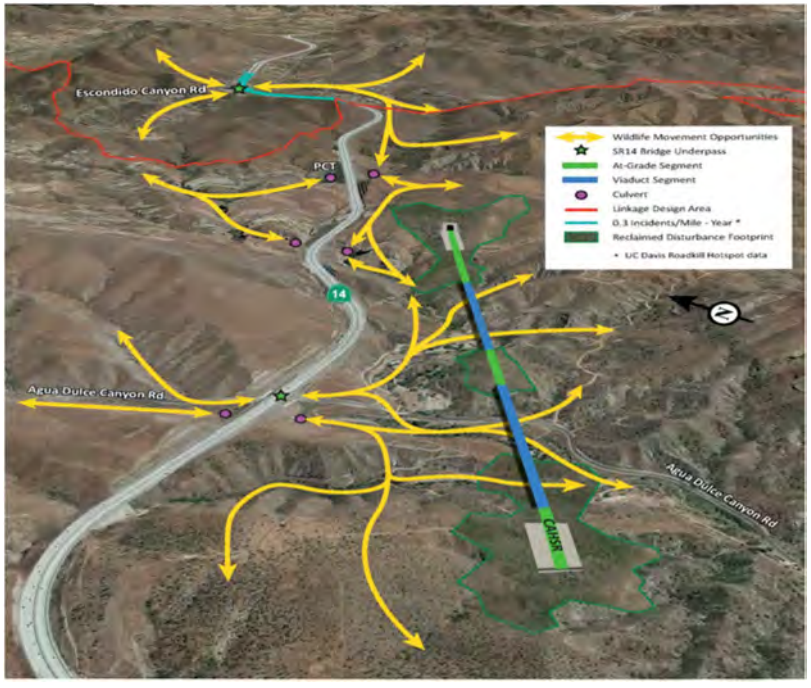


Figure 4 - Aerial photograph showing wildlife movement opportunities, looking north from Agua Dulce Canyon Road, through the Linkage Design, across the SR 14 freeway corridor with UC Davis Wildlife-Vehicle Conflict Hotspots identified.

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Figure 5 - Aerial photograph showing wildlife movement opportunities, looking north from Stonecrest Road, through the Linkage Design, across the SR 14 freeway corridor with UC Davis Wildlife-Vehicle Conflict Hotspots identified.

The commenter suggests mitigation should include conducting movement studies to inform the placement and design of more wildlife crossings for the at-grade segments of the project. The project engineers conducted an extensive analysis at the longer at-grade segments to determine where crossings could be located. Due to the project design constraints, the alignment requires gentle slopes and turns. Areas that cut through steep alternating ridges and ravines provide limited opportunities to create wildlife crossings across the alignment.

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The commenter suggests creating a wildlife connectivity technical working group comprised of members from the Authority, the Center, Caltrans, CDFW, The Nature Conservancy, Wildlands Network, University of California, Davis, the U.S. Fish and Wildlife Service, as-needed species-specific experts, and other appropriate stakeholders should be established, coordinated, and consulted with by the HSRA. Although not required based on the anticipated impacts and sufficiency of existing mitigation, the Authority is open to coordinating with the appropriate wildlife agencies, conservation organizations, and academic organizations for input on the micro-location siting, type, and design of the wildlife crossing opportunity. The commenter requests that a wildlife connectivity technical working group be established to assist with decisions on wildlife crossings. Once a Build Alternative has been selected, the Authority will determine the form of the coordination with stakeholders and the wildlife agencies, including whether to establish a formal technical working group as requested by the commenter.

The commenter suggests there should be more wildlife crossings to adequately mitigate the project impacts on both large wide-ranging species as well as small, less mobile species. As shown in Table 6-6 in the WCA and Table 2-13 of the WCA Supplement, the SR14A Build Alternative includes six permeable segments that include a 13.25 mile, 8.28 mile, and 1.04 mile tunnel segments and a 0.43 mile, 0.40 mile, and 0.19 mile elevated viaduct segments where wildlife can cross the HSR alignment. The Refined SR14 Build Alternative includes a 13.06 mile, 7.21 mile, 3.14 mile, 1.62 mile, 0.99 mile, and 0.51 mile tunnel segment, and a 0.68 mile, 0.65 mile, 0.44 mile, 0.37 mile, 0.32 mile, 0.16 mile, 0.06 mile, and 0.03 mile elevated viaducts where wildlife can cross the HSR alignment. As described above, the extensive number of crossing opportunities at the tunnels, viaducts, and designated wildlife crossings align with crossing opportunities along the SR 14 freeway to maintain gene flow from wildlife permeability for both large and small species. For this reason, the post-project permeability would closely resemble the existing condition. As such, additional wildlife crossings are not required.

The commenter states that the Draft EIR/EIS approach is inconsistent with AB 2344, which establishes the policy of "protect, restore, and enhance the functioning of fish, wildlife, and habitat connectivity in connection with the planning, construction, and improvement of transportation infrastructure throughout the state and, where feasible, the operation and maintenance of transportation infrastructure throughout the state." The Authority respectfully disagrees. The Build Alternatives in their planning have an extensive series of tunnels and viaducts that will protect and ensure wildlife will be able to move freely across the alignment (listed in Table 6-6 in the WCA and Table 2-13 of

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the WCA Supplement) and these permeable segments (tunnels and viaducts) align with the existing bridges on the SR 14 freeway. The figures in this response further illustrate the extent of the wildlife movement opportunities across both the SR 14 freeway and the SR14 and SR14A alignments. The design features, two dedicated wildlife crossings, and the commitment in BIO-MM#64 to enhance replaced or modified culverts for wildlife movement are consistent with AB 2344.

The commenter suggests that the Authority must affirmatively take steps to restore connectivity, emphasizing the SR 14 freeway. The SR 14 freeway is an existing condition that the Project does not impact; however, the Project is designed to maintain wildlife movement opportunities through a series of extensive tunnels and viaducts that effectively align with bridges on the SR 14 freeway.

The commenter highlights that approximately 30 percent or more of the San Gabriel-Castaic Linkage Design will be impacted by at-grade segments. Again, the size and spacing of the tunnels and viaducts through the Linkage Design makes the project highly permeable for wildlife movement, including mountain lion and mule deer, see Table 6-6 in the WCA and Table 2-13 of the WCA Supplement. The existing freeway bridge structures are shown in Figure 4-5 of the WCA. The figures in this response illustrate how the tunnels and viaducts align with the existing bridge structures on the SR 14 freeway that are currently providing wildlife movement opportunities.

The commenter requests that the Authority upgrade the culverts and/or a wildlife overpass or underpass on the SR 14 freeway; acquire adjacent lands where the SR14A Build Alternative is at-grade near Bee Canyon and where the land is vulnerable to development; and install an overpass over HSR. The project is already highly permeable with permeable sections that align with existing SR 14 freeway crossings. A wildlife overcrossing over the SR14A Build Alternative and SR 14 freeway would be expensive and require extensive grading but would provide only a minor enhancement of movement opportunity because the available data indicates wildlife is not crossing the SR 14 freeway in the area adjacent to Bee Canyon. Although the Linkage Design is located between Stonecrest Road and Agua Dulce Canyon Road through Bee Canyon, the Linkage Design was based on a model without the support of field data that wildlife move across this section of freeway. The high wildlife use hotspot areas compiled by UC Davis (UC Davis 2023) demonstrate that the SR 14 freeway adjacent to Bee Canyon between Stonecrest Road and Aqua Dulce Canyon Road are not high-use areas. As discussed above, the UC Davis data identifies high use/vehicle conflict in the vicinity of the existing freeway undercrossings. The wildlife at the Stonecrest Road/SR 14 freeway

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undercrossing would likely use the Santa Clara River as a movement corridor where wildlife can cross underneath the 0.4 mile long viaduct. The Agua Dulce Canyon Road under the SR 14 freeway also aligns with a viaduct adjacent to extensive tunnel segments that provide for unimpeded wildlife movement. There are no crossing opportunities under the SR 14 freeway adjacent to Bee Canyon. As demonstrated above, the SR14A Build Alternative maintains wildlife movement opportunities for wildlife to cross the existing SR 14 freeway undercrossings at the bridges and existing high-use areas that align with the extensive network of tunnels and viaducts. The UC Davis data that shows high-use wildlife road crossing areas does not show the area adjacent to Bee Canyon as one of the hotspots, likely due to the steep natural terrain and steep road cuts, and high volumes of traffic deterring wildlife use. The WCA and WCA Supplement, corroborated by the recent UC Davis wildlife use data indicates that this area is not a highly used area by wildlife, such that enhancement/habitat acquisition adjacent to Bee Canyon difficult would not be biologically meaningful. Furthermore, addressing a legacy barrier on the SR14 freeway is not required for this project because effects will be reduced to less than significant levels by the proposed design features and mitigation measures.

As a result of the comments received on the Draft EIR/EIS, the Authority considered alternative design options that would increase the permeability of the Build Alternative alignments to wildlife movement in the Bee Canyon area. This design option would involve moving the alignment into a tunnel in Bee Canyon and under Santa Clara River is not feasible since it would require a vertical profile for HSR to return to a grade that exceeds the maximum allowable grade of 2.5% as defined in the Authority's Technical Memorandum (TM) 2.1.2 Section 3.3.1. Furthermore, a multidisciplinary team of engineers from SENER reviewed the topography and the design for the HSR Palmdale to Burbank Section and found that constructing the HSR rail alignment in a tunnel in the northern portion of Bee Canyon and then emerging from the tunnel only for the portion crossing over the Santa Clara River with a viaduct would not be feasible. The alignment requirements and the topography of the area do not allow for maintaining the minimum vertical clearance of the rail viaduct over Soledad Canyon Road. Additionally, this approach would result in deeper cut sections in the southwestern part of the Canyon, which could result in a larger environmental footprint in this area and a net increase in excavated volume.

The commenter expresses concern that the size and type of the wildlife crossings at Una Lake and Soledad Siphon are not clear. The details of the dedicated wildlife crossings will be decided as the project design progresses, but size and dimensions will

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be designed based on standards recommended in the Wildlife Crossing Structure Handbook Design and Evaluation in North America (Federal Highway Administration 2011 [identical to Clevenger and Huijser 2009 and Meese et al. 2009]). In addition, in BIO-MM#64, the Authority recognizes and commits to implementing the following design recommendations:

- Undercrossings intended to be used by large mammals (i.e., mule deer) within the mule deer species range would have a 10-foot-tall concrete arch to accommodate the mammals' larger stature.
- Any culvert intended to function as an undercrossing for carnivores and small animals would be no smaller than a 6-foot-wide arch culvert for lengths up to 200 feet, or an 8-foot-wide arch culvert for lengths up to 300 feet. The substrate would be natural soil of the surrounding area, and the grade would not exceed 2 percent. Culverts longer than 200 feet would not be considered wildlife crossing structures. If any portion of the bottom of the wildlife undercrossing is likely to be inundated longer than 24 hours at least once per year, the structure would have a dry ledge. Ledges or tunnels and cover features to prevent predation will also be incorporated into the design to facilitate safe passage of small wildlife. The structure would be straight enough that a mammal entering the culvert can see the other end of the culvert.
- Slope within the crossing structure would be consistent with the natural (pre-construction) grade (optimally less than 2%). Slopes that follow natural grades greater than 2% are acceptable in bridged undercrossings (viaducts).

The commenter highlights the importance of corridor redundancy to allow for improved functional connectivity and resilience at a regional scale. In addition, corridor redundancy provides resilience to uncertainty, impacts of climate change, and extreme events, like flooding or wildfires, by providing alternate escape routes or refugia for animals seeking safety. The number and lengths of elevated viaducts and underground tunnels create the corridor redundancy the commenter is identifying.

The commenter expresses concerns related to corridor redundancy and states that only two dedicated wildlife crossings for the at-grade segments are insufficient such that impacts on wildlife movement and habitat connectivity are significant. The Authority respectfully disagrees. Based on the analysis of changes in permeability, the Refined SR14 and SR14A Build Alternatives would reduce permeability for mountain lion by approximately 1 percent, mule deer by 1 percent, and badger by 1 percent. In terms of

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miles, more than 80 percent of the project section is in tunnel or on viaduct providing for unimpeded movement across the project. These changes in permeability are illustrated in the WCA for mountain lion, mule deer, and American badger, Graphs 6-1 through 6-9.

The commenter states that mitigation must include on-the-ground movement studies and implementing more wildlife crossings on the at-grade segments of the alignment and adjacent roadways like the SR 14 freeway. The Authority respectfully disagrees. Subsequent to the publication of the Draft EIR/EIS, the Authority received roadkill data from UC Davis (UC Davis 2023) that supports the conclusions reached in the WCA and WCA Supplement. Additional wildlife crossings are not required for the Project. The SR 14 freeway is a legacy barrier that is unrelated to the Project. The primary approach for addressing the potential effects of the proposed HSR project on wildlife movement and habitat connectivity is to maintain existing local permeability through design measures that include:

1. Placing segments underground in tunnels
2. Siting and constructing wildlife under/overcrossing structures in areas that facilitate (local) animal movement between suitable habitat areas and across the (regional) landscape –specifically a dedicated wildlife crossing at Una Lake, and a dedicated wildlife crossing at the California Aqueduct.
3. Ensuring that bridges and viaduct structures are designed to help facilitate wildlife movement.

Adding a crossing at an at-grade segment that leads to an area along the SR 14 freeway that is not highly used by wildlife such as the area adjacent to Bee Canyon is difficult to justify. The project design maintains wildlife movement opportunities that align with the existing crossing opportunities at the SR 14 freeway.

4378-8698

The comment provides a summary of previous comments for which responses have already been provided. These comments are noted and no further response or change to the EIR/EIS is necessary.

Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022)

Palmdale - Burbank - RECORD #4413 DETAIL

Status :	Delimited
Record Date :	12/1/2022
Interest As :	Business and/or Organization
First Name :	Jacqueline
Last Name :	Ayer
Attachments :	FINAL comments on noise impacts.pdf (911 kb) ATC_Comment_Letter_on_CHSRA_DEIRDEIS_Noise_Section__Signed.pdf (163 kb)

Stakeholder Comments/Issues :

[*PLEASE CONFIRM RECEIPT*

To the California High Speed Rail Authority;
Attached please find comments submitted by the Acton Town Council pertaining to the "Noise and Vibration" impact analysis (Section 3.4) of the Draft Environmental Impact Report/Environmental Impact Statement issued by the California High Speed Rail Authority for the Palmdale-Burbank Section of the High Speed Rail Project.
Please contact the Acton Town Council at atc@actontowncouncil.org if you have difficulties opening the attached or require additional information.
Hard copies of the attached comments have also been submitted via USPS.

Sincerely,
Jacqueline Ayer
Correspondence Secretary

ACTON TOWN COUNCIL
1887
P.O Box 810, Acton CA 93510

December 1, 2022

California High Speed Rail Authority
Southern California Regional Office
355 S. Grand Avenue, Suite 2050
Los Angeles, CA 90071
Electronic Transmission of 52 pages to
Palmdale_Burbank@hsr.ca.gov

Subject: Acton Town Council Comments on Section 3.4 of the Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement.

Reference: Notice of Notice of Availability/Notice of Public Hearing for the California High-Speed Rail – Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement Issued September 2, 2022.

To the California High Speed Rail Authority;

Attached please find comments submitted by the Acton Town Council on Section 3.4 of the Draft Environmental Impact Report/Environmental Impact Statement prepared for the Palmdale to Burbank Project Section of the California High Speed Rail Project. If you have any questions or require further information, please contact the Acton Town Council at atc@actontowncouncil.org.

Sincerely,

Jeremiah Owen, President
The Acton Town Council

Hardcopy sent via USPS

cc: Rick Simon, Engineering Manager, Palmdale-Burbank Section [Rick.Simon@hsr.ca.gov]
Genoveva Arellano, Principal; Arellano & Associates [GArellano@arellanoassociates.com]

"Our lives begin to end the day we become silent about things that matter" Martin Luther King, Jr.

4413-10245

ANALYSIS OF THE "NOISE AND VIBRATION" SECTION PRESENTED IN THE PALMDALE-BURBANK DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT.

1.0 INTRODUCTION

4413-10244

The noise impact assessment presented in Chapter 3.4 of the Draft Environmental Impact Report/Environmental Impact Statement (hereafter referred to as "the Draft") that was prepared by the California High Speed Rail Authority ("CHSRA") for the Palmdale-Burbank Segment of the High Speed Rail Project ("HSR Project" or "Project") has been evaluated and numerous material deficiencies, factual errors and other substantial insufficiencies have been identified. These deficiencies, errors, and insufficiencies are set forth in the comments provided below; they demonstrate that the Draft does not comply with either the California Environmental Quality Act ("CEQA") or the National Environmental Protection Act ("NEPA"). Please note: These comments were prepared by a competent engineer with more than 35 years of environmental engineering experience and they present expert opinion supported by fact pertaining to the significant environmental effects that will be caused by the Project and which must be mitigated. Accordingly, the comments provided herein constitute "substantial evidence" as that term is defined by the CEQA Statute [California Public Resources Code §21080(e)(1)] and Guidelines [California Code of Regulations Section 15064(f)(5)]. These comments also demonstrate that CHSRA/FRA have failed to conduct a substantive 'hard look' review of the Project's environmental impacts as required by NEPA.

2.0 MAJOR DEFICIENCIES NOTED IN THE DRAFT

4413-10245

2.1 The Draft Fails to Provide ANY information Regarding Noise Modeling or the Model Inputs and Assumptions or the Model Output or Results.

The noise impact analysis presented in the Draft was prepared in accordance with the directives established by the Federal Railway Administration ("FRA") in the manual titled "High-Speed Ground Transportation Noise and Vibration Impact Assessment" ("FRA Manual"); this manual establishes methodologies for calculating the noise generated by a high speed train as it passes by (referred to as a "passby") at any distance from the track. It also recommends thresholds for evaluating train noise impacts that are based on a parameter referred to as the "Day-Night" noise level (or "L_{dn}"); L_{dn} does not reflect the actual noise level that occurs during a train "passby" event; instead, it is a calculated value which averages of all the train noise levels experienced at a particular location over a 24 hour period and is "weighted" with a penalty of 10 dBA for noises that occur between 10 PM and 7 AM[1]. This averaging technique effectively "masks" the significant noise created during train "passby" events by simply averaging all the noise insults together; this allows the Lead Agency to conclude that a proposed train project will not result in significant noise impacts even when if it generates 86 dBA noise levels hundreds of

[1] L_{dn} "may be thought of as a noise exposure, totaled after increasing all nighttime A-Levels (between 10 p.m. and 7 a.m.) by 10 dBA. FRA Manual at 2-4. https://railroads.dot.gov/sites/fra.dot.gov/files/fra_net/2680/20120220_FRA_HSR_NV_Manual_FINAL_102412.pdf

times a day at a residential location. Moreover, the "Noise Impact Criteria" established by the FRA Manual are relatively lenient because they permit significant L_{dn} increases before the noise impacts of a train project are deemed to be "severe". For example, a relatively quiet area that has an existing average noise level of 55 dBA is not deemed to be severely affected by train noise until the L_{dn} resulting from train operations increases to 61.1 dB (which represents a 50% increase over the existing 55 dBA ambient noise levels).

While the Draft describes FRA calculation methodologies used to derive train noise L_{dn} values, it does not provide any specific information pertaining to the noise calculations performed for the Project itself. Presumably, CHSRA relied on a noise modeling program to prepare the noise impact results presented in the Draft; however, the Draft fails to disclose any of the assumptions and data that were input to the model. These are critical omissions and without them, the efficacy of the noise impact results cannot be assessed[2]. Worse yet, the Draft provides no information whatsoever regarding the results from the model or the noise levels that the project will generate; instead, the Draft merely identifies a handful of vaguely described locations where various number of residences are identified has having either "severe" or "moderate" noise impacts [Tables 3.4-31 and 3.4-32]. At the very least, the paltry results presented by the Draft violate FRA Manual directives to provide noise contour results and other data. Specifically, the FRA Manual states:

> *"Illustrate the areas of Impact and Severe Impact on maps or aerial photographs. This illustration could consist of noise impact contours on the maps or aerial photographs, along with the impact areas highlighted. This is done by delineating two impact lines: one between the areas of No Impact and Impact and the second between Impact and Severe Impact. To conform with the practices of other agencies (e.g., FHWA, U.S. Federal Aviation Administration (FAA)), include several contour lines of constant project noise, such as L_{dn} 65, L_{dn} 70, and L_{dn} 75."*

As discussed in more detail below, some locations in Acton are so quiet that they will experience "severe" noise impacts if the L_{dn} level generated by the Project is only 61 dBA; therefore, and in accordance with the directives issued by the FRA Manual, the Draft should have provided noise contours with L_{dn} values that are as small as 55 dBA. Yet, the Draft provides no noise contours at all[3]. Apparently, CHSRA simply expects the public to "take it on faith" that the modeling was done correctly, that the assumptions upon which the modeling was done are reasonable, and that the modeling results themselves are unassailably accurate. However, this is not permissible under either CEQA or NEPA; CHSRA is reminded that CEQA Guidelines Section 15147

[2] For example, sound propagation and attenuation characteristics are dictated by a number of factors (geography, development densities, vegetation characteristics, etc.); therefore, sound propagation and attenuation characteristics in Acton differ substantially from urban and suburban areas. Because the Draft fails to provide any information pertaining to sound propagation and attenuation assumptions (or any other assumptions) that were used to calculate noise impacts, it is impossible to assess the efficacy of CHRA's noise modeling results.

[3] Page of the Draft states on page 3.4-38 that "detailed mapping of noise effect locations is provided in Appendix E of the Noise and Vibration Technical Report" however, no noise contour maps are provided in Appendix E. In fact, the "maps" provided in Appendix E of the "Noise and Vibration Technical Report" appear to be the same as the maps provided in the Draft (specifically, Figures 3.4-17 to 3.4-35).

Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4413-10245

mandates EIRs provide sufficient technical information to "permit full assessment of significant environmental impacts by reviewing agencies and members of the public" and that Section 1502.23 of the NEPA regulations requires that agencies "identify any methodologies used and shall make explicit reference to the scientific and other sources relied upon for conclusions in the [Environmental Impact] Statement". The Draft does not comply with these requirements because it does not provide sufficient technical detail to "permit full assessment" of the Draft's conclusions regarding significant Project noise impacts and it does refer to the sources or data that were relied upon to derive these conclusions. Finally, an independent assessment of noise impacts that will be experienced by "receptor sites" (aka residences) in Acton which have an unobstructed "line of site" view to the train tracks is provided in Attachment 1[4] and it reveals that noise impacts in the Community of Acton will be much more substantial and far-reaching than what is reported in the Draft (as discussed in more detail below). Taken together, these factors demonstrate that the noise analysis presented in the Draft is deficient and will not withstand judicial review; these deficiencies can only be overcome by revising the draft to 1) provide all relevant modeling information (including inputs, outputs and assumptions) and in particular, data regarding "shielding" and noise attenuation assumptions that were made for the Community of Acton; and 2) provide noise impact contours down to 55 dBA in areas like the Community of Acton where existing noise levels are substantially low compared to urban and suburban areas. Another alternative is select the SR14A Route Alternative and forego all the others.

4413-10246

2.2 The Draft Fails to Identify Numerous Acton Residences that will Experience Severe Noise Impacts.

The Draft asserts that "existing" L_{dn} noise levels are 60 dBA in the area surrounding Red Rover Mine Road where the Refined SR 14 route crosses the 14 Freeway on elevated tracks [Table 3.4-16]. Accordingly, and consistent with page 3-4 of the FRA Manual, all residences that experience an L_{dn} noise level of 63.3 dBA along the Refined SR 14 route are deemed to be "severely impacted". The Draft only considers noise impacts on residences located within 1,800 feet of the tracks [page 3.4-38], so only residences within this narrow envelope were evaluated for noise impacts. However, and according to the noise analyses provided in Attachment 1, residences located within 3,600 feet of the elevated tracks that have an unobstructed "line of sight" view of the tracks over the 14 freeway will experience "severe" noise levels with an L_{dn} that exceeds 63 dBA; this represents a large portion of the Crown Valley area of Acton where many homes have a "line of sight" to the elevated track location. Yet, the Draft reports that only 11 residences in Acton will be severely affected by the Revised SR14 Route [Page 3.4-78]. The discrepancies between these results cannot be reconciled because the Draft fails to provide any quantitative information regarding the noise analysis upon which its results are based.

[4] The noise analyses were prepared in accordance with calculation procedures set forth in Chapter 5 and Appendix C of the FRA Manual and based on the train configuration data provided on Page 3.4-23 of the Draft. These calculations assume 1) The train operates at 220 mph at ground level; 2) the receptor has an unobstructed view of the tracks and there is no "shielding" (which is appropriate to Acton's geography and sparse development profile); 3) the ground is acoustically "hard" (which accurately represents the rock and hardpack clay of Acton's geology and the fact that there is little vegetation because of Acton's arid environment); and 4) there is no ground attenuation for trains traveling in the aerodynamic regime (FRA Manual at 5-13). The calculations presented in Attachment 1 are consistent with information published by CHSRA in 2018 which is provided in Attachment 2 indicating that the noise generated by a high speed train at a location 100 feet from the tracks is 98 dBA.

3

4413-10246

A similar discrepancy is noted in the Draft's noise impact analysis of the "E" routes in the Aliso Canyon area of Acton where, according to Table 3.4-17 of the Draft, the existing L_{dn} level is 57 dBA (which means the "severe" noise impact threshold is 61.9 dBA per the FRA Manual [Page 3-4]). Nonetheless, the Draft concludes that no Acton residences in Aliso Canyon will experience severe noise impacts even though the tracks that cross Aliso Canyon Road on aerial structures at that location [Figure 3.4-25] are visible from Acton residences. This conclusion is contradicted by the results presented in Attachment 1 showing that residences located within 5,300 feet of, and which have an unobstructed "line of sight" to, the elevated tracks will experience L_{dn} levels exceeding 62 dBA. Several residences are located within 5,300 feet of the "E" tracks and have a "line of sight" to the aerial structure locations (including the historic "Blum Ranch"). Yet, for reasons that remain inscrutable, the Draft concludes that Acton residences in the Aliso Canyon area will not experience any noise impacts from any of the "E" Route alternatives all.

A deficiency that has been noted (which may explain the discrepancies observed above) is that the Draft does not properly report "severe" impact thresholds established by the FRA Manual. For example, in areas where the existing L_{dn} noise level is 60 dBA, the Draft asserts that the L_{dn} noise threshold for "severe" impacts to residential properties is 64 dBA [Page 3.4-78]; this is incorrect. The FRA Manual clearly establishes at Page 3-4 that the noise threshold for severe impacts is 63.3 at residential locations where existing L_{dn} values are 60 dBA. Another possible reason for the discrepancies noted above is that the Draft's noise analysis generally only considers "noise receptors" within 1,200 feet of the tracks [Page 3.4-38]; thus, the Draft did not evaluate noise levels out to 5,200 feet or even 3,600 feet. In fact, the Draft concludes that, beyond 1,800 feet "noise impacts were no longer detected" at any location along any of the route alternatives [Page 3.4-38]. The noise analysis results presented in Attachment 1 contradict this conclusion because they show that noise levels at receptor sites that have an unobstructed "line of sight" to the train at 1,800 feet from the tracks will experience L_{dn} levels of 66.74 which exceed FRA's "severe" noise impact thresholds for areas like Acton where existing L_{dn} levels are 60 dBA or less. Another possible reason for the discrepancies is that the Draft's noise analysis may have failed to properly account for the lack of vegetation and sparse development profile in Acton and therefore assumed incorrect noise attenuation parameters. This is important; sound propagates with little attenuation in Acton because of the low density development and the lack of vegetation and "hard ground" (i.e., rock and packed clay) characteristics in the Community. In any event, the discrepancies noted above cannot be reconciled because the Draft fails to provide any technical data pertaining to its noise analyses that it presents; this is a substantial deficiency because it prevents the public from properly assessing the efficacy of the Draft's conclusions regarding significant noise impacts and offering substantial evidence pertaining to deficiencies in the Draft's analyses.

Notably, the noise analyses presented in Attachment 1 are very conservative because they do not factor in the incrementally higher noise levels attributed to elevated tracks compared to "at grade" tracks on the ground. Specifically, the calculations presented in Attachment 1 understate the actual noise levels by at least 2 dBA because they assume that the train tracks are on the ground and not elevated in the vicinity of Red Rover Mine Road (for the Refined SR14 alternative) or Aliso Canyon Road (for the "E" routes)[5]. Thus, the actual noise levels will be at least 2 dBA louder than what the calculated results in Attachment 1 indicate.

[5] Trains on aerial tracks are 2 dBA louder than trains "at grade". FRA Manual at 4-10.

4

4413-10247

2.3 The Draft Suppresses Noise Impact Results for Neighborhoods in Acton

Another substantial deficiency of the Draft's Noise analysis is that it suppresses noise impact results for neighborhoods in Acton. For example, according to the Technical Report titled "Noise and Vibration Technical Report" that was obtained via an information request submitted pursuant to the California Public Records Act ("CPRA"), CHSRA collected baseline noise measurements over three one-hour periods at the intersection of Y-8 and Aliso Canyon in Acton (which is referred to as location "N8" on the data sheets provided on pages D-48 through D-50); these results indicate that existing L_{dn} levels at this location are 54.7 dBA[6]. Thus, according to Page 3-4 of the FRA Manuel, residences at this location are deemed to experience "severe" noise impacts by rail Projects that generate L_{dn} levels at or above 61 dBA. The intersection of Alison Canyon Road and Avenue Y-8 is adjacent to the historic Blum Ranch in Acton and has a "line of sight" view of the tracks for all the "E" Route alternatives where they cross over Aliso Canyon Road on aerial structures approximately 2,200 feet away. As indicated in the noise calculation results presented in Attachment 1, Project L_{dn} levels at this location will be almost 66 dBA; therefore, residences in these areas (including Blum Ranch) will experience severe noise impacts if CHSRA selects any of the "E" route alternatives for the project. Yet, the Draft fails to even identify location N8 or the baseline noise data collected for location N8[7] and it does not report the significant noise impacts that Project operations pose to Blum Ranch and nearby homes. This constitutes a significant deficiency that must be addressed in the Final EIR; or, in the alternative, CHSRA can simply approve the Route SR14A (in which case, noise impacts to Blum Ranch and other areas of Acton become moot).

4413-10248

4413-10248

2.4 The Methodology Adopted by the Draft to Assess Project Noise Impacts Does Not comply with CEQA or NEPA.

The Noise Analysis presented in the Draft does not comply with CEQA or NEPA in a number of ways. First, both CEQA and NEPA require the Lead Agency to provide details regarding how a project will alter the existing environment[8]; with respect to noise impacts, these CEQA and NEPA provisions necessarily require CHSRA to provide some indication of what the Project's noise levels will be within the affected environment. Unfortunately, the Draft does not comply with this requirement because it does not provide any indication of how the Project will alter the existing noise environment. The Draft does not provide "noise contour" data or give any indication of what noise levels will be when the trains are operating. It does not explain that the Project will cause noise levels exceeding 80 dBA more than 400 times per day at residences that are in view of, and located within a mile of, the elevated tracks. It does not explain that the equestrian trails in Acton which are directly under elevated tracks will experience noise insults exceeding 100 dBA which will make it too dangerous for horses to use. It does not explain that the noise level that will be experienced at Vasquez High School with every "passby" event on the Refined SR14 route will exceed 85 dBA and that, to comply with adopted safety requirements, teachers and staff will have to wear hearing protection when outdoors[9]. In fact, the only "noise impact" information that the Draft provides is a vaguely described list of areas where "severe" noise impacts are projected to occur and a number indicating what the 24-hour weighted average noise level is projected to be in that area; the Draft does not report any *actual* noise levels that will result when an *actual* "passby" events occur, so no *actual* noise impacts are reported. Nothing in the Drafts' noise impact analysis comports with CEQA's requirement to "include relative specifics" of "physical changes" that will result from the Project; in fact, the Draft deliberately omits any "specifics" regarding how existing noise levels will be altered by the Project. Nothing in the Draft's noise impact analysis comports with NEPA's requirement to "Identify environmental effects and values in adequate detail"; in fact, the Draft specifically omits all details regarding the Project's actual noise effects on the environment.

Second, the Draft fails to analyze the noise effects of Project operations as required by CEQA and NEPA. Specifically, both CEQA and NEPA require that the EIR/EIS clearly identify the "effects" that a Project will have on the environment and both CEQA and NEPA define "effects" to include "direct effects" which are caused by the action and occur "at the same time and place" as the action[10]. To comply with these definitions, an EIR/EIS noise analysis is required to report noise effects "at the same time and place" they occur. The Draft fails to comply with this requirement because it does not report Project noise effects "at the same time and place" they occur; instead, the Draft averages all the noise effects together and reports a single "cumulative" value that does not in any way represent the *actual* "direct" noise effects of the Project which occurs at the time and place of a "passby" event. In other words, the "cumulative" L_{dn} values that are calculated and reported in the Draft for a few vaguely described locations in Table 3.4-31 through 3.4-33 do not represent the "direct" noise effects of the Project that occur "at the same time and place" as required by CEQA and NEPA. This is a substantial deficiency that can only be corrected by revising the Draft to include noise contour maps indicating what the *actual* Project noise levels (referred to as the "Sound Exposure Levels" or "SELs") will be in all areas where Project operations will alter existing noise profiles. For the Community of Acton, it is recommended that SEL noise contours maps be prepared in 5 dBA increments starting at 100 dBA and extending down to 65 dBA. It must be pointed out that these CEQA/NEPA compliance concerns have been raised several times in comments submitted over the last 7 years both verbally and in writing; it seems that these comments were ultimately ignored. Fortunately, the entire issue will be rendered moot if CHSRA selects the SR14A Route Alternative because this would eliminate all "direct" noise effects from Project operations in Acton.

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[6] The three one-hour sets of noise measurements were ostensibly collected in the morning, in the afternoon, and very late at night, and the average results for each of the three time intervals were 46.2, 47.6. and 49.7 dBA. Using these three numbers to represent baseline conditions during the morning, afternoon, and nighttime intervals in the L_{dn} calculation methodology yields an L_{dn} value of 54.7.

[7] Tables 3.4-15 and 3.4-16 in the Draft.

[8] CEQA requires that the EIR "include relevant specifics" of "physical changes" that will result from the Project [Guidelines 15126.2(a)] and NEPA requires that the EIS "Identify environmental effects and values in adequate detail so the decision maker can appropriately consider such effects" [1501.2(b)(2)].

[9] Vasquez High School is located 1,600 feet from the elevated tracks that will be constructed under the Refined SR14 route alternative. Thus, and as indicated in Attachment 1, each train "passby" event will generate a Sound Exposure Level of at least 86.8 dBA; this will occur more than 400 times per day. Because the Federal Occupational Safety and Health Administration requires hearing protection in work areas where noise levels exceed 85 dBA [Draft at Page 3.4-8], teachers and staff will be required to wear hearing protection whenever they are outside to protect their ears from the noise insults created by Project operations.

[10] NEPA Section 1508.1(g)(1) defines effects to include "Direct effects, which are caused by the action and occur at the same time and place". CEQA Guidelines Section 15358 defines effects to include "Direct or primary effects which are caused by the project and occur at the same time and place".

4413-10248

Finally, both CEQA and NEPA require CHSRA to evaluate indirect impacts, which are defined as effects caused by the action and are later in time or farther removed in distance[11]. Because the L_{dn} results reported in the Draft are derived from cumulative noise levels averaged over a 24 hour interval, it could be argued that L_{dn} values reasonably represent the indirect noise impacts that will result from Project operations. However, and as discussed above, L_{dn} does not provide an adequate basis for assessing the direct noise impacts resulting from the Project.

4413-10249

2.5 The Model Used by CHSA to Derive Project Noise Impacts Is Not Shown To Be Properly Validated.

The Draft asserts on page 3.2-24 that a "Benchmark test" was used to validate the model that was relied upon to derive the noise impact results, and that details regarding the benchmark test are provided in a "Technical Report" that has been withheld from the public. When a copy of this "Technical Report" was procured pursuant to a CPRA record request, it revealed that the "benchmark test" was not particularly rigorous: "The environmental program manager for the Authority distributed a series of input parameters and output results against which the noise model could be compared for accuracy." However, nothing about this procedure establishes the accuracy of the model or materially "validates" the model results:

- The proper way to "validate" a model and assess its accuracy is to compare the output from the model (in this case, the "Sound Exposure Levels" calculated for a train "passby") to actual physical measurements that are collected under the conditions that are modeled. The "benchmark" test did not utilize physical noise measurements or compare modeled SEL values to measured SEL values; thus, it cannot be concluded that the "benchmark" test demonstrates that the model is either accurate or valid.

- There is no provenance or background information regarding the "output results" that were provided by the "environmental program manager for the Authority" and used to compare the model results for accuracy, so there is no basis to conclude that such "output results" are an appropriate standard by which to validate CHSRA's noise model. In other words, there is no information explaining where these "output results" came from or how they were derived or why the public and the decisionmakers should accept them as the appropriate "standard" for validating the noise model; so, they prove nothing. It is certain that they were not derived from physical measurements taken from actual trainsets because the configurations they represent are not typical and in fact some configurations are completely implausible (as discussed below); accordingly, the "benchmark" test does not constitute evidence that the noise model is either valid or accurate.

- The "output results" that were provided by the "environmental program manager for the Authority" assume unrealistic conditions and are therefore facially invalid. For example, the configuration assumed in the "output results" for elevated structures are particularly unrealistic because they all include the placement of a 63 foot high noise barrier just

[11] NEPA Section 1508.1(g)(2) establishes that indirect effects "are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable". CEQA Guidelines Section 15358 defines indirect or secondary effects" as those effects "which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable".

4413-10249

15-5 feet from the track; this configuration is implausible. CHSRA would never install 63 foot high barriers adjacent to an elevated tracks because the purpose of elevating tracks by 63 feet is to cross over a large physical impediment (such as a river or freeway or seismic fault area); so, installing a 63 foot high wall adjacent to the tracks would defeat the whole purpose for elevating the tracks. As another example, all of the "output results" assume the presence of noise barriers (see Tables 4-2 and 4-3) however noise barriers will generally not be used for the Project[12]. The defects in this analysis are of particular concern to the Community of Acton because all the route alternatives except SR14A require the construction of elevated structures in Acton, and since high speed trains traveling on elevated structures are much louder than trains traveling on the ground[13], it is critical to Acton's future that the Project noise analysis accurately and realistically portray the actual noise insults that Acton will experience if any alternative other than SR14A is selected. The "Benchmark test" does not demonstrate that CHSRA's models are either accurate or realistic because they reflect configurations that are at best, not useful, and at worst, completely implausible.

- The results provided in Attachment 1 indicate that the modeled results upon which the Draft's noise impact analysis is based may not be accurate because they show that significant noise impacts in Acton will extend beyond 1,800 feet and will be much more significant than what is predicted by CHSRA's model.

It is essential that both the public and the CHSRA Board have confidence that the noise analyses and the noise impact results presented in the EIR/EIS are accurate and reliable, and that they realistically reflect the actual noise impacts that Acton residents will experience if any route other than SR14A is selected. For the reasons set forth above, the public has no such confidence and the Board has no substantive basis to conclude that the noise analysis and noise impact results reported in the Draft are either accurate or reliable, or realistic. Accordingly, CHSRA cannot certify or adopt an EIR for the Project, and FRA cannot issue a Record of Decision for the Project until the significant deficiencies noted above are corrected.

4413-10250

2.6 Key Reports That Were Relied Upon to Prepare the Draft Were Not Made Accessible to the Public.

The Draft frequently cites various "technical reports" which provide all the fundamental technical information upon which the Draft's conclusions regarding the "significance" of all environmental impacts are based (see for example pages 3.4-1, 3.4-2. 3.4-14, 3.4-24, 3, etc.). However, none of these reports were made available to the public: they were not posted on the CHSRA website with the Draft and they were not included in the copies of the Draft that were provided for the public to review and they were not filed with the State Clearinghouse as required by CEQA[14]. These documents can only be accessed by submitting a record request pursuant to the California Public Records Act ("CPRA"). All of this is utterly contrary to the open and public processes that are intended by both CEQA and NEPA.

[12] Only two noise barriers are proposed for the Refined SR14 route, only one is proposed for the SR14A route, and only three or fewer barriers are proposed for the "E" routes. Page 3.4-148.

[13] FRA Manual at Page 4-10.

[14] https://ceqanet.opr.ca.gov/2014071074/2

4413-10252

3.0 ADDITIONAL SUBSTANTIVE DEFICIENCIES NOTED IN THE DRAFT

To facilitate review, additional deficiencies noted in the Draft are presented sequentially below.

4413-10251

Page 3.4-8 discusses Federal Noise Standards that apply to interstate rail carriers, and it asserts that these standards will not be met by the Project; it further indicates that CHSRA's position is that Federal Noise Standards will not be addressed and instead CHSRA will apply European Noise Standards to its environmental analysis. CHSRA's position is not only legally untenable, it makes no sense. First, CHSRA cannot simply ignore federal noise standards or replace them with standards developed by European lawmakers and bureaucrats over which American voters have no control; all high speed rail projects will have to comply with Federal Noise Standards the instant they initiate any operation that is subject to such standards. Second, even if CHSRA were permitted to ignore Federal Noise Standards and instead comply with European noise standards, the Draft is still deficient because it fails to identify what the European Standards are and it certainly does not demonstrate how the Project will meet these standards. Third, the European Noise Standard is based on trainset speeds; in fact, the "Technical Specification for Interoperability" ("TSI") pertaining to noise that was adopted by the European Union limits train speeds to 320 kilometers per hour[15] (or 190 miles per hour). This means that Project operations will not comply with the European Noise Standard because CHSRA's trainsets will operate at 220 miles per hour, not 190 miles per hour. Fourth, it is patently false to conclude that California high speed rail trainsets cannot comply with Federal Noise Standards; these Standards are easily be met by limiting trainset speeds to less than 190 miles per hour because this restriction will eliminate primary aerodynamic noise sources and thereby maintains compliance with Federal Noise Standards[16]. In other words, by limiting trainset speeds, project operations will comply with both Federal and European Noise Standards. Finally, according to a recent publication by the Federal Railway Administration, noise measurements taken for a variety of trains operating throughout Europe demonstrate that *the Federal Noise Standard is achievable through speed control*[17], therefore, Project operations can comply with Federal Noise Standards despite the Draft's statements to the contrary. Furthermore, there is nothing to prevent CHSRA from operating the Project at 190 mph once construction is completed because Proposition 1A does not require the Project to operate at 220 mph; to the contrary, it merely requires CHSRA to prioritize corridors based on criteria that includes "the need to test and certify trains operating at speeds of 220 miles per hour[18]".

[15] Page 34 of "High Speed Rail Noise Standards and Regulations" issued by the Federal Railway Administration February, 2021 states "The introduction of normalized noise limit values was introduced to consolidate the TSI Noise regulations to one document. The increase in train speed is not a key reason for this consolidation *since the current TSI also limits train speeds to 320 km/hr*" (emphasis added). https://railroads.dot.gov/sites/fra.dot.gov/files/2021-02/HSR%20Noise%20Standards%20and%20Regulations.pdf

[16] Aerodynamic noise does not become significant until the train reaches 180 miles per hour. Page 2-11 of FRA's 2012 "High-Speed Ground Transportation Noise and Vibration Impact Assessment" Manual. https://railroads.dot.gov/sites/fra.dot.gov/files/fra_net/2680/20120220_FRA_HSR_NV_Manual_FINAL_102412.pdf).

[17] Table 78 in the FRA "High Speed Rail Noise Standards and Regulations" document issued Feb, 2021. https://railroads.dot.gov/sites/fra.dot.gov/files/2021-02/HSR%20Noise%20Standards%20and%20Regulations.pdf.

[18] Streets and Highways Code Section 2704.08(f)(2).

Page 3.4-12 mentions the Los Angeles County General Plan ("Plan"), but it fails to articulate the policies or goals of the Plan. CEQA demands that Plan goals and associated policies and relevant factors be identified and discussed in the EIR because CEQA requires CHSRA to identify all instances in which the Project is inconsistent with adopted planning documents. For instance, the Plan asserts that there is a 30% probability that people will be awakened by a peak noise level of 70 dBA, and therefore establishes that a primary goal is to reduce excessive noise impacts in unincorporated areas [Goal N 1 and Page 191]; the Project will not meet this Goal because all routes except the SR14A will result in peak noise levels that substantially exceed 70 at all locations in Acton that are within two miles of, and have an unobstructed "line of sight" to, the tracks. This fact is demonstrated by the noise analyses presented in Attachment 1 which reports that, even two miles away, peak noise levels (referred to as "Cumulative Sound Exposure Level" or "Cumulative SEL") exceed 75 dBA during a train "passby". Since all the tracks are elevated in Acton for all the routes other than the SR14A alternative, many Acton residents will have a "line of site" to the tracks and will therefore experience noise levels exceeding the Plan's 70 dBA objective more than 460 times per day[19]. Moreover, 56 trains will traverse Acton between 10 PM and 7 AM, which means that many Acton residents will not get *any* sleep because they will experience a noise event exceeding 70 dBA with every nighttime train "passby". And, if the Refined SR14 A alternative is selected, students at Vasquez High School will constantly experience 86 dBA noise events throughout the school day[20]. It is clear that, other than the SR14A alternative, all of the Project route alternatives are inconsistent with, and will substantially interfere with, the Los Angeles County General Plan goal of "reducing excessive noise impacts" in the Community of Acton; yet, the Draft fails to mention any of this. The Draft must be substantially revised to quantitatively show the extent to which the Project will interfere with the County's objective of reducing excessing noise impacts; this concern will be eliminated if CHSRA approves Route SR14A.

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Page 3.4-12 "The Los Angeles Country General Plan 2035 refers to the Los Angeles County Municipal Code for direction on and definition of specific noise criteria". This statement is incorrect. Consistent with Government Code Section 65302(f), the Noise Element of the Plan includes implementation measures and solutions to address existing and foreseeable noise problems; the purpose of the Municipal Code is to implement these measures established by the Plan. In other words, the Plan drives the Municipal Code, not the other way round.

4413-10254

Page 3.4-13 states "The Authority is a state agency and therefore is not required to comply with local land use and zoning regulations". While it is true that CHSRA is not required to comply with local land use and zoning regulations, CEQA requires that CHSRA ascertain whether the Project is inconsistent with any general plan policies that were adopted for the purpose of avoiding or mitigating an environmental effect and whether these inconsistencies will result in significant environmental impacts; if so, mitigation must be offered[21]. Accordingly, while the

[19] The Project will result in 189 trains per day in each direction during the daytime hours, 28 trains per day in each direction during the nighttime hours, and 14 trains in each direction during the peak hours. Page 3.4-23.

[20] The aerial structure required by the Refined SR14A Alternative will be located within 1,600 feet of Vasquez High School, and as shown in the analyses provided in Attachment 1, each train "passby" will generate a sound level exceeding 86 dBA on the Vasquez campus.

[21] California Code of Regulation, Title 14, Chapter 3, Appendix G.

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Project is not required to *conform* with local land use and zoning policies, CEQA nevertheless requires the Project to mitigate the significant environmental impacts that arise from non-conformance. Because all the noise protection policies set forth in the Plan were adopted for the purpose of mitigating noise effects on the environment, any noise protection policy that is not met by the Project constitutes a potentially significant environmental impact that must be addressed. The Draft fails to even mention that the Project is inconsistent with the Plan's 70 dBA noise objective and it certainly does not address this inconsistency or offer mitigation measures to ameliorate it. Therefore, the Draft does not comply with CEQA.

4413-10255

Page 3.4-13 asserts that CHSRA has "endeavored to design and construct the HSR project so that it is consistent with land use and zoning regulations. For example, the proposed Build Alternatives would incorporate IAMFs that require the contractor to prepare a plan to demonstrate how construction noise and vibration impacts will be maintained below applicable standards. The Authority has also adopted statewide policies that seek to reduce noise and vibration impacts associated with new sources of noise and vibration (Appendix 3.4-C) below applicable standards". While these statements may be true regarding the SR-14A alternative in Acton, they are not true regarding the other alternatives for several reasons. First, it is clear from the noise analyses provided in Attachment 1 that the Project will result in substantial noise impacts on the Community of Acton regardless of whether CHSRA "endeavors" to be consistent with adopted plans or "seeks" ways to reduce noise impacts. Second, it does not matter whether CHSRA *endeavors* for the Project to be consistent with adopted plans and policies; it only matters if the Project *is* consistent with adopted plans and policies; as discussed above, the Project's noise profile in Acton *will not be* consistent the Los Angeles County General Plan for any of the routes except SR14A. This fact should be clearly asserted in the Draft and not buried under a "word salad" of meaningless aspirations. Third, requiring a contractor to develop a plan that will show how the contractor will comply with applicable noise standards is impermissible under CEQA because it defers the development of mitigation measures to reduce significant noise impacts until after the Project is approved. Finally, while CHSRA may assert that its policies *seek* to reduce noise impacts, the noise mitigation policies provided in Appendix 3.4-C *do not actually* reduce noise impacts in most areas. For instance, CHSRA only provides noise barriers under certain circumstances and will not deploy them to reduce noise impacts in most areas even though they would be both feasible and effective[22]. Virtually every statement found on page 3.4-13 is either disingenuous or factually incorrect or intended to obscure the facts regarding Project noise impacts and the extent to which they are inconsistent with adopted Plans and standards: other than Alternative SR14A, every single route alternative in Acton fails to comport with adopted County noise policies and standards. The Draft must be revised to present this simple truth.

4413-10256

Page 3.4-13 also presents Table 3.4-2 that identifies numerous noise standards in adopted plans and codes and which states that the construction and operation of all six proposed routes "may not be possible to meet standards" established by the Los Angeles County General Plan (which applies to unincorporated communities like Acton). This characterization is incorrect. Based on the noise calculations provided in Attachment 1, none of the proposed route alternatives except

[22] CHSRA only deploys noise barriers when there are at least 10 receptor sites who will experience significantly adverse noise levels; if 9 or fewer receptor sites will experience significantly adverse noise levels, no noise barriers will be installed, and the people who live and work at these sites will suffer immeasurably. Appendix 3.4-C Noise and Vibration Mitigation Guidelines at c-1.

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SR14A will meet the Los Angeles County General Plan noise standards in Acton; this is particularly true given that no noise mitigation measures are proposed for the elevated tracks that will be constructed in Acton if either the Refined SR14 route or any of the "E" routes are selected. Therefore, Table 3.4-2 must be revised to state that it "will not be possible to meet standards" in the Los Angeles County Plan and further clarify that this constitutes a significant environmental impact. All route alternatives will generate noise levels in unincorporated areas which exceed the Los Angeles County General Plan noise standards; the only way to minimize this significant environmental impact is to select the SR-14A route alternative route which provides the fewest number of miles of above-ground tracks in unincorporated communities.

4413-10257

Page 3.4-14 states "Despite the inconsistencies, the project is consistent with the majority of regional and local policies and plans". The logical fallacy presented by this statement renders it false: The Project is materially inconsistent with 10 of the 12 local and regional plans adopted for the project area [Page 3.4-13]; these inconsistencies are not mitigated away. Therefore, it can only be concluded that the project ***is not*** consistent with the majority of regional and local policies and plans. The Draft errs substantially in declaring otherwise.

4413-10258

Page 3.4-14 states "Table 3.4-2, IAMFs and mitigation measures would generally minimize noise impacts and would ultimately meet the overall objectives of the local policies". This statement is categorically false. As discussed above, for all alternatives other than SR14A, project operations within the Community of Acton will result in more than 460 noise events per day that exceed 75 dBA in many areas of Acton; these noise events will not be reduced by any IAMFs or mitigation measures. Accordingly, the Project will not meet any objectives of local noise policies applicable to Acton (and on this basis, it could be argued that CEQA prevents the Project from being approved at all). The Draft must be revised to clarify that, even with IAMFs and mitigation measures, the Project will not meet most local policy objectives.

4413-10259

Page 3.4-16 asserts that NV-IAMPF#1 will minimize construction noise, and the Draft implicitly presumes that it will do so. However, NV-IAMPF#1 is nothing more than a statement that the contractor will prepare a "technical memorandum" stating that FTA and FRA guidelines will be utilized to reduce noise impacts on sensitive receptors within 1,000 feet of construction activity. NV-IAMPF#1 is deficient because the 1,000 foot distance is far too short; the noise generated by Project construction will be significant well beyond a 1,000 foot perimeter. This is especially true in Acton near Red Rover Mine Road (at the refined SR 14 construction site) and Aliso Canyon (at the "E" Route construction site) because the construction sites are surrounded by hills where sound reverberates instead of attenuates due to Acton's low density development profile and sparse vegetation. The constant, mind-numbing operation of pile drives and other construction equipment will make living adjacent to the construction site and learning at Vasquez High School impossible. NV-IAMPF#1 is also deficient because the "thresholds of significance" that are established by the Draft for construction noise impacts are based on federal standards that are far too lax (as discussed in detail below); when the draft is revised to incorporate more appropriately restrictive significance thresholds for construction noise impacts, NV-IAMPF#1 will have to include receptors much further away than 1,000 feet from the construction site. Alternatively, CHSRA can simply select alternative SR14A.

4413-10260

Page 3.4-16 asserts "Wildlife and human sensitive receivers could be startled or annoyed by California HSR System passbys, and wildlife communication could be affected by project noise". This is an understatement. There is no uncertainty regarding whether high speed train noise

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affects wildlife and domesticated animals; the Federal Railway Administration's 2012 "High-Speed Ground Transportation Noise and Vibration Impact Assessment" Manual ("FRA Manual") fully admits to this [Appendix A]. In fact, the FRA Manual not only acknowledges that animal startle and annoyance are real problems, it openly asserts that it has no definitive information upon which to establish a quantitative threshold for determining the significance of these impacts[23]. Astonishingly, after admitting that it has no quantitative basis for establishing significance thresholds for startle impacts, the FRA Manual arbitrarily assigns a 100 dBA sound exposure level (averaged over a 1 second time interval) for startle effects and then, without justification, the Draft simply adopts this as a significance threshold [Page 3.4-34]. This 100 dBA threshold is based purely on speculation and conjecture and is therefore impermissible under CEQA. Because the Draft's threshold for noise impacts on animals is completely unsubstantiated and admittedly indefensible, it will not withstand judicial review. Furthermore, as a rural agricultural community that is surrounded by national forestland, Acton is replete with both domesticated animals and wildlife, and the "lived experiences" of our residents directly contradict the presumption established by the Draft that animal startle and annoyance is not significant until noise levels reach 100 dBA. As has been explained in numerous and extensive public comments submitted to CHSRA, animal startle (whether wild or domesticated) can result from a distant helicopter flyover and even a distant car passby or backfire; all of these noise levels are far less than 100 dBA. Conveniently, the unsubstantiated and arbitrarily high 100 dBA noise threshold that CHSRA establishes for animal impacts allows the Draft to conclude that noise impacts on animals resulting from all the route alternatives are generally "insignificant"; in fact, the only locations where the Draft concludes that potentially significant noise impacts on animals will occur are on the Pacific Crest Trail, in the Vasquez Rocks Natural Area, at the Hansen Dam Recreation Area, and at the Stonehurst Park and Recreation Center because horses are known to be there [page 3.4-107]. CHSRA is reminded that horses, cows, sheep, goats, chickens, llamas, ducks, lions, tigers, and many other types of animals are known to be in Acton (as the public has pointed out many times over the last 10 years); therefore, Acton should be included in this list of locations where potentially significant noise impacts on animals will occur. Furthermore, the Refined SR14 route travels directly over established equestrian trails along Sierra Highway, Red Rover Mine Road, and Escondido Canyon Road (including over the Darrell Readmond trail), and according to Sheet ST-J1009-S14 of the "Bridges and Elevated Structures Plans", the tracks will be less than 40 feet above the trail; this means that noise levels on the trail will actually exceed 102 dBA[24]. Thus, even if the 100 dBA threshold for significant noise impacts on animals were acceptable (which it is not), it is certain that the Project will result in significant animal impacts in the Community of Acton. Furthermore, there is no uncertainty regarding whether humans will be startled or annoyed by Project operations; according to a 2021 study issued by FRA, human startle effects can occur at

[23] The 100 dBA threshold identified in the FRA Manual was based on observed turkey responses to aircraft and Table A-1 of the Manual demonstrates a wide variety of aircraft reaction thresholds for animals. Because there is no data pertaining to high speed trains, and because what little data there is regarding animal responses to aircraft, the FRA Manual lamely states on page A-20 that "Until more definitive information on thresholds can be developed, an interim criterion of SEL = 100 dB will be used for disturbance by high-speed rail operations."

[24] The noise that is generated by a train traveling on aerial structure exceeds 101 dBA at a location 50 feet from the tracks; since the trails along Red Rover, Escondido Canyon Road, and Sierra Highway will be only 39 feet from the tracks, noise levels at these trails will greatly exceed 101 dBA.

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Noise levels less than 90 dBA[25]. Additionally, a 1974 study by the Federal Department of Transportation demonstrates that human startle impacts can occur at noise levels that are as low as 81 dBA[26]. That high speed train noise will annoy humans is a *fact* that is demonstrated by the infamous "Schultz Curve" which shows measurable human annoyance occurring at L_{dn} levels as low as 60 dBA[27]. Given that all but one of the six Project alternatives will increase L_{dn} sound levels in Acton well beyond 60 dBA (see table 3.4-31), it is a certainty that Acton residents will be annoyed by the Project. In other words, the Draft errs substantially in stating that human sensitive receptors ***could*** be startled or annoyed by HSR operation; it is a certainty that they ***will*** be startled and annoyed by HSR operation. Startle and annoyance impacts of the proposed project on the community of Acton can only be avoided by selecting the SR14A alternative which eliminates all operational noise impacts. All the deficiencies noted here render the Draft substantially deficient; these deficiencies can only be corrected by substantially revising the Draft to properly address startle effect on animals and startle and annoyance effects on humans.

4413-10261

Pages 3.4-17-3.4-18 describes various sources of noise that may result from Project construction, but it fails to identify or discuss the blasting noise impacts that will occur as a result of using "traditional" tunneling techniques to construct the tunnels in Acton for all the "E" Route alternatives[28] (specifically, in the residential neighborhoods around Foreston Street and Aliso Canyon Road). Blasting techniques are substantially disruptive in rural communities like Acton where a sudden noise can cause horses, livestock, and other domesticated animals to panic and become very difficult and dangerous to handle. The Draft fails to disclose that blasting techniques will be used in the Community of Acton, it fails to consider the adverse impacts of such techniques in the community, and it certainly fails to offer mitigation measures to reduce these impacts. The Draft must be revised to address all of these deficiencies and it must also clarify that these impacts cannot be mitigated to a level that is less than significant and will only be avoided if the none of the "E" Routes are approved.

[25] According to the FRA report issued in February, 2021 and titled "*High Speed Rail Noise Standards and Regulations*", startle effects are deemed excessive by the public when a high speed train's average noise level measured 25 feet from the track centerline is only 90 dBA. This conclusion is based on the following specific facts drawn from the "*High Speed Rail Noise Standards and Regulations*" report: 1) Page 45 states that "The startle noise of the Thalys trains running at 300 km/h (186 mph) was deemed excessive"; 2) Page 136 that the Thalys train running at 300 km/hr generates a passby noise level L_{paeqp} of 90 dBA; 3) Page 20 states that L_{paeqp} is the average of noise energy a train generates from all cars during the time of the passby of the entire train; and 4) Page 31 states that L_{paeqp} is measured 7.5 meters (approximately 25 feet) from the track centerline. The extent to which the Thalys L_{paeqp} values represent the average noise level during a train passby event is demonstrated in figure 5 from a separate FRA study titled "*High Speed Rail: Cost of Compliance for Noise Mitigation Procedures*". Because the Project will expose people and animals to 90 dBA noise levels in Acton within 700 feet of the track (as indicated in Attachment 1), startle effects will be much more prevalent than the Draft suggests.

[26] "Development of an Acoustic Rating Scale for Assessing Annoyance Caused by Wheel/Rail Noise in Urban Mass Transit". U.S. Department of Transportation Interim Report. 1974. At Table 1.

[27] See page A-12 of the FRA Manual.

[28] At a meeting with CHSRA engineers and staff on October 4, 2022, it was announced that tunnel boring machines would not be used to construct any of the tunnels for the "E" Route alternatives between Palmdale and Arrastre Canyon and that "traditional" tunnelling methods would be used instead.

4413-10262

Page 3.4-19 addresses the "Construction Noise Criteria" applied for assessing project construction noise impacts, and it states that the Draft relies solely upon federal criteria established by the FRA for determining whether the Project's construction noise impacts are "significant". This is unacceptable. FRA construction noise standards are substantially lax because they allow a daytime 8-hour average noise level (referred to as "8-hour Leq") of 80 dBA and a nighttime 8-hour average noise level of 70 dBA; this means that Project construction can continuously create noise levels up to 80 dBA all day and 70 dBA all night in a residential area and such noise impacts would not be considered "significant". It also means that daytime and nighttime noise levels can be as high as 100 dBA or even higher as long as these high noise events are sufficiently balanced by lower noise events to ensure that the cumulative noise level averaged over an 8 hour interval does not exceed 80 dBA in the daytime or 70 dBA at night. To be clear, an 80 dBA noise insult is quite loud (it is equivalent to an alarm clock[29]), thus it is entirely unreasonable to conclude that residents will not be significantly affected if they are continuously exposed for an entire day to noise levels that are equivalent to an alarm clock. Yet, that is precisely what the federal standard allows for daytime construction activities. Moreover, local noise policies and standards more accurately reflect just how disruptive noise impacts can be in rural communities like Acton (particularly at night). For instance, and as discussed above, the Los Angeles County General Plan affirms that there is a 30% probability that people will be awakened by 70 dBA noise events; this is why the Los Angeles County Code prohibits construction noise disturbances across residential property line that exceed 75 dBA during the day and 60 dBA during the night[30]. The Draft ignores all these material facts, and instead adopts a noise standard which is so lenient that it *guarantees* sleepless nights for many Acton residents because it allows for continuous nighttime noise levels of 70 dBA. It is entirely inappropriate and arguably a CEQA violation for CHSRA to disregard local noise policies in determining the significance of noise generated by Project construction in favor of a federal standard that was developed without regard for rural circumstances or consideration of local conditions. CEQA is very clear: it requires the Lead Agency to 1) exercise careful judgement in making determinations regarding whether a project may have a significant effect on the environment; 2) base such determinations on scientific and factual data; and 3) recognize that an activity which may not be significant in an urban area may be significant in a rural area [CEQA Guidelines 15064(b)(1)]. The Draft fails to comply with these CEQA directives because it simply adopts a federal standard without thought or analysis and despite the fact that it is entirely inappropriate for local conditions. In other words, it is technically unacceptable and legally insupportable under CEQA to adopt "thresholds of significance" which are inappropriate for the rural environmental and are so lenient that a Project is not deemed to pose significant effects even when it causes significant and continuous incursions of noise events that are of sufficient magnitude to substantially interrupt sleep and interfere with living conditions. These are precisely the circumstances presented by the Draft; accordingly, the Draft is deficient and it will not withstand legal challenge. To correct these deficiencies, the Draft must be revised to incorporate restrictions on construction noise within the Community of Acton which are reasonable and appropriate for the rural community of Acton; the construction noise standards adopted by Los Angeles County Code are a good starting point. Alternatively, CHSRA can just approve the SR14 A route alternative and eliminate all construction noise impacts in Acton.

[29] https://decibelpro.app/blog/decibel-chart-of-common-sound-sources/

[30] The County Code prohibits residential noise disturbances ≥ 75 dBA from 7:00 a.m. to 8:00 on Monday-Saturday, and ≥60 dBA from 8:00 p.m. to 7:00 a.m. at all other times. [LACC 12.08.440].

4413-10263

Page 3.4-23 states "For the Palmdale to Burbank Project Section, it is assumed that there would be 189 trains per day in each direction during the daytime hours (7:00 a.m. to 10:00 p.m.), 28 trains per day in each direction during the nighttime hours (10:00 p.m. to 7:00 a.m.), and 14 trains in each direction during the peak hours." This description is ambiguous. Specifically, it is not clear whether the statement "14 trains in each direction during the peak hours" means that each peak hour will have an additional 14 trains or it mean that the additional 14 trains in each direction will be spread over all the peak hours. The difference is significant; the former implies that there will be 231 daily trains in each direction (189 + 28 + 14) for a total of 462 trains per day and the latter implies there will be 301 daily trains in each direction per day (189 + 28 + (14 x 6 peak hours per day)) for a total of 602 trains per day. This ambiguity should be addressed and the projected train schedule should be clearly identified.

4413-10264

Page 3.4-24 generally discusses noise propagation and the factors that affect sound travel; however, it does not correctly represent material facts that are pertinent to the Project. For example, it states that "If a line of sight exists from a subsource on the HSR to a noise-sensitive receiver, the ground factor becomes more critical in determining the amount of attenuation over a given distance". This statement is not accurate and does not represent conditions that will result from Project operations. Specifically, Project train speeds will exceed 200 mph, therefore, aerodynamic noise will tend to dominate the radiated noise levels[31]; therefore, the "ground factor" is not relevant because in the aerodynamic regime, ground absorption has little attenuating effect[32]. Furthermore, in the Community of Acton, "ground factor" will not contribute significantly to sound attenuation because many neighborhoods will have a direct "line of sight" to the train because the tracks are elevated in the Community for all route alternatives except SR14A. Finally, the discussion regarding noise barriers and the extent to which they will attenuate noise gives the false impression that noise barriers will be deployed to protect the public from the Project's significant noise impacts when in reality, CHSRA is generally disinclined to utilize noise barriers and is only proposing that a few be used to mitigate noise impacts (as discussed above).

4413-10265

Page 3.4-33 addresses "startle effect" in humans and wildlife due to "Rapid Onset Rates" from high speed trains, and it presents a "distance verses speed" chart that was ostensibly developed by FRA to indicate the distances from a high speed rail track where human "startle" effects can occur at various train speeds. According to the chart, an unsuspecting a person walking only 47 feet from a high speed rail track will not be "startled" by an oncoming high speed train unless the train speed exceeds 225 mph. This conclusion is *preposterous* because a person walking only 47 feet from a train traveling at 220 mph will experience a sudden noise level exceeding 101 dBA (as well as a significant air pressure wave) and will absolutely experience "startle". Yet, the Draft concludes that no such startle effects would occur because the train is only moving at 220 mph. Given the absurdity of this conclusion, a further review of the FRA figure was conducted. It turns out that the FRA Manual does not explain the "distance verses speed" chart at all; it does not disclose the chart's origins or cite the technical data that the chart reflects or describe the assumptions that underlie it or articulate the circumstances under which is deemed to apply. Furthermore, the "distance verses speed" chart appears to contradict other information that is provided in the FRA Manual. For instance, the FRA Manual cites an Air Force study that

[31] FRA Manual at 2-11.

[32] Id at 5-13.

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indicates startle effect can occur when onset speeds reach 15 dBA/second[33] which (according to Figure 2-5) occurs when the "speed to distance" ration is at approximately 2.5. Reconciling this this 2.5 ratio to the Project's 220 mph velocity envelope indicates that "startle" will occur when a person is actually 88 feet from the tracks (not 47). Surprisingly, and despite the presence of contradictory Air Force data, the FRA Manual "adopts" an onset noise threshold of 30 dBA/second as the basis for "establishing distances within which startle is likely to occur" even though Figure 2-5 presented in the FRA Manual reveals a 30 dBA/second threshold to be entirely implausible because it shows that no high speed trains (including Maglev trains) are even capable of achieving a 30 dBA/second onset rate[34]. Finally, this assessment by FRA's is contradicted by various studies described above including a 2021 FRA study (indicating that startle effects are deemed excessive by the public when a high speed train's average noise level measured 25 feet from the track centerline is only 90 dBA) and a 1974 study by the Federal Department of Transportation (demonstrating that human startle impacts can occur at noise levels that are as low as 81 dBA). The discussion of "startle" effects presented in the FRA Manual is arguably contradictory and not supported by technical evidence; thus, and by extension, the Draft's conclusions regarding "startle" effect are groundless and should be accorded no weight.

4413-10266

Page 3.4-36 explains the methodology that the Draft adopts for assessing the significance of Project operating noise impacts pursuant to CEQA, and it establishes that a noise impact will only be significant if it generates noise levels that exceed Federal Railway Administration/ Federal Transportation Administration standards (which are referred to as "Noise Impact Criteria" and are set forth in Figure 3-1 and on page 3-4 of the FRA Manual). This is categorically unacceptable for the following reasons. First, the FRA "Criteria" are entirely inappropriate in quiet rural communities like Acton because they do not designate a project as having a severe noise impact unless it nearly ***doubles*** the average ambient noise level. This is clearly depicted in Figure 3-1, which shows that existing areas with average noise levels of 50 dBA are not deemed to be severely impacted unless train operations increase the average ambient noise level by nearly 10 dBA (which is a doubling of noise "loudness"[35]). It is neither reasonable nor appropriate for any Lead Agency to conclude that a project will not have a significant noise impact unless it doubles the ambient noise level in a quiet rural area. Second, the FRA "Criteria" are so lenient that they preclude any project from ever being designated as having a "severe" noise impact unless and until the project noise levels exceed the 55 dBA "outdoor activity" noise threshold which interferes with activities and creates annoyance[36]. This fact is clearly revealed by inspection of Figure 3.4-12 in the Draft which shows that noise levels must exceed 55 dBA before they can be considered "severe". Another example of the inappropriate leniency that is "built into" the FRA "Criteria" is that it precludes projects from being designated as having a "severe" noise impact even if the project causes ambient noise

[33] FRA Manual at 2-7.

[34] According to Figure 2-5 in the FRA Manual, the maximum onset rate that steel wheel trains can achieve is less than 12 dBA/second; the onset rates achieved by Maglev trains are less than 25 dBA/second.

[35] FRA Manual at A-2.

[36] https://www.epa.gov/archive/epa/aboutepa/epa-identifies-noise-levels-affecting-health-and-welfare.html

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levels to exceed the 65 dBA established by HUD as a "normally unacceptable living environment"[37]. This fact is clearly revealed by inspection of Figure 3.4-12 in the Draft which shows that project noise levels can exceed 65 dBA and still not be considered "severe". The very notion that a project's noise impacts are not deemed significant unless they interfere with outdoor activities or create annoyance or result in normally unacceptable living environments is fundamentally contrary to CEQA which requires that significance determinations be based on careful judgment, facts, and technical data. Third, a detailed analysis of the FRA "Criteria" was conducted in 2016 which revealed that they are largely based on urban-based studies (such as the infamous "Schultz" curve) and thus do not incorporate research data pertaining to quiet, rural (non-urban) areas like Acton. This analysis was submitted to CHSRA in comments that were provided in 2016 in response to CHSRA's request for public input; it is included herein as Attachment 3. Importantly, this analysis demonstrates conclusively that the FRA "Criteria" used by the Draft to assess the significance of Project noise impacts may be applicable to urban environments, but they do not reflect the conditions or circumstances in quiet rural areas like Acton. Accordingly, application of FRA "Criteria" to Acton is utterly contrary to CEQA's holding that criteria used to determine whether an activity will have a significance effect must be appropriate for the setting in which the activity will occur because "an activity which may not be significant in an urban area may be significant in a rural area" [Guidelines 15064(b)(1)]. Fourth, FRA "Criteria" are based on L_{dn} levels that are calculated average values and represent only "cumulative noise exposure from all events over a 24-hour period"[38]; therefore, the FRA "criteria" are only useful for assessing the cumulative noise effects of a project and cannot be used to assess the direct noise effects of a project. As discussed above, both CEQA and NEPA require a Lead Agency to assess the significance of a Project's direct effects; this necessarily requires consideration of the "Sound Exposure Level" ("SEL") that is experienced by a receptor ***during*** a "passby" event. Furthermore, a new set of criteria must be developed to assess the significance of these direct effects. Such a "direct effect" analysis would require a determination of whether a resident who lives 2,000 feet from, and has an unobstructed view of, the HSR tracks would be "significantly impacted" when he/she experiences an 86 dBA noise insult more than 400 times per day throughout the day and night (which is equivalent to a jack hammer going off 50 feet away[39]). The FRA "Criteria" are not based on the SEL standard and are thus useless for assessing the significance of direct noise effects of a train project. This reveals an additional deficiency in the Draft: not only does the Draft fail to properly evaluate direct noise impacts, it also fails to identify criteria with which to assess the significance of direct noise impacts. Fifth, the methodology established by the FRA Manual and the manner in which it masks the significance of noise events by averaging them over a 24 hour period render them facially deficient for assessing even indirect noise impacts. For instance, there is no question that a train project poses a "significant" noise impact if it forces a resident living 2,000 feet from the tracks to experience an 86 dBA noise insult (equivalent to a jack hammer going off) more

[37] The U.S. Department of Housing and Urban Development has designated the L_{dn} value of 65 dBA as the noise level above which a normally unacceptable living environment exists. https://www.hudexchange.info/programs/environmental-review/noise-abatement-and-control/#:~:text=The%20%22Normally%20Unacceptable%22%20noise%20zone,65%20decibels%20to%2075%20decibels.

[38] FRA Manual at 2-4.

[39] https://ops.fhwa.dot.gov/wz/workshops/accessible/schexnayder_paper.htm

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than 460 times throughout the day and night, and any reasonable person would conclude that this impact is indeed "significant". Yet, this scenario would not even be captured by the FRA methodologies adopted in the Draft because the Draft only considers "receptor sites" within 1,800 feet of the tracks. There are a number of residents in the Acton Valley who live within 2,000 feet of, and will have an unobstructed "line of sight" to, the elevated tracks that will be constructed under the Refined SR14 route, and they will routinely experience 86 dBA noise events if this route is selected; these residents will also experience a Project L_{dn} value greater than 66 dBA and as such, should be designated as "severely impacted" according to the FRA Manual [Page 3-4]. However, they are not accounted for in the Draft. In fact, according to Figure 3.4-18, the Draft concludes that only Acton residences located within 1,300 feet of the elevated tracks of the Refined SR14 route will experience "severe" noise impacts. Sixth, the FRA methodology for assessing train noise impacts does not represent the *actual* cumulative noise impact that an area will experience as a result of high speed rail operation because the L_{dn} value it calculates for train noise only considers train noise events and does not incorporate the area's existing noise profile (in other words, it assumes a zero noise level during the portions of the 24 hour averaging interval when trains are not operating). This is perhaps one of the most egregious deficiencies of the FRA methodology; it isolates train noise events and calculates an L_{dn} value based solely on train operation and then merely compares this isolated train L_{dn} value to the existing cumulative noise profile in a community *thus it does not provide any indication of the* ***actual*** *cumulative (existing + project) noise levels that will occur* in an area once train operations begin. The FRA methodology is somewhat analogous to assessing the impacts of a tsunami at a particular location without regard for tidal influences[40]. This is not an ideal analogy because water waves and sound waves behave differently and because tsunamis typically only strike an area once and not 460+ times a day, but it makes the point that the quantification of cumulative noise levels in a community necessarily involves a calculation which *integrates* projected train noise events with existing ambient noise level and does not merely compare projected train noise levels with existing ambient noise levels. The FRA methodology does not achieve this integration; thus, the cumulative train noise L_{dn} values calculated per the FRA Manual are biased low. Finally, it is noted that the High Speed Rail Project is a California project funded largely by California taxpayers; thus, it is entirely inappropriate to adopt inapplicable federal criteria to assess the impacts of a state project, particularly given that the federal criteria are not representative of, and have no consideration for, the unique rural environments that will be affected by the Project (as discussed above).

4413-10267

Pages 3.4-60 to 3.4-70 concludes that up to 1,900 residences will experience significant noise impacts during Project construction, and that, despite implementation of mitigation measure N&V-MM#1 (which requires the contractor to prepare a noise-monitoring program describing how the contractor will meet the 80 dBA average daytime and 70 dBA average nighttime noise standards) "some receivers may still experience noise that would exceed acceptable limits". Unfortunately, this analysis substantially underrepresents the number of residences that will experience significant adverse noise impacts from Project construction because the significance threshold is based on a federal standard which (as discussed above) is entirely too lenient to be sufficient for the purposes of CEQA. The Final EIR/EIS must correct this deficiency by adopting CEQA-compliant thresholds for determining significant construction noise impacts and using these revised thresholds to prepare a more accurate "count" of the number of residences that

[40] Tsunamis are much more damaging if they occur during a high tide interval.

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will experience significant construction noise impacts; this will necessarily result in the identification of many more residences that will experience significant construction noise impacts. Another concern is that mitigation measure N&V-MM#1 will not protect Acton residents from significant construction noise impacts because it only requires the construction contractor to comply with the (too) lenient federal construction noise standards. In other words, many Acton residents will experience significant construction noise impacts even if the contractor successfully implements N&V-MM#1 and reduces construction noise in compliance with federal noise standards because the federal standards are absurdly lenient. This deficiency must be corrected by adopting more stringent performance standards for mitigation measure N&V-MM#1 which are applicable to areas like Acton.

4413-10268

Pages 3.4-75 to 3.4-76 address startle and annoyance impacts on humans, and assert that human startle impacts will only occur if train onset rates exceed 30 dBA/second; it is concluded that no startle impacts will occur. This conclusion is defective because it is based on criteria taken from the FRA Manual that are at best insupportable and at worst completely implausible (as discussed above). Because the Draft applies inappropriate and implausible thresholds of significance for startle and annoyance impacts and ignores technical studies showing human startle impacts can occur at noise levels as low as 81 dBA and annoyance impacts can occur at noise levels as low as 73 dBA, it improperly concludes that human startle and annoyance impacts are less than significant. The magnitude of this error becomes apparent when one considers that it means an Acton resident who lives half a mile from the tracks will never be annoyed or startled by any Project operations even though the Project will expose the resident to an 85 dBA noise insult more than 460 times per day; such a conclusion is ridiculous and the Draft is substantially defective for even suggesting it. This deficiency must be corrected by adopting reasonable and technically defensible noise thresholds for assessing human startle and annoyance effects and applying these thresholds to projected noise levels to properly quantify the scope and extent of the Project's startle and annoyance impacts.

4413-10269

Pages 3.4-76 to 3.4-106 address the noise impacts of Project operations, and conclude that relatively few residents will experience significant noise impacts resulting from Project operations. This conclusion is defective because it is based on FRA "criteria" that do not comply with CEQA because they do not reflect local conditions or circumstances in rural communities like Acton (as discussed above). This conclusion is also incomplete because it is based on calculated L_{dn} values that only addresses "cumulative noise exposure" impacts which are perhaps germane for assessing the Project's indirect noise effects but are not appropriate for assessing the Project's direct noise effects. If the Draft had adopted CEQA-compliant noise impact thresholds, the noise analysis would have extended beyond the 1,300 foot boundary that was analyzed in Acton and far more residences would have been properly identified as receptor sites that will experience significant noise impacts. The Draft utterly fails in this regard, and because it substantially underreports the scope and extent of the Project's noise impacts, it violates CEQA. These deficiencies must be corrected by 1) adopting reasonable and technically defensible noise thresholds for assessing direct noise impacts in rural, suburban, and urban environments; and 2) adopting reasonable and technically defensible noise thresholds for assessing indirect noise impacts in rural areas (because the FRA "Criteria" are only applicable to urban areas); and 3) applying these thresholds to projected noise levels to properly quantify the full scope and extent of the Project's direct and indirect noise impacts.

4413-10270

Pages 3.4- 89 and 3.4-98 summarize the noise impact result for all the "E" routes in the central section of the Project and simply assert that "no noise impacts on institutional uses (e.g., schools, libraries, theaters, and churches) were identified". These pages give the impression that no residential properties in the central sections of all the "E" routes will be affected by Project noise; however, this impression is incorrect. A number of residences will experience significant noise impacts in the central sections of all the "E" routes and a number of them are in Acton (see Tables 3.4-32 and 3.4-33). These pages should be revised to properly reflect that all the E routes will result in significant noise impacts on non-institutional uses in the central section of the Project.

4413-10271

Page 3.4-144 through 3.4-149 summarize NEPA impacts of the Project. However, the Draft does not comply with NEPA because it fails to provide noise impact assessment methodologies and significance criteria which properly evaluate the direct noise impacts resulting from Project operations; it also relies on deficient and insupportable analyses pertaining to human and animal startle impacts.

4413-10272

Page 3.4-149 through 3.4-151 present CEQA significance conclusions indicating the Project will result in significant noise impacts. However, the Draft underrepresents the scope and extent of the Project's significant noise impacts and it does not comply with CEQA because the Draft:

- Relies on inappropriately lenient federal standards that are not applicable to rural areas for assessing construction noise impacts.
- Relies on inappropriately lenient federal standards that are not applicable to rural areas for assessing cumulative noise impacts resulting from Project operations.
- Fails to provide noise impact assessment methodologies that properly evaluate the direct noise impacts that will result from Project operations.
- Fails to identify appropriate criteria for assessing the significance of the Project's direct noise impacts.
- Adopts unsubstantiated and insupportable criteria for assessing the impacts of Project operations on domestic animals and wildlife
- Adopts unsubstantiated and insupportable criteria for assessing the startle and annoyance impacts of Project operations on humans.

4413-10273

4.0 ANECDOTAL EVIDENCE DEMONSTRATES THAT Ldn VALUES ARE USELESS FOR ASSESSING SIGNIFICANT NOISE IMPACTS.

The Town of Acton was founded in the 1880s based on farming, mining and the railroad, so the residents of Acton have extensive experience with adverse noise impacts of rail operations. Because of the unique geography and geology of our community, coupled with a sparse vegetation profile, rail noises reverberate and do not attenuate in Acton. Residents who have no "line of sight" to the tracks are still awakened at 2 AM by rail traffic (even residents who live 2

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miles from the tracks; indoor noise measurements taken during these "passby" events are typically 70 dBA). The anecdotal evidence that has been collected from affected Acton residents demonstrates that *adverse rail noise impacts occur when the train is transiting* ***because that is when activity disruption occurs.*** The Draft does not address the noise impacts that will occur in Acton during transit of a high speed train; therefore, the Draft fails to address the very circumstances under which the most significant Project noise impacts will occur. Accordingly, the Draft is utterly deficient.

The Draft reports that Acton's baseline L_{dn} is 60 dBA or less which (according to the FRA manual) means that Acton has no significant noise issues. However, nothing could be further from the truth because sleep disruption and activity interruption are routine occurrences in Acton because significant adverse noise impacts occur ***during*** rail "passby" events. This fact alone utterly controverts the premise established by the FRA Manual and adopted by the Draft that a 24-hour average noise value is an appropriate indicator of adverse noise impacts; it is not.

Rail operations in Acton have grown steadily over the years, and as a result, adverse noise impacts have also grown steadily; in fact, some residents have even moved because noise impacts have become too burdensome. At the request of residents, and because noise generated during rail "passby" events have become too disruptive, the Acton Town Council began a campaign nearly 10 years ago to have "quiet zones" installed along the rail corridor in Acton. The fact that the Community of Acton is diligently working to have "quiet zones" installed even though L_{dn} values in the Community are 60 dBA or less is proof positive that L_{dn} values are, frankly, useless for determining whether rail noise impacts are significant.

4413-10274

5.0 CONCLUSION

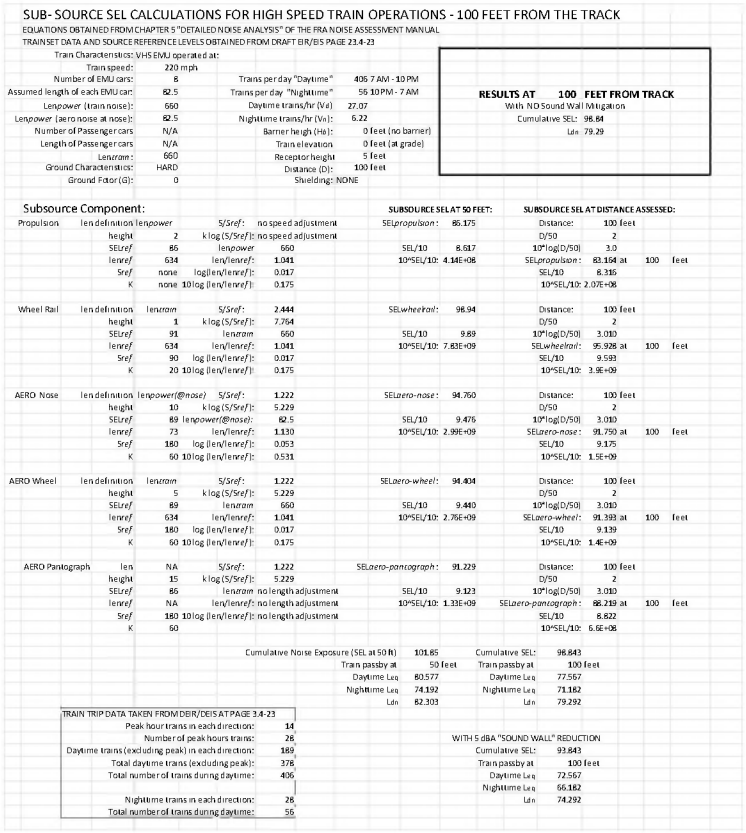
For the reasons set forth above, the noise analysis results presented in the Draft EIR/EIS prepared for the Palmdale to Burbank section is deficient and does not comply with CEQA or NEPA; these deficiencies must be corrected in the Final EIR/EIS and in particular, defects noted herein must be addressed. Without these corrections, the Final EIR/EIS will not comply with CEQA or NEPA. Alternatively, CHSRA could simply adopt the SR14A Route Alternative and avoid all noise impacts from Project Operations in the Community of Acton.

Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

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ATTACHMENT 1

Noise analysis results for HSR Operations that were prepared in accordance with calculation procedures set forth in Chapter 5 and Appendix C of the FRA Manual and based on the train configuration data provided on Page 3.4-23 of the Draft. These calculations assume 1) The train operates at 220 mph at ground level; 2) the receptor has an unobstructed view of the tracks (no "shielding"); 3) the ground is acoustically "hard" and there is little vegetation; and 4) there is no ground attenuation for trains traveling in the aerodynamic regime.



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 100 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23.4-23

Train Characteristics: VHS EMU operated at:

Train speed:	220 mph				
Number of EMU cars:	8	Trains per day "Daytime"	405	7 AM - 10 PM	
Assumed length of each EMU car:	82.5	Trains per day "Nighttime"	56	10 PM - 7 AM	
Lenpower (train noise):	660	Daytime trains/hr (Nd)	27.07		
Lenpower (aero noise at nose):	82.5	Nighttime trains/hr (Nn):	6.22		
Number of Passenger cars	N/A	Barrier heigh (Hb):	0	feet (no barrier)	
Length of Passenger cars	N/A	Train elevation	0	feet (at grade)	
Lenram:	660	Receptor height	5	feet	
Ground Characteristics:	HARD	Distance (D):	100	feet	
Ground Fctor (G):	0	Shielding: NONE			

RESULTS AT 100 FEET FROM TRACK

With NO Sound Wall Mitigation

Cumulative SEL: 96.84

Ldn 79.29

Subsource Component:						SUBSOURCE SEL AT 50 FEET:		SUBSOURCE SEL AT DISTANCE ASSESSED:			
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment		SELpropulsion:	86.175	Distance:	100	feet	
	height	2	k log (S/Sref):	no speed adjustment				D/50	2		
	SELref	86	lenpower	660		SEL/10	8.617	10*log(D/50)	3.0		
	lenref	634	len/lenref:	1.041		10^SEL/10:	4.14E+08	SELpropulsion:	82.154 at	100	feet
	Sref	none	log(len/lenref):	0.017				SEL/10	8.315		
	K	none	10 log (len/lenref):	0.175				10^SEL/10:	2.07E+08		
Wheel Rail	len definition	lenram	S/Sref:	2.444		SELwheelrail:	98.94	Distance:	100	feet	
	height	1	k log (S/Sref):	7.764				D/50	2		
	SELref	91	lenram	660		SEL/10	9.89	10*log(D/50)	3.010		
	lenref	634	len/lenref:	1.041		10^SEL/10:	7.83E+09	SELwheelrail:	95.928 at	100	feet
	Sref	90	log (len/lenref):	0.017				SEL/10	9.593		
	K	20	10 log (len/lenref):	0.175				10^SEL/10:	3.9E+09		
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222		SELaero-nose:	94.760	Distance:	100	feet	
	height	10	k log (S/Sref):	5.229				D/50	2		
	SELref	89	lenpower(@nose):	82.5		SEL/10	9.476	10*log(D/50)	3.010		
	lenref	73	len/lenref:	1.130		10^SEL/10:	2.99E+09	SELaero-nose:	91.750 at	100	feet
	Sref	180	log (len/lenref):	0.053				SEL/10	9.175		
	K	60	10 log (len/lenref):	0.531				10^SEL/10:	1.5E+09		
AERO Wheel	len definition	lenram	S/Sref:	1.222		SELaero-wheel:	94.404	Distance:	100	feet	
	height	5	k log (S/Sref):	5.229				D/50	2		
	SELref	89	lenram	660		SEL/10	9.440	10*log(D/50)	3.010		
	lenref	634	len/lenref:	1.041		10^SEL/10:	2.76E+09	SELaero-wheel:	91.393 at	100	feet
	Sref	180	log (len/lenref):	0.017				SEL/10	9.139		
	K	60	10 log (len/lenref):	0.175				10^SEL/10:	1.4E+09		
AERO Pantograph	len	NA	S/Sref:	1.222		SELaero-pantograph:	91.229	Distance:	100	feet	
	height	15	k log (S/Sref):	5.229				D/50	2		
	SELref	86	lenram	no length adjustment		SEL/10	9.123	10*log(D/50)	3.010		
	lenref	NA	len/lenref:	no length adjustment		10^SEL/10:	1.33E+09	SELaero-pantograph:	88.219 at	100	feet
	Sref	180	10 log (len/lenref):	no length adjustment				SEL/10	8.822		
	K	60						10^SEL/10:	6.6E+08		

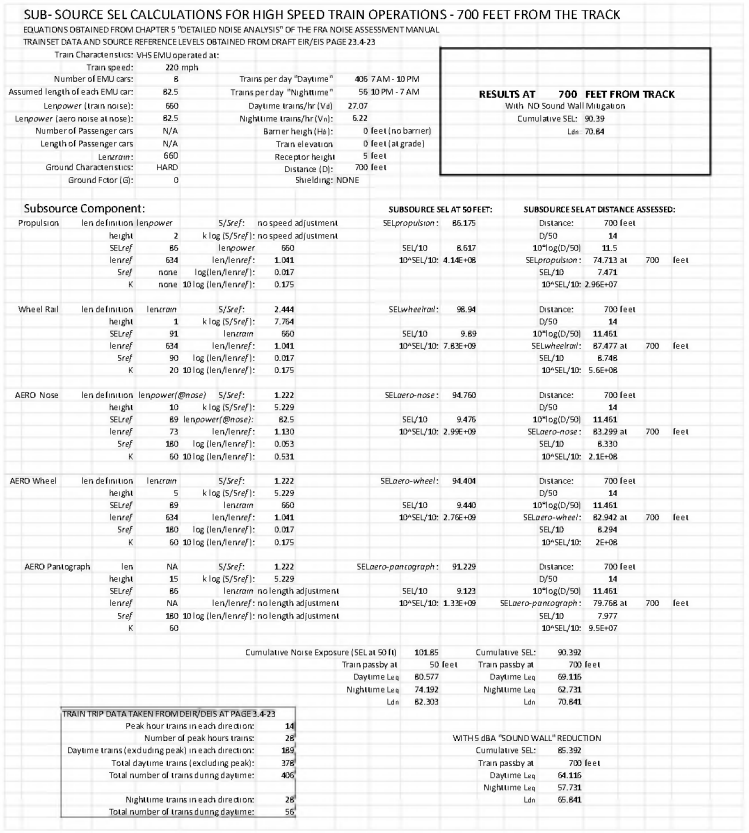
Cumulative Noise Exposure (SEL at 50 ft)	101.65	Cumulative SEL:	96.843
Train passby at	50 feet	Train passby at	100 feet
Daytime Leq	80.577	Daytime Leq	77.567
Nighttime Leq	74.192	Nighttime Leq	71.182
Ldn	82.303	Ldn	79.292

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3.4-23	
Peak hour trains in each direction:	14
Number of peak hours trains:	28
Daytime trains (excluding peak) in each direction:	189
Total daytime trains (excluding peak):	378
Total number of trains during daytime:	406
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION

Cumulative SEL:	93.843
Train passby at	100 feet
Daytime Leq	72.567
Nighttime Leq	66.182
Ldn	74.292

Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 700 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23.4-23

Train Characteristics:	VHS EMU operated at:		
Train speed:	220 mph		
Number of EMU cars:	8	Trains per day "Daytime"	405 7 AM - 10 PM
Assumed length of each EMU car:	82.5	Trains per day "Nighttime"	56 10 PM - 7 AM
Lenpower (train noise):	660	Daytime trains/hr (Vd)	27.07
Lenpower (aero noise at nose):	82.5	Nighttime trains/hr (Vn):	5.22
Number of Passenger cars	N/A	Barrier heigh (Hb):	0 feet (no barrier)
Length of Passenger cars	N/A	Train elevation	0 feet (at grade)
Lenram:	660	Receptor height	5 feet
Ground Characteristics:	HARD	Distance (D):	700 feet
Ground Fctor (G):	0	Shielding:	NONE

RESULTS AT 700 FEET FROM TRACK
With NO Sound Wall Mitigation
Cumulative SEL: 90.39
Ldn 70.64

Subsource Component:

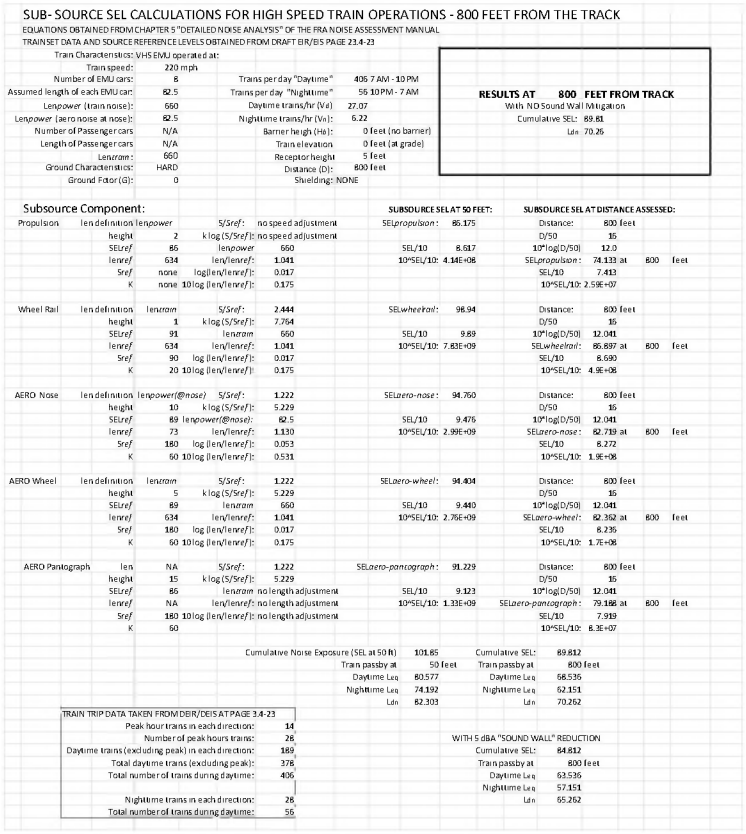
						SUBSOURCE SEL AT 50 FEET:		**SUBSOURCE SEL AT DISTANCE ASSESSED:**		
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment		SELpropulsion:	86.175	Distance:	700 feet	
	height	2	k log (S/Sref):	no speed adjustment				D/50	14	
	SELref	86	lenpower	660		SEL/10	8.617	10*log(D/50)	11.5	
	lenref	634	len/lenref:	1.041		10^SEL/10:	4.14E+08	SELpropulsion:	74.713 at	700 feet
	Sref	none	log(len/lenref):	0.017				SEL/10	7.471	
	K	none	10 log (len/lenref):	0.175				10^SEL/10:	2.96E+07	
Wheel Rail	len definition	lenram	S/Sref:	2.444		SELwheelrail:	98.94	Distance:	700 feet	
	height	1	k log (S/Sref):	7.764				D/50	14	
	SELref	91	lenram	660		SEL/10	9.89	10*log(D/50)	11.461	
	lenref	634	len/lenref:	1.041		10^SEL/10:	7.83E+09	SELwheelrail:	87.477 at	700 feet
	Sref	90	log (len/lenref):	0.017				SEL/10	8.748	
	K	20	10 log (len/lenref):	0.175				10^SEL/10:	5.6E+08	
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222		SELaero-nose:	94.760	Distance:	700 feet	
	height	10	k log (S/Sref):	5.229				D/50	14	
	SELref	89	lenpower(@nose):	82.5		SEL/10	9.476	10*log(D/50)	11.461	
	lenref	73	len/lenref:	1.130		10^SEL/10:	2.99E+09	SELaero-nose:	83.299 at	700 feet
	Sref	180	log (len/lenref):	0.053				SEL/10	8.330	
	K	60	10 log (len/lenref):	0.531				10^SEL/10:	2.1E+08	
AERO Wheel	len definition	lenram	S/Sref:	1.222		SELaero-wheel:	94.404	Distance:	700 feet	
	height	5	k log (S/Sref):	5.229				D/50	14	
	SELref	89	lenram	660		SEL/10	9.440	10*log(D/50)	11.461	
	lenref	634	len/lenref:	1.041		10^SEL/10:	2.76E+09	SELaero-wheel:	82.942 at	700 feet
	Sref	180	log (len/lenref):	0.017				SEL/10	8.294	
	K	60	10 log (len/lenref):	0.175				10^SEL/10:	2E+08	
AERO Pantograph	len	NA	S/Sref:	1.222		SELaero-pantograph:	91.229	Distance:	700 feet	
	height	15	k log (S/Sref):	5.229				D/50	14	
	SELref	86	lenram	no length adjustment		SEL/10	9.123	10*log(D/50)	11.461	
	lenref	NA	len/lenref:	no length adjustment		10^SEL/10:	1.33E+09	SELaero-pantograph:	79.768 at	700 feet
	Sref	180	10 log (len/lenref):	no length adjustment				SEL/10	7.977	
	K	60						10^SEL/10:	9.5E+07	

Cumulative Noise Exposure (SEL at 50 ft)	101.85	Cumulative SEL:	90.392
Train passby at	50 feet	Train passby at	700 feet
Daytime Leq	80.577	Daytime Leq	69.115
Nighttime Leq	74.192	Nighttime Leq	62.731
Ldn	82.303	Ldn	70.641

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3.4-23	
Peak hour trains in each direction:	14
Number of peak hours trains:	28
Daytime trains (excluding peak) in each direction:	189
Total daytime trains (excluding peak):	378
Total number of trains during daytime:	406
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION

Cumulative SEL:	85.392
Train passby at	700 feet
Daytime Leq	64.115
Nighttime Leq	57.731
Ldn	66.641



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 800 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23.4-23

Train Characteristics:	VHS EMU operated at:		
Train speed:	220 mph		
Number of EMU cars:	8	Trains per day "Daytime"	405 7 AM - 10 PM
Assumed length of each EMU car:	82.5	Trains per day "Nighttime"	56 10 PM - 7 AM
Lenpower (train noise):	660	Daytime trains/hr (Vd)	27.07
Lenpower (aero noise at nose):	82.5	Nighttime trains/hr (Vn):	6.22
Number of Passenger cars	N/A	Barrier heigh (Hb):	0 feet (no barrier)
Length of Passenger cars	N/A	Train elevation	0 feet (at grade)
Lenram:	660	Receptor height	5 feet
Ground Characteristics:	HARD	Distance (D):	800 feet
Ground Fctor (G):	0	Shielding:	NONE

RESULTS AT 800 FEET FROM TRACK
With NO Sound Wall Mitigation
Cumulative SEL: 88.81
Ldn 70.26

Subsource Component:

						SUBSOURCE SEL AT 50 FEET:		**SUBSOURCE SEL AT DISTANCE ASSESSED:**		
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment		SELpropulsion:	86.175	Distance:	800 feet	
	height	2	k log (S/Sref):	no speed adjustment				D/50	16	
	SELref	86	lenpower	660		SEL/10	8.617	10*log(D/50)	12.0	
	lenref	634	len/lenref:	1.041		10^SEL/10:	4.14E+08	SELpropulsion:	74.133 at	800 feet
	Sref	none	log(len/lenref):	0.017				SEL/10	7.413	
	K	none	10 log (len/lenref):	0.175				10^SEL/10:	2.59E+07	
Wheel Rail	len definition	lenram	S/Sref:	2.444		SELwheelrail:	98.94	Distance:	800 feet	
	height	1	k log (S/Sref):	7.764				D/50	16	
	SELref	91	lenram	660		SEL/10	9.89	10*log(D/50)	12.041	
	lenref	634	len/lenref:	1.041		10^SEL/10:	7.83E+09	SELwheelrail:	86.897 at	800 feet
	Sref	90	log (len/lenref):	0.017				SEL/10	8.690	
	K	20	10 log (len/lenref):	0.175				10^SEL/10:	4.9E+08	
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222		SELaero-nose:	94.760	Distance:	800 feet	
	height	10	k log (S/Sref):	5.229				D/50	16	
	SELref	89	lenpower(@nose):	82.5		SEL/10	9.476	10*log(D/50)	12.041	
	lenref	73	len/lenref:	1.130		10^SEL/10:	2.99E+09	SELaero-nose:	82.719 at	800 feet
	Sref	180	log (len/lenref):	0.053				SEL/10	8.272	
	K	60	10 log (len/lenref):	0.531				10^SEL/10:	1.9E+08	
AERO Wheel	len definition	lenram	S/Sref:	1.222		SELaero-wheel:	94.404	Distance:	800 feet	
	height	5	k log (S/Sref):	5.229				D/50	16	
	SELref	89	lenram	660		SEL/10	9.440	10*log(D/50)	12.041	
	lenref	634	len/lenref:	1.041		10^SEL/10:	2.76E+09	SELaero-wheel:	82.362 at	800 feet
	Sref	180	log (len/lenref):	0.017				SEL/10	8.235	
	K	60	10 log (len/lenref):	0.175				10^SEL/10:	1.7E+08	
AERO Pantograph	len	NA	S/Sref:	1.222		SELaero-pantograph:	91.229	Distance:	800 feet	
	height	15	k log (S/Sref):	5.229				D/50	16	
	SELref	86	lenram	no length adjustment		SEL/10	9.123	10*log(D/50)	12.041	
	lenref	NA	len/lenref:	no length adjustment		10^SEL/10:	1.33E+09	SELaero-pantograph:	79.186 at	800 feet
	Sref	180	10 log (len/lenref):	no length adjustment				SEL/10	7.919	
	K	60						10^SEL/10:	8.3E+07	

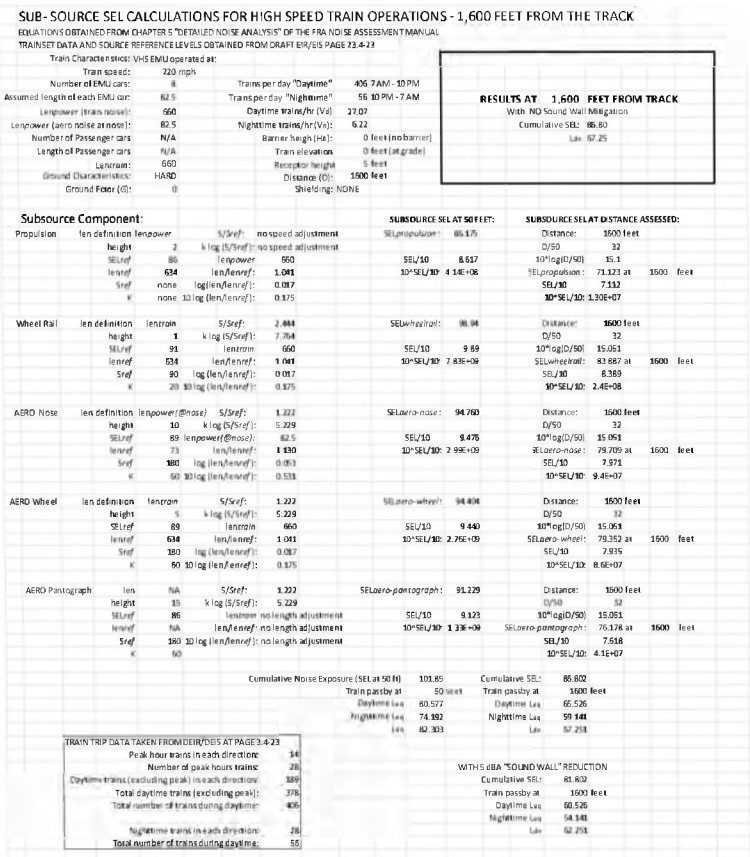
Cumulative Noise Exposure (SEL at 50 ft)	101.65	Cumulative SEL:	89.812
Train passby at	50 feet	Train passby at	800 feet
Daytime Leq	80.577	Daytime Leq	68.535
Nighttime Leq	74.192	Nighttime Leq	62.151
Ldn	82.303	Ldn	70.262

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3.4-23	
Peak hour trains in each direction:	14
Number of peak hours trains:	28
Daytime trains (excluding peak) in each direction:	189
Total daytime trains (excluding peak):	378
Total number of trains during daytime:	406
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION

Cumulative SEL:	84.812
Train passby at	800 feet
Daytime Leq	63.535
Nighttime Leq	57.151
Ldn	65.262

Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued



SUB-SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 1,600 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23.4-23

Train Characteristics: VHS EMU operated at:

Train speed:	220 mph		
Number of EMU cars:	8	Trains per day "Daytime"	406 7 AM - 10 PM
Assumed length of each EMU car:	82.5	Trains per day "Nighttime"	56 10 PM - 7 AM
Lenpower (train noise):	660	Daytime trains/hr (Vd)	27.07
Lenpower (aero noise at nose):	82.5	Nighttime trains/hr (Vn):	6.22
Number of Passenger cars	N/A	Barrier heigh (Ha):	0 feet (no barrier)
Length of Passenger cars	N/A	Train elevation	0 feet (at grade)
Lentrain:	660	Receptor height	5 feet
Ground Characteristics:	HARD	Distance (D):	1600 feet
Ground Fctor (G):	0	Shielding: NONE	

RESULTS AT 1,600 FEET FROM TRACK
With NO Sound Wall Mitigation
Cumulative SEL: 86.80
Ldn 67.25

Subsource Component:

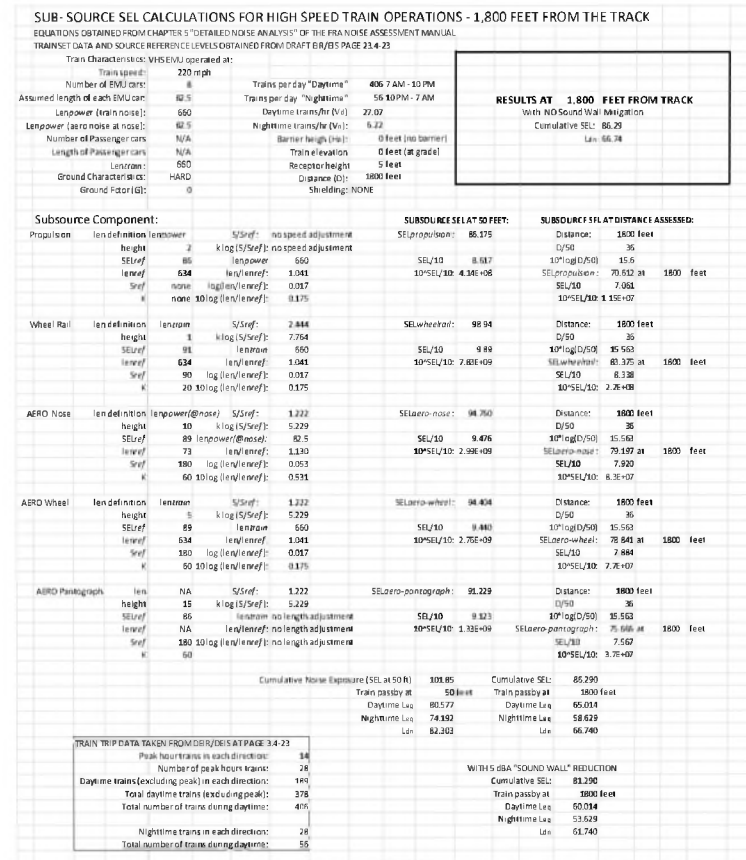
							SUBSOURCE SEL AT 50 FEET:		SUBSOURCE SEL AT DISTANCE ASSESSED:		
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment			SELpropulsion:	85.175	Distance:	1600 feet	
	height	2	k log (S/Sref):	no speed adjustment					D/50	32	
	SELref	85	lenpower	660			SEL/10	8.617	10*log(D/50)	15.1	
	lenref	634	len/lenref:	1.041			10^SEL/10:	4.14E+08	SELpropulsion:	71.123 at	1600 feet
	Sref	none	log(len/lenref):	0.017					SEL/10	7.112	
	K	none	10 log (len/lenref):	0.175					10^SEL/10:	1.30E+07	
Wheel Rail	len definition	lentrain	S/Sref:	2.444			SELwheelrail:	98.94	Distance:	1600 feet	
	height	1	k log (S/Sref):	7.764					D/50	32	
	SELref	91	lentrain	660			SEL/10	9.89	10*log(D/50)	15.051	
	lenref	634	len/lenref:	1.041			10^SEL/10:	7.83E+09	SELwheelrail:	83.887 at	1600 feet
	Sref	90	log (len/lenref):	0.017					SEL/10	8.389	
	K	20	10 log (len/lenref):	0.175					10^SEL/10:	2.45E+08	
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222			SELaero-nose:	94.760	Distance:	1600 feet	
	height	10	k log (S/Sref):	5.229					D/50	32	
	SELref	89	lenpower(@nose):	82.5			SEL/10	9.476	10*log(D/50)	15.051	
	lenref	73	len/lenref:	1.130			10^SEL/10:	2.99E+09	SELaero-nose:	79.709 at	1600 feet
	Sref	180	log (len/lenref):	0.053					SEL/10	7.971	
	K	60	10 log (len/lenref):	0.531					10^SEL/10:	9.4E+07	
AERO Wheel	len definition	lentrain	S/Sref:	1.222			SELaero-wheel:	94.404	Distance:	1600 feet	
	height	5	k log (S/Sref):	5.229					D/50	32	
	SELref	89	lentrain	660			SEL/10	9.440	10*log(D/50)	15.051	
	lenref	634	len/lenref:	1.041			10^SEL/10:	2.76E+09	SELaero-wheel:	79.352 at	1600 feet
	Sref	180	log (len/lenref):	0.017					SEL/10	7.935	
	K	60	10 log (len/lenref):	0.175					10^SEL/10:	8.6E+07	
AERO Pantograph	len	NA	S/Sref:	1.222			SELaero-pantograph:	91.229	Distance:	1600 feet	
	height	15	k log (S/Sref):	5.229					D/50	32	
	SELref	86	lentrain	no length adjustment			SEL/10	9.123	10*log(D/50)	15.051	
	lenref	NA	len/lenref:	no length adjustment			10^SEL/10:	1.33E+09	SELaero-pantograph:	76.176 at	1600 feet
	Sref	180	10 log (len/lenref):	no length adjustment					SEL/10	7.618	
	K	60							10^SEL/10:	4.1E+07	

Cumulative Noise Exposure (SEL at 50 ft): 101.85 — Cumulative SEL: 86.802
Train passby at 50 feet — Train passby at 1600 feet
Daytime Leq 80.577 — Daytime Leq 66.526
Nighttime Leq 74.192 — Nighttime Leq 59.141
Ldn 82.303 — Ldn 67.251

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3.4-23

Peak hour trains in each direction:	14
Number of peak hours trains:	28
Daytime trains (excluding peak) in each direction:	189
Total daytime trains (excluding peak):	378
Total number of trains during daytime:	406
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION
Cumulative SEL: 81.802
Train passby at 1600 feet
Daytime Leq 60.526
Nighttime Leq 54.141
Ldn 62.251



SUB-SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 1,800 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23.4-23

Train Characteristics: VHS EMU operated at:

Train speed:	220 mph		
Number of EMU cars:	8	Trains per day "Daytime"	406 7 AM - 10 PM
Assumed length of each EMU car:	82.5	Trains per day "Nighttime"	56 10 PM - 7 AM
Lenpower (train noise):	660	Daytime trains/hr (Vd)	27.07
Lenpower (aero noise at nose):	82.5	Nighttime trains/hr (Vn):	6.22
Number of Passenger cars	N/A	Barrier heigh (Ha):	0 feet (no barrier)
Length of Passenger cars	N/A	Train elevation	0 feet (at grade)
Lenzrain:	660	Receptor height	5 feet
Ground Characteristics:	HARD	Distance (D):	1800 feet
Ground Fctor (G):	0	Shielding: NONE	

RESULTS AT 1,800 FEET FROM TRACK
With NO Sound Wall Mitigation
Cumulative SEL: 86.29
Ldn 66.74

Subsource Component:

							SUBSOURCE SEL AT 50 FEET:		SUBSOURCE SEL AT DISTANCE ASSESSED:		
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment			SELpropulsion:	85.175	Distance:	1800 feet	
	height	2	k log (S/Sref):	no speed adjustment					D/50	36	
	SELref	85	lenpower	660			SEL/10	8.617	10*log(D/50)	15.6	
	lenref	634	len/lenref:	1.041			10^SEL/10:	4.14E+08	SELpropulsion:	70.812 at	1800 feet
	Sref	none	log(len/lenref):	0.017					SEL/10	7.081	
	K	none	10 log (len/lenref):	0.175					10^SEL/10:	1.15E+07	
Wheel Rail	len definition	lentrain	S/Sref:	2.444			SELwheelrail:	98.94	Distance:	1800 feet	
	height	1	k log (S/Sref):	7.764					D/50	36	
	SELref	91	lentrain	660			SEL/10	9.89	10*log(D/50)	15.563	
	lenref	634	len/lenref:	1.041			10^SEL/10:	7.83E+09	SELwheelrail:	83.375 at	1800 feet
	Sref	90	log (len/lenref):	0.017					SEL/10	8.338	
	K	20	10 log (len/lenref):	0.175					10^SEL/10:	2.2E+08	
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222			SELaero-nose:	94.760	Distance:	1800 feet	
	height	10	k log (S/Sref):	5.229					D/50	36	
	SELref	89	lenpower(@nose):	82.5			SEL/10	9.476	10*log(D/50)	15.563	
	lenref	73	len/lenref:	1.130			10^SEL/10:	2.99E+09	SELaero-nose:	79.197 at	1800 feet
	Sref	180	log (len/lenref):	0.053					SEL/10	7.920	
	K	60	10 log (len/lenref):	0.531					10^SEL/10:	8.3E+07	
AERO Wheel	len definition	lentrain	S/Sref:	1.222			SELaero-wheel:	94.404	Distance:	1800 feet	
	height	5	k log (S/Sref):	5.229					D/50	36	
	SELref	89	lentrain	660			SEL/10	9.440	10*log(D/50)	15.563	
	lenref	634	len/lenref	1.041			10^SEL/10:	2.76E+09	SELaero-wheel:	78.841 at	1800 feet
	Sref	180	log (len/lenref):	0.017					SEL/10	7.884	
	K	60	10 log (len/lenref):	0.175					10^SEL/10:	7.7E+07	
AERO Pantograph	len	NA	S/Sref:	1.222			SELaero-pantograph:	91.229	Distance:	1800 feet	
	height	15	k log (S/Sref):	5.229					D/50	36	
	SELref	86	lentrain	no length adjustment			SEL/10	9.123	10*log(D/50)	15.563	
	lenref	NA	len/lenref:	no length adjustment			10^SEL/10:	1.33E+09	SELaero-pantograph:	75.686 at	1800 feet
	Sref	180	10 log (len/lenref):	no length adjustment					SEL/10	7.562	
	K	60							10^SEL/10:	3.7E+07	

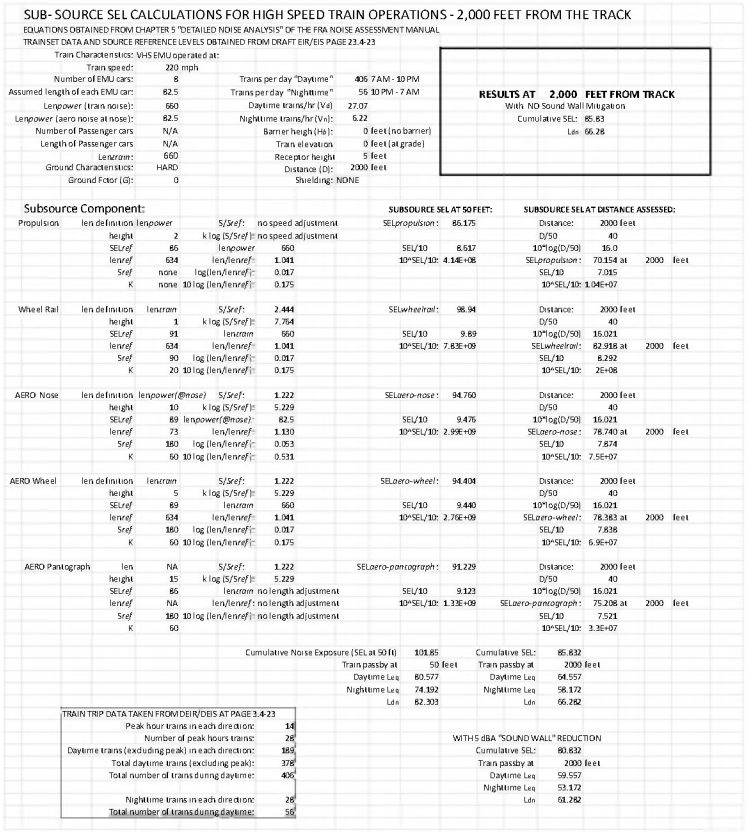
Cumulative Noise Exposure (SEL at 50 ft): 101.85 — Cumulative SEL: 86.290
Train passby at 50 feet — Train passby at 1800 feet
Daytime Leq 80.577 — Daytime Leq 65.014
Nighttime Leq 74.192 — Nighttime Leq 58.629
Ldn 82.303 — Ldn 66.740

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3.4-23

Peak hour trains in each direction:	14
Number of peak hours trains:	28
Daytime trains (excluding peak) in each direction:	189
Total daytime trains (excluding peak):	378
Total number of trains during daytime:	406
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION
Cumulative SEL: 81.290
Train passby at 1800 feet
Daytime Leq 60.014
Nighttime Leq 53.629
Ldn 61.740

Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 2,000 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23.4-23

Train Characteristics:	VHS EMU operated at:		
Train speed:	220 mph		
Number of EMU cars:	8	Trains per day "Daytime"	405 7 AM - 10 PM
Assumed length of each EMU car:	82.5	Trains per day "Nighttime"	56 10 PM - 7 AM
Lenpower (train noise):	660	Daytime trains/hr (Vd)	27.07
Lenpower (aero noise at nose):	82.5	Nighttime trains/hr (Vn):	6.22
Number of Passenger cars	N/A	Barrier heigh (Ha):	0 feet (no barrier)
Length of Passenger cars	N/A	Train elevation	0 feet (at grade)
Lenram:	660	Receptor height	5 feet
Ground Characteristics:	HARD	Distance (D):	2000 feet
Ground Fctor (G):	0	Shielding:	NONE

RESULTS AT 2,000 FEET FROM TRACK
With NO Sound Wall Mitigation
Cumulative SEL: 85.83
Ldn 66.28

Subsource Component:

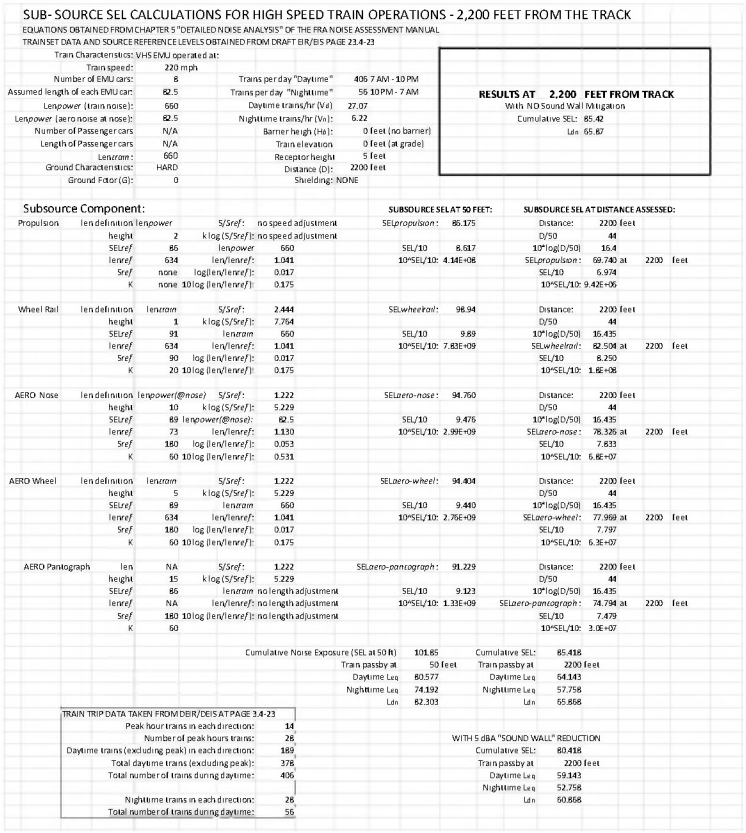
						SUBSOURCE SEL AT 50 FEET:		SUBSOURCE SEL AT DISTANCE ASSESSED:			
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment		SELpropulsion:	85.175	Distance:	2000 feet		
	height	2	k log (S/Sref):	no speed adjustment				D/50	40		
	SELref	86	lenpower	660		SEL/10	8.617	10*log(D/50)	16.0		
	lenref	634	len/lenref:	1.041		10^SEL/10:	4.14E+08	SELpropulsion:	70.154 at	2000	feet
	Sref	none	log(len/lenref):	0.017				SEL/10	7.015		
	K	none	10 log (len/lenref):	0.175				10^SEL/10:	1.04E+07		
Wheel Rail	len definition	lenram	S/Sref:	2.444		SELwheelrail:	98.94	Distance:	2000 feet		
	height	1	k log (S/Sref):	7.764				D/50	40		
	SELref	91	lenram	660		SEL/10	9.89	10*log(D/50)	16.021		
	lenref	634	len/lenref:	1.041		10^SEL/10:	7.83E+09	SELwheelrail:	82.918 at	2000	feet
	Sref	90	log (len/lenref):	0.017				SEL/10	8.292		
	K	20	10 log (len/lenref):	0.175				10^SEL/10:	2E+08		
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222		SELaero-nose:	94.760	Distance:	2000 feet		
	height	10	k log (S/Sref):	5.229				D/50	40		
	SELref	89	lenpower(@nose):	82.5		SEL/10	9.476	10*log(D/50)	16.021		
	lenref	73	len/lenref:	1.130		10^SEL/10:	2.99E+09	SELaero-nose:	78.740 at	2000	feet
	Sref	180	log (len/lenref):	0.053				SEL/10	7.874		
	K	60	10 log (len/lenref):	0.531				10^SEL/10:	7.5E+07		
AERO Wheel	len definition	lenram	S/Sref:	1.222		SELaero-wheel:	94.404	Distance:	2000 feet		
	height	5	k log (S/Sref):	5.229				D/50	40		
	SELref	89	lenram	660		SEL/10	9.440	10*log(D/50)	16.021		
	lenref	634	len/lenref:	1.041		10^SEL/10:	2.76E+09	SELaero-wheel:	78.383 at	2000	feet
	Sref	180	log (len/lenref):	0.017				SEL/10	7.838		
	K	60	10 log (len/lenref):	0.175				10^SEL/10:	6.9E+07		
AERO Pantograph	len	NA	S/Sref:	1.222		SELaero-pantograph:	91.229	Distance:	2000 feet		
	height	15	k log (S/Sref):	5.229				D/50	40		
	SELref	86	lenram	no length adjustment		SEL/10	9.123	10*log(D/50)	16.021		
	lenref	NA	len/lenref:	no length adjustment		10^SEL/10:	1.33E+09	SELaero-pantograph:	75.208 at	2000	feet
	Sref	180	10 log (len/lenref):	no length adjustment				SEL/10	7.521		
	K	60						10^SEL/10:	3.3E+07		

Cumulative Noise Exposure (SEL at 50 ft)	101.85	Cumulative SEL:	85.832
Train passby at	50 feet	Train passby at	2000 feet
Daytime Leq	80.577	Daytime Leq	64.557
Nighttime Leq	74.192	Nighttime Leq	58.172
Ldn	82.303	Ldn	66.282

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3.4-23	
Peak hour trains in each direction:	14
Number of peak hours trains:	28
Daytime trains (excluding peak) in each direction:	189
Total daytime trains (excluding peak):	378
Total number of trains during daytime:	406
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION

Cumulative SEL:	80.832
Train passby at	2000 feet
Daytime Leq	59.557
Nighttime Leq	53.172
Ldn	61.282



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 2,200 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23.4-23

Train Characteristics:	VHS EMU operated at:		
Train speed:	220 mph		
Number of EMU cars:	8	Trains per day "Daytime"	405 7 AM - 10 PM
Assumed length of each EMU car:	82.5	Trains per day "Nighttime"	56 10 PM - 7 AM
Lenpower (train noise):	660	Daytime trains/hr (Vd)	27.07
Lenpower (aero noise at nose):	82.5	Nighttime trains/hr (Vn):	6.22
Number of Passenger cars	N/A	Barrier heigh (Ha):	0 feet (no barrier)
Length of Passenger cars	N/A	Train elevation	0 feet (at grade)
Lenram:	660	Receptor height	5 feet
Ground Characteristics:	HARD	Distance (D):	2200 feet
Ground Fctor (G):	0	Shielding:	NONE

RESULTS AT 2,200 FEET FROM TRACK
With NO Sound Wall Mitigation
Cumulative SEL: 85.42
Ldn 65.87

Subsource Component:

						SUBSOURCE SEL AT 50 FEET:		SUBSOURCE SEL AT DISTANCE ASSESSED:			
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment		SELpropulsion:	86.175	Distance:	2200 feet		
	height	2	k log (S/Sref):	no speed adjustment				D/50	44		
	SELref	86	lenpower	660		SEL/10	8.617	10*log(D/50)	16.4		
	lenref	634	len/lenref:	1.041		10^SEL/10:	4.14E+08	SELpropulsion:	69.740 at	2200	feet
	Sref	none	log(len/lenref):	0.017				SEL/10	6.974		
	K	none	10 log (len/lenref):	0.175				10^SEL/10:	9.42E+06		
Wheel Rail	len definition	lenram	S/Sref:	2.444		SELwheelrail:	98.94	Distance:	2200 feet		
	height	1	k log (S/Sref):	7.764				D/50	44		
	SELref	91	lenram	660		SEL/10	9.89	10*log(D/50)	16.435		
	lenref	634	len/lenref:	1.041		10^SEL/10:	7.83E+09	SELwheelrail:	82.504 at	2200	feet
	Sref	90	log (len/lenref):	0.017				SEL/10	8.250		
	K	20	10 log (len/lenref):	0.175				10^SEL/10:	1.6E+08		
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222		SELaero-nose:	94.760	Distance:	2200 feet		
	height	10	k log (S/Sref):	5.229				D/50	44		
	SELref	89	lenpower(@nose):	82.5		SEL/10	9.476	10*log(D/50)	16.435		
	lenref	73	len/lenref:	1.130		10^SEL/10:	2.99E+09	SELaero-nose:	78.326 at	2200	feet
	Sref	180	log (len/lenref):	0.053				SEL/10	7.833		
	K	60	10 log (len/lenref):	0.531				10^SEL/10:	6.8E+07		
AERO Wheel	len definition	lenram	S/Sref:	1.222		SELaero-wheel:	94.404	Distance:	2200 feet		
	height	5	k log (S/Sref):	5.229				D/50	44		
	SELref	89	lenram	660		SEL/10	9.440	10*log(D/50)	16.435		
	lenref	634	len/lenref:	1.041		10^SEL/10:	2.76E+09	SELaero-wheel:	77.969 at	2200	feet
	Sref	180	log (len/lenref):	0.017				SEL/10	7.797		
	K	60	10 log (len/lenref):	0.175				10^SEL/10:	6.3E+07		
AERO Pantograph	len	NA	S/Sref:	1.222		SELaero-pantograph:	91.229	Distance:	2200 feet		
	height	15	k log (S/Sref):	5.229				D/50	44		
	SELref	86	lenram	no length adjustment		SEL/10	9.123	10*log(D/50)	16.435		
	lenref	NA	len/lenref:	no length adjustment		10^SEL/10:	1.33E+09	SELaero-pantograph:	74.794 at	2200	feet
	Sref	180	10 log (len/lenref):	no length adjustment				SEL/10	7.479		
	K	60						10^SEL/10:	3.0E+07		

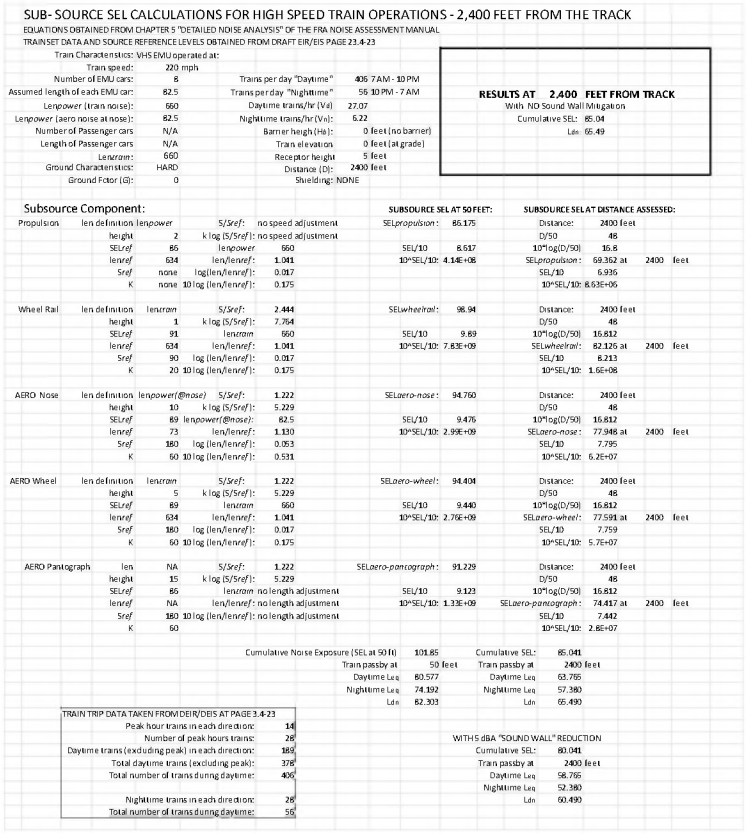
Cumulative Noise Exposure (SEL at 50 ft)	101.85	Cumulative SEL:	85.418
Train passby at	50 feet	Train passby at	2200 feet
Daytime Leq	80.577	Daytime Leq	64.143
Nighttime Leq	74.192	Nighttime Leq	57.758
Ldn	82.303	Ldn	65.868

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3.4-23	
Peak hour trains in each direction:	14
Number of peak hours trains:	28
Daytime trains (excluding peak) in each direction:	189
Total daytime trains (excluding peak):	378
Total number of trains during daytime:	406
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION

Cumulative SEL:	80.418
Train passby at	2200 feet
Daytime Leq	59.143
Nighttime Leq	52.758
Ldn	60.868

Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 2,400 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL
TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23.4-23

Train Characteristics: VHS EMU operated at:
Train speed: 220 mph
Number of EMU cars: 8
Assumed length of each EMU car: 82.5
Lenpower (train noise): 660
Lenpower (aero noise at nose): 82.5
Number of Passenger cars N/A
Length of Passenger cars N/A
Lentrain: 660
Ground Characteristics: HARD
Ground Fctor (G): 0

Trains per day "Daytime" 405 7 AM - 10 PM
Trains per day "Nighttime" 55 10 PM - 7 AM
Daytime trains/hr (Vd) 27.07
Nighttime trains/hr (Vn): 6.22
Barrier heigh (He): 0 feet (no barrier)
Train elevation 0 feet (at grade)
Receptor height 5 feet
Distance (D): 2400 feet
Shielding: NONE

RESULTS AT 2,400 FEET FROM TRACK
With ND Sound Wall Mitigation
Cumulative SEL: 85.04
Ldn 65.49

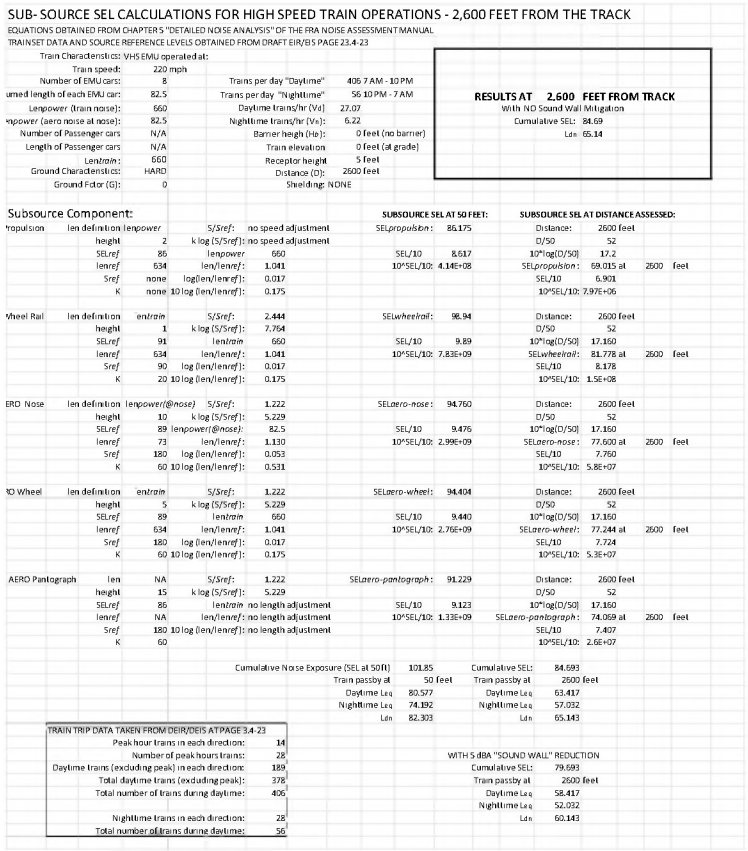
Subsource Component:

	len definition				SUBSOURCE SEL AT 50 FEET:		SUBSOURCE SEL AT DISTANCE ASSESSED:		
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment	SELpropulsion:	85.175	Distance:	2400 feet	
	height	2	k log (S/Sref):	no speed adjustment			D/50	48	
	SELref	85	lenpower	660	SEL/10	8.617	10*log(D/50)	16.8	
	lenref	634	len/lenref:	1.041	10^SEL/10:	4.14E+08	SELpropulsion:	69.362 at	2400 feet
	Sref	none	log(len/lenref):	0.017			SEL/10	6.936	
	K	none	10 log (len/lenref):	0.175			10^SEL/10:	8.63E+06	
Wheel Rail	len definition	lentrain	S/Sref:	2.444	SELwheelrail:	98.94	Distance:	2400 feet	
	height	1	k log (S/Sref):	7.764			D/50	48	
	SELref	91	lentrain	660	SEL/10	9.89	10*log(D/50)	16.812	
	lenref	634	len/lenref:	1.041	10^SEL/10:	7.83E+09	SELwheelrail:	82.126 at	2400 feet
	Sref	90	log (len/lenref):	0.017			SEL/10	8.213	
	K	20	10 log (len/lenref):	0.175			10^SEL/10:	1.6E+08	
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222	SELaero-nose:	94.760	Distance:	2400 feet	
	height	10	k log (S/Sref):	5.229			D/50	48	
	SELref	89	lenpower(@nose):	82.5	SEL/10	9.476	10*log(D/50)	16.812	
	lenref	73	len/lenref:	1.130	10^SEL/10:	2.99E+09	SELaero-nose:	77.948 at	2400 feet
	Sref	180	log (len/lenref):	0.053			SEL/10	7.795	
	K	60	10 log (len/lenref):	0.531			10^SEL/10:	6.2E+07	
AERO Wheel	len definition	lentrain	S/Sref:	1.222	SELaero-wheel:	94.404	Distance:	2400 feet	
	height	5	k log (S/Sref):	5.229			D/50	48	
	SELref	89	lentrain	660	SEL/10	9.440	10*log(D/50)	16.812	
	lenref	634	len/lenref:	1.041	10^SEL/10:	2.76E+09	SELaero-wheel:	77.591 at	2400 feet
	Sref	180	log (len/lenref):	0.017			SEL/10	7.759	
	K	60	10 log (len/lenref):	0.175			10^SEL/10:	5.7E+07	
AERO Pantograph	len	NA	S/Sref:	1.222	SELaero-pantograph:	91.229	Distance:	2400 feet	
	height	15	k log (S/Sref):	5.229			D/50	48	
	SELref	86	lentrain	no length adjustment	SEL/10	9.123	10*log(D/50)	16.812	
	lenref	NA	len/lenref:	no length adjustment	10^SEL/10:	1.33E+09	SELaero-pantograph:	74.417 at	2400 feet
	Sref	180	10 log (len/lenref):	no length adjustment			SEL/10	7.442	
	K	60					10^SEL/10:	2.8E+07	

Cumulative Noise Exposure (SEL at 50 ft) 101.85 Cumulative SEL: 85.041
Train passby at 50 feet Train passby at 2400 feet
Daytime Leq 80.577 Daytime Leq 63.765
Nighttime Leq 74.192 Nighttime Leq 57.380
Ldn 82.303 Ldn 65.490

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3.4-23
Peak hour trains in each direction: 14
Number of peak hours trains: 28
Daytime trains (excluding peak) in each direction: 189
Total daytime trains (excluding peak): 378
Total number of trains during daytime: 406
Nighttime trains in each direction: 28
Total number of trains during daytime: 56

WITH 5 dBA "SOUND WALL" REDUCTION
Cumulative SEL: 80.041
Train passby at 2400 feet
Daytime Leq 58.765
Nighttime Leq 52.380
Ldn 60.490



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 2,600 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL
TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23.4-23

Train Characteristics: VHS EMU operated at:
Train speed: 220 mph
Number of EMU cars: 8
umed length of each EMU car: 82.5
Lenpower (train noise): 660
npower (aero noise at nose): 82.5
Number of Passenger cars N/A
Length of Passenger cars N/A
Lentrain: 660
Ground Characteristics: HARD
Ground Fctor (G): 0

Trains per day "Daytime" 405 7 AM - 10 PM
Trains per day "Nighttime" 55 10 PM - 7 AM
Daytime trains/hr (Vd) 27.07
Nighttime trains/hr (Vn): 6.22
Barrier heigh (He): 0 feet (no barrier)
Train elevation 0 feet (at grade)
Receptor height 5 feet
Distance (D): 2600 feet
Shielding: NONE

RESULTS AT 2,600 FEET FROM TRACK
With ND Sound Wall Mitigation
Cumulative SEL: 84.69
Ldn 65.14

Subsource Component:

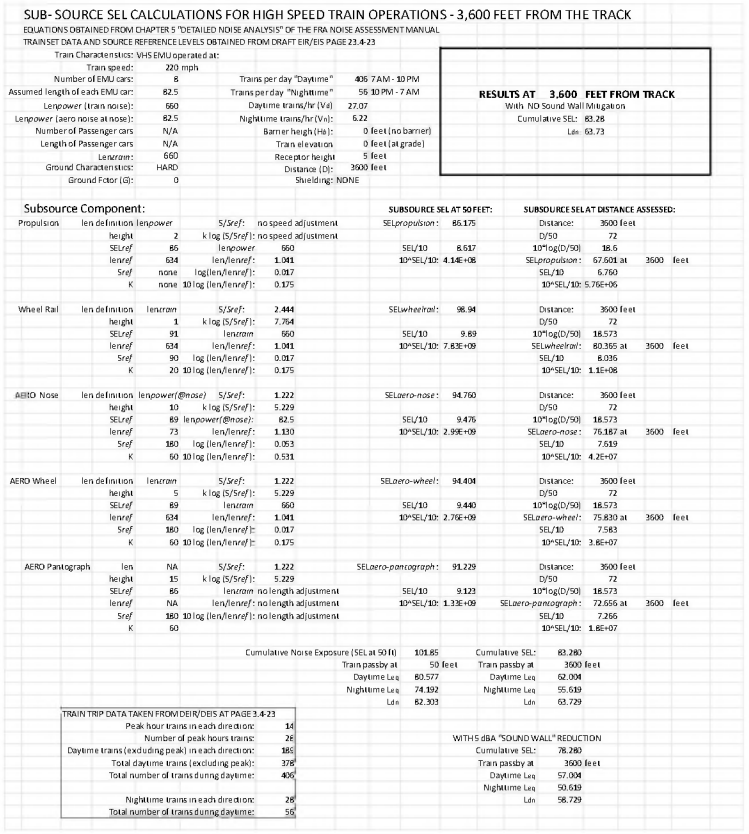
	len definition				SUBSOURCE SEL AT 50 FEET:		SUBSOURCE SEL AT DISTANCE ASSESSED:		
ropulsion	len definition	lenpower	S/Sref:	no speed adjustment	SELpropulsion:	85.175	Distance:	2600 feet	
	height	2	k log (S/Sref):	no speed adjustment			D/50	52	
	SELref	85	lenpower	660	SEL/10	8.617	10*log(D/50)	17.2	
	lenref	634	len/lenref:	1.041	10^SEL/10:	4.14E+08	SELpropulsion:	69.015 at	2600 feet
	Sref	none	log(len/lenref):	0.017			SEL/10	6.901	
	K	none	10 log (len/lenref):	0.175			10^SEL/10:	7.97E+06	
Wheel Rail	len definition	entrain	S/Sref:	2.444	SELwheelrail:	98.94	Distance:	2600 feet	
	height	1	k log (S/Sref):	7.764			D/50	52	
	SELref	91	lentrain	660	SEL/10	9.89	10*log(D/50)	17.160	
	lenref	634	len/lenref:	1.041	10^SEL/10:	7.83E+09	SELwheelrail:	81.778 at	2600 feet
	Sref	90	log (len/lenref):	0.017			SEL/10	8.178	
	K	20	10 log (len/lenref):	0.175			10^SEL/10:	1.5E+08	
ERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222	SELaero-nose:	94.760	Distance:	2600 feet	
	height	10	k log (S/Sref):	5.229			D/50	52	
	SELref	89	lenpower(@nose):	82.5	SEL/10	9.476	10*log(D/50)	17.160	
	lenref	73	len/lenref:	1.130	10^SEL/10:	2.99E+09	SELaero-nose:	77.600 at	2600 feet
	Sref	180	log (len/lenref):	0.053			SEL/10	7.760	
	K	60	10 log (len/lenref):	0.531			10^SEL/10:	5.8E+07	
RO Wheel	len definition	entrain	S/Sref:	1.222	SELaero-wheel:	94.404	Distance:	2600 feet	
	height	5	k log (S/Sref):	5.229			D/50	52	
	SELref	89	lentrain	660	SEL/10	9.440	10*log(D/50)	17.160	
	lenref	634	len/lenref:	1.041	10^SEL/10:	2.76E+09	SELaero-wheel:	77.244 at	2600 feet
	Sref	180	log (len/lenref):	0.017			SEL/10	7.724	
	K	60	10 log (len/lenref):	0.175			10^SEL/10:	5.3E+07	
AERO Pantograph	len	NA	S/Sref:	1.222	SELaero-pantograph:	91.229	Distance:	2600 feet	
	height	15	k log (S/Sref):	5.229			D/50	52	
	SELref	86	lentrain	no length adjustment	SEL/10	9.123	10*log(D/50)	17.160	
	lenref	NA	len/lenref:	no length adjustment	10^SEL/10:	1.33E+09	SELaero-pantograph:	74.069 at	2600 feet
	Sref	180	10 log (len/lenref):	no length adjustment			SEL/10	7.407	
	K	60					10^SEL/10:	2.6E+07	

Cumulative Noise Exposure (SEL at 50ft) 101.85 Cumulative SEL: 84.693
Train passby at 50 feet Train passby at 2600 feet
Daytime Leq 80.577 Daytime Leq 63.417
Nighttime Leq 74.192 Nighttime Leq 57.032
Ldn 82.303 Ldn 65.143

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3.4-23
Peak hour trains in each direction: 14
Number of peak hours trains: 28
Daytime trains (excluding peak) in each direction: 189
Total daytime trains (excluding peak): 378
Total number of trains during daytime: 406
Nighttime trains in each direction: 28
Total number of trains during daytime: 56

WITH 5 dBA "SOUND WALL" REDUCTION
Cumulative SEL: 79.693
Train passby at 2600 feet
Daytime Leq 58.417
Nighttime Leq 52.032
Ldn 60.143

Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 3,600 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23.4-23

Train Characteristics: VHS EMU operated at:

Train speed:	220 mph				
Number of EMU cars:	8	Trains per day "Daytime"	405 7 AM - 10 PM		
Assumed length of each EMU car:	82.5	Trains per day "Nighttime"	55 10 PM - 7 AM		
Lenpower (train noise):	660	Daytime trains/hr (Vd)	27.07		
Lenpower (aero noise at nose):	82.5	Nighttime trains/hr (Vn):	6.22		
Number of Passenger cars	N/A	Barrier heigh (Hs):	0 feet (no barrier)		
Length of Passenger cars	N/A	Train elevation	0 feet (at grade)		
Lenram:	660	Receptor height	5 feet		
Ground Characteristics:	HARD	Distance (D):	3600 feet		
Ground Fctor (G):	0	Shielding: NONE			

RESULTS AT 3,600 FEET FROM TRACK

With NO Sound Wall Mitigation

Cumulative SEL: 83.28

Ldn 63.73

Subsource Component:					SUBSOURCE SEL AT 50 FEET:		SUBSOURCE SEL AT DISTANCE ASSESSED:			
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment	SELpropulsion:	86.175	Distance:	3600 feet		
	height	2	k log (S/Sref):	no speed adjustment			D/50	72		
	SELref	86	lenpower	660	SEL/10	8.617	10*log(D/50)	18.6		
	lenref	634	len/lenref:	1.041	10^SEL/10:	4.14E+08	SELpropulsion:	67.501 at	3600	feet
	Sref	none	log(len/lenref):	0.017			SEL/10	6.760		
	K	none	10 log (len/lenref):	0.175			10^SEL/10:	5.76E+06		
Wheel Rail	len definition	lenram	S/Sref:	2.444	SELwheelrail:	98.94	Distance:	3600 feet		
	height	1	k log (S/Sref):	7.764			D/50	72		
	SELref	91	lenram	660	SEL/10	9.89	10*log(D/50)	18.573		
	lenref	634	len/lenref:	1.041	10^SEL/10:	7.83E+09	SELwheelrail:	80.365 at	3600	feet
	Sref	90	log (len/lenref):	0.017			SEL/10	8.036		
	K	20	10 log (len/lenref):	0.175			10^SEL/10:	1.1E+08		
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222	SELaero-nose:	94.760	Distance:	3600 feet		
	height	10	k log (S/Sref):	5.229			D/50	72		
	SELref	89	lenpower(@nose):	82.5	SEL/10	9.476	10*log(D/50)	18.573		
	lenref	73	len/lenref:	1.130	10^SEL/10:	2.99E+09	SELaero-nose:	76.167 at	3600	feet
	Sref	180	log (len/lenref):	0.053			SEL/10	7.619		
	K	60	10 log (len/lenref):	0.531			10^SEL/10:	4.2E+07		
AERO Wheel	len definition	lenram	S/Sref:	1.222	SELaero-wheel:	94.404	Distance:	3600 feet		
	height	5	k log (S/Sref):	5.229			D/50	72		
	SELref	89	lenram	660	SEL/10	9.440	10*log(D/50)	18.573		
	lenref	634	len/lenref:	1.041	10^SEL/10:	2.76E+09	SELaero-wheel:	75.830 at	3600	feet
	Sref	180	log (len/lenref):	0.017			SEL/10	7.583		
	K	60	10 log (len/lenref):	0.175			10^SEL/10:	3.8E+07		
AERO Pantograph	len	NA	S/Sref:	1.222	SELaero-pantograph:	91.229	Distance:	3600 feet		
	height	15	k log (S/Sref):	5.229			D/50	72		
	SELref	86	lenram	no length adjustment	SEL/10	9.123	10*log(D/50)	18.573		
	lenref	NA	len/lenref:	no length adjustment	10^SEL/10:	1.33E+09	SELaero-pantograph:	72.656 at	3600	feet
	Sref	180	10 log (len/lenref):	no length adjustment			SEL/10	7.266		
	K	60					10^SEL/10:	1.8E+07		

Cumulative Noise Exposure (SEL at 50 ft) 101.85 Cumulative SEL: 83.280

Train passby at 50 feet Train passby at 3600 feet

Daytime Leq 80.577 Daytime Leq 62.004

Nighttime Leq 74.192 Nighttime Leq 55.619

Ldn 82.303 Ldn 63.729

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3.4-23	
Peak hour trains in each direction:	14
Number of peak hours trains:	26
Daytime trains (excluding peak) in each direction:	186
Total daytime trains (excluding peak):	378
Total number of trains during daytime:	406
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION

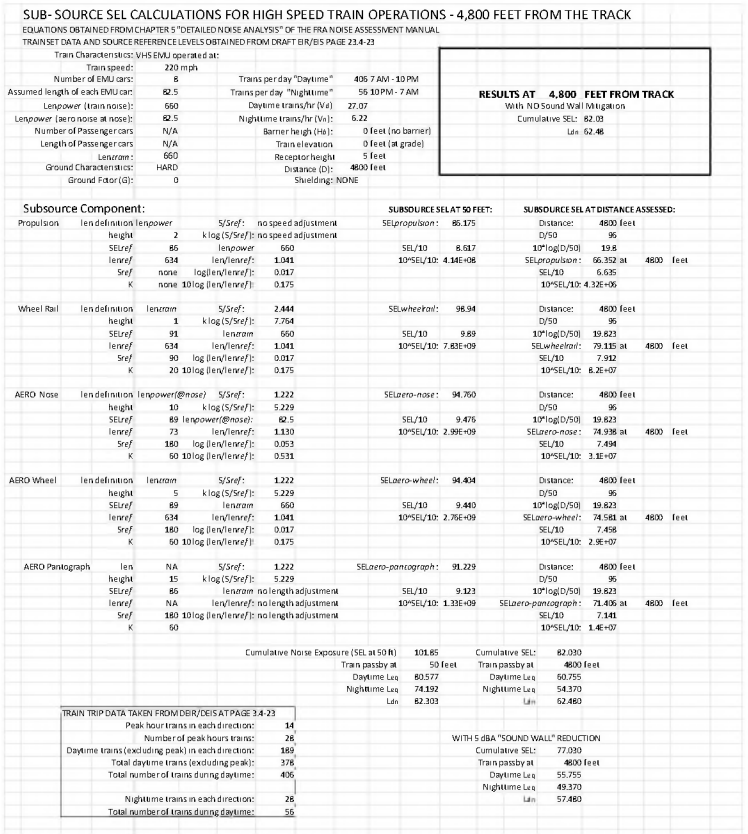
Cumulative SEL: 78.280

Train passby at 3600 feet

Daytime Leq 57.004

Nighttime Leq 50.619

Ldn 58.729



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 4,800 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23.4-23

Train Characteristics: VHS EMU operated at:

Train speed:	220 mph				
Number of EMU cars:	8	Trains per day "Daytime"	405 7 AM - 10 PM		
Assumed length of each EMU car:	82.5	Trains per day "Nighttime"	55 10 PM - 7 AM		
Lenpower (train noise):	660	Daytime trains/hr (Vd)	27.07		
Lenpower (aero noise at nose):	82.5	Nighttime trains/hr (Vn):	6.22		
Number of Passenger cars	N/A	Barrier heigh (Hs):	0 feet (no barrier)		
Length of Passenger cars	N/A	Train elevation	0 feet (at grade)		
Lenram:	660	Receptor height	5 feet		
Ground Characteristics:	HARD	Distance (D):	4800 feet		
Ground Fctor (G):	0	Shielding: NONE			

RESULTS AT 4,800 FEET FROM TRACK

With NO Sound Wall Mitigation

Cumulative SEL: 82.03

Ldn 62.48

Subsource Component:					SUBSOURCE SEL AT 50 FEET:		SUBSOURCE SEL AT DISTANCE ASSESSED:			
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment	SELpropulsion:	86.175	Distance:	4800 feet		
	height	2	k log (S/Sref):	no speed adjustment			D/50	96		
	SELref	86	lenpower	660	SEL/10	8.617	10*log(D/50)	19.8		
	lenref	634	len/lenref:	1.041	10^SEL/10:	4.14E+08	SELpropulsion:	66.352 at	4800	feet
	Sref	none	log(len/lenref):	0.017			SEL/10	6.635		
	K	none	10 log (len/lenref):	0.175			10^SEL/10:	4.32E+06		
Wheel Rail	len definition	lenram	S/Sref:	2.444	SELwheelrail:	98.94	Distance:	4800 feet		
	height	1	k log (S/Sref):	7.764			D/50	96		
	SELref	91	lenram	660	SEL/10	9.89	10*log(D/50)	19.823		
	lenref	634	len/lenref:	1.041	10^SEL/10:	7.83E+09	SELwheelrail:	79.115 at	4800	feet
	Sref	90	log (len/lenref):	0.017			SEL/10	7.912		
	K	20	10 log (len/lenref):	0.175			10^SEL/10:	6.2E+07		
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222	SELaero-nose:	94.760	Distance:	4800 feet		
	height	10	k log (S/Sref):	5.229			D/50	96		
	SELref	89	lenpower(@nose):	82.5	SEL/10	9.476	10*log(D/50)	19.823		
	lenref	73	len/lenref:	1.130	10^SEL/10:	2.99E+09	SELaero-nose:	74.938 at	4800	feet
	Sref	180	log (len/lenref):	0.053			SEL/10	7.494		
	K	60	10 log (len/lenref):	0.531			10^SEL/10:	3.1E+07		
AERO Wheel	len definition	lenram	S/Sref:	1.222	SELaero-wheel:	94.404	Distance:	4800 feet		
	height	5	k log (S/Sref):	5.229			D/50	96		
	SELref	89	lenram	660	SEL/10	9.440	10*log(D/50)	19.823		
	lenref	634	len/lenref:	1.041	10^SEL/10:	2.76E+09	SELaero-wheel:	74.581 at	4800	feet
	Sref	180	log (len/lenref):	0.017			SEL/10	7.458		
	K	60	10 log (len/lenref):	0.175			10^SEL/10:	2.9E+07		
AERO Pantograph	len	NA	S/Sref:	1.222	SELaero-pantograph:	91.229	Distance:	4800 feet		
	height	15	k log (S/Sref):	5.229			D/50	96		
	SELref	86	lenram	no length adjustment	SEL/10	9.123	10*log(D/50)	19.823		
	lenref	NA	len/lenref:	no length adjustment	10^SEL/10:	1.33E+09	SELaero-pantograph:	71.406 at	4800	feet
	Sref	180	10 log (len/lenref):	no length adjustment			SEL/10	7.141		
	K	60					10^SEL/10:	1.4E+07		

Cumulative Noise Exposure (SEL at 50 ft) 101.85 Cumulative SEL: 82.030

Train passby at 50 feet Train passby at 4800 feet

Daytime Leq 80.577 Daytime Leq 60.755

Nighttime Leq 74.192 Nighttime Leq 54.370

Ldn 82.303 Ldn 62.480

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3.4-23	
Peak hour trains in each direction:	14
Number of peak hours trains:	26
Daytime trains (excluding peak) in each direction:	186
Total daytime trains (excluding peak):	378
Total number of trains during daytime:	406
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION

Cumulative SEL: 77.030

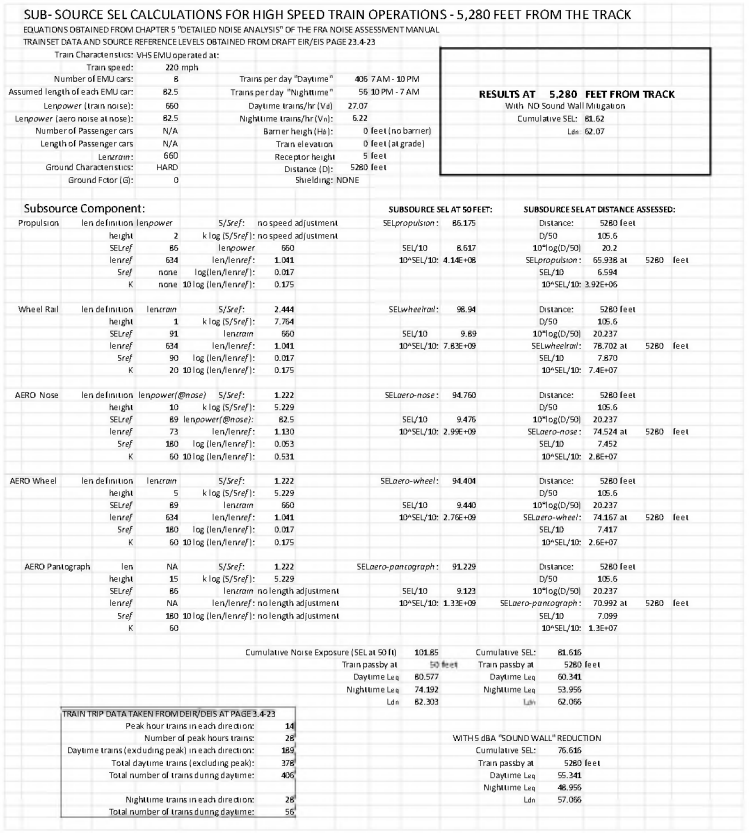
Train passby at 4800 feet

Daytime Leq 55.755

Nighttime Leq 49.370

Ldn 57.480

Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 5,280 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL
TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23.4-23

Train Characteristics: VHS EMU operated at:

Train speed:	220 mph		
Number of EMU cars:	8	Trains per day "Daytime"	405 7 AM - 10 PM
Assumed length of each EMU car:	82.5	Trains per day "Nighttime"	56 10 PM - 7 AM
Lenpower (train noise):	660	Daytime trains/hr (Vd)	27.07
Lenpower (aero noise at nose):	82.5	Nighttime trains/hr (Vn):	5.22
Number of Passenger cars	N/A	Barrier heigh (Hb):	0 feet (no barrier)
Length of Passenger cars	N/A	Train elevation	0 feet (at grade)
Lenram:	660	Receptor height	5 feet
Ground Characteristics:	HARD	Distance (D):	5280 feet
Ground Fctor (G):	0	Shielding:	NONE

RESULTS AT 5,280 FEET FROM TRACK
With NO Sound Wall Mitigation
Cumulative SEL: 81.62
Ldn 62.07

Subsource Component:

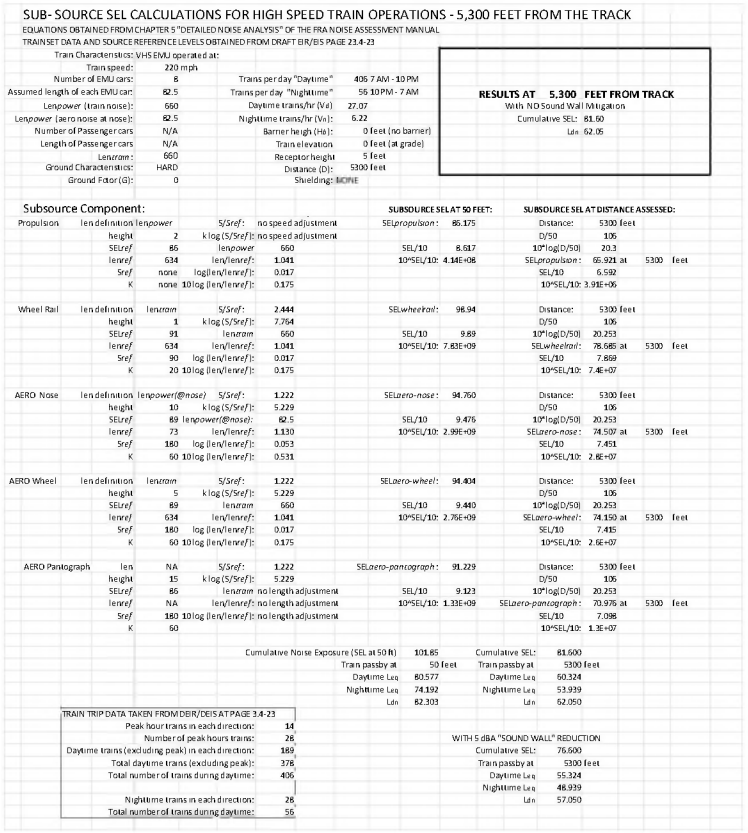
						SUBSOURCE SEL AT 50 FEET:		SUBSOURCE SEL AT DISTANCE ASSESSED:		
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment		SELpropulsion:	86.175	Distance:	5280 feet	
	height	2	k log (S/Sref):	no speed adjustment				D/50	105.6	
	SELref	86	lenpower	660		SEL/10	8.617	10*log(D/50)	20.2	
	lenref	634	len/lenref:	1.041		10^SEL/10:	4.14E+08	SELpropulsion:	65.938 at	5280 feet
	Sref	none	log(len/lenref):	0.017				SEL/10	6.594	
	K	none	10 log (len/lenref):	0.175				10^SEL/10:	3.92E+06	
Wheel Rail	len definition	lenram	S/Sref:	2.444		SELwheelrail:	98.94	Distance:	5280 feet	
	height	1	k log (S/Sref):	7.764				D/50	105.6	
	SELref	91	lenram	660		SEL/10	9.89	10*log(D/50)	20.237	
	lenref	634	len/lenref:	1.041		10^SEL/10:	7.83E+09	SELwheelrail:	78.702 at	5280 feet
	Sref	90	log (len/lenref):	0.017				SEL/10	7.870	
	K	20	10 log (len/lenref):	0.175				10^SEL/10:	7.4E+07	
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222		SELaero-nose:	94.760	Distance:	5280 feet	
	height	10	k log (S/Sref):	5.229				D/50	105.6	
	SELref	89	lenpower(@nose):	82.5		SEL/10	9.476	10*log(D/50)	20.237	
	lenref	73	len/lenref:	1.130		10^SEL/10:	2.99E+09	SELaero-nose:	74.524 at	5280 feet
	Sref	180	log (len/lenref):	0.053				SEL/10	7.452	
	K	60	10 log (len/lenref):	0.531				10^SEL/10:	2.8E+07	
AERO Wheel	len definition	lenram	S/Sref:	1.222		SELaero-wheel:	94.404	Distance:	5280 feet	
	height	5	k log (S/Sref):	5.229				D/50	105.6	
	SELref	89	lenram	660		SEL/10	9.440	10*log(D/50)	20.237	
	lenref	634	len/lenref:	1.041		10^SEL/10:	2.76E+09	SELaero-wheel:	74.167 at	5280 feet
	Sref	180	log (len/lenref):	0.017				SEL/10	7.417	
	K	60	10 log (len/lenref):	0.175				10^SEL/10:	2.6E+07	
AERO Pantograph	len	NA	S/Sref:	1.222		SELaero-pantograph:	91.229	Distance:	5280 feet	
	height	15	k log (S/Sref):	5.229				D/50	105.6	
	SELref	86	lenram	no length adjustment		SEL/10	9.123	10*log(D/50)	20.237	
	lenref	NA	len/lenref:	no length adjustment		10^SEL/10:	1.33E+09	SELaero-pantograph:	70.992 at	5280 feet
	Sref	180	10 log (len/lenref):	no length adjustment				SEL/10	7.099	
	K	60						10^SEL/10:	1.3E+07	

Cumulative Noise Exposure (SEL at 50 ft)	101.85	Cumulative SEL:	81.615
Train passby at	50 feet	Train passby at	5280 feet
Daytime Leq	80.577	Daytime Leq	60.341
Nighttime Leq	74.192	Nighttime Leq	53.955
Ldn	82.303	Ldn	62.055

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3.4-23	
Peak hour trains in each direction:	14
Number of peak hours trains:	28
Daytime trains (excluding peak) in each direction:	189
Total daytime trains (excluding peak):	378
Total number of trains during daytime:	406
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION

Cumulative SEL:	76.615
Train passby at	5280 feet
Daytime Leq	55.341
Nighttime Leq	46.955
Ldn	57.055



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 5,300 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL
TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23.4-23

Train Characteristics: VHS EMU operated at:

Train speed:	220 mph		
Number of EMU cars:	8	Trains per day "Daytime"	405 7 AM - 10 PM
Assumed length of each EMU car:	82.5	Trains per day "Nighttime"	56 10 PM - 7 AM
Lenpower (train noise):	660	Daytime trains/hr (Vd)	27.07
Lenpower (aero noise at nose):	82.5	Nighttime trains/hr (Vn):	6.22
Number of Passenger cars	N/A	Barrier heigh (Hb):	0 feet (no barrier)
Length of Passenger cars	N/A	Train elevation	0 feet (at grade)
Lenram:	660	Receptor height	5 feet
Ground Characteristics:	HARD	Distance (D):	5300 feet
Ground Fctor (G):	0	Shielding:	NONE

RESULTS AT 5,300 FEET FROM TRACK
With NO Sound Wall Mitigation
Cumulative SEL: 81.60
Ldn 62.05

Subsource Component:

						SUBSOURCE SEL AT 50 FEET:		SUBSOURCE SEL AT DISTANCE ASSESSED:		
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment		SELpropulsion:	86.175	Distance:	5300 feet	
	height	2	k log (S/Sref):	no speed adjustment				D/50	106	
	SELref	86	lenpower	660		SEL/10	8.617	10*log(D/50)	20.3	
	lenref	634	len/lenref:	1.041		10^SEL/10:	4.14E+08	SELpropulsion:	65.921 at	5300 feet
	Sref	none	log(len/lenref):	0.017				SEL/10	6.592	
	K	none	10 log (len/lenref):	0.175				10^SEL/10:	3.91E+06	
Wheel Rail	len definition	lenram	S/Sref:	2.444		SELwheelrail:	98.94	Distance:	5300 feet	
	height	1	k log (S/Sref):	7.764				D/50	106	
	SELref	91	lenram	660		SEL/10	9.89	10*log(D/50)	20.253	
	lenref	634	len/lenref:	1.041		10^SEL/10:	7.83E+09	SELwheelrail:	78.685 at	5300 feet
	Sref	90	log (len/lenref):	0.017				SEL/10	7.869	
	K	20	10 log (len/lenref):	0.175				10^SEL/10:	7.4E+07	
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222		SELaero-nose:	94.760	Distance:	5300 feet	
	height	10	k log (S/Sref):	5.229				D/50	106	
	SELref	89	lenpower(@nose):	82.5		SEL/10	9.476	10*log(D/50)	20.253	
	lenref	73	len/lenref:	1.130		10^SEL/10:	2.99E+09	SELaero-nose:	74.507 at	5300 feet
	Sref	180	log (len/lenref):	0.053				SEL/10	7.451	
	K	60	10 log (len/lenref):	0.531				10^SEL/10:	2.8E+07	
AERO Wheel	len definition	lenram	S/Sref:	1.222		SELaero-wheel:	94.404	Distance:	5300 feet	
	height	5	k log (S/Sref):	5.229				D/50	106	
	SELref	89	lenram	660		SEL/10	9.440	10*log(D/50)	20.253	
	lenref	634	len/lenref:	1.041		10^SEL/10:	2.76E+09	SELaero-wheel:	74.150 at	5300 feet
	Sref	180	log (len/lenref):	0.017				SEL/10	7.415	
	K	60	10 log (len/lenref):	0.175				10^SEL/10:	2.6E+07	
AERO Pantograph	len	NA	S/Sref:	1.222		SELaero-pantograph:	91.229	Distance:	5300 feet	
	height	15	k log (S/Sref):	5.229				D/50	106	
	SELref	86	lenram	no length adjustment		SEL/10	9.123	10*log(D/50)	20.253	
	lenref	NA	len/lenref:	no length adjustment		10^SEL/10:	1.33E+09	SELaero-pantograph:	70.976 at	5300 feet
	Sref	180	10 log (len/lenref):	no length adjustment				SEL/10	7.098	
	K	60						10^SEL/10:	1.3E+07	

Cumulative Noise Exposure (SEL at 50 ft)	101.85	Cumulative SEL:	81.600
Train passby at	50 feet	Train passby at	5300 feet
Daytime Leq	80.577	Daytime Leq	60.324
Nighttime Leq	74.192	Nighttime Leq	53.939
Ldn	82.303	Ldn	62.050

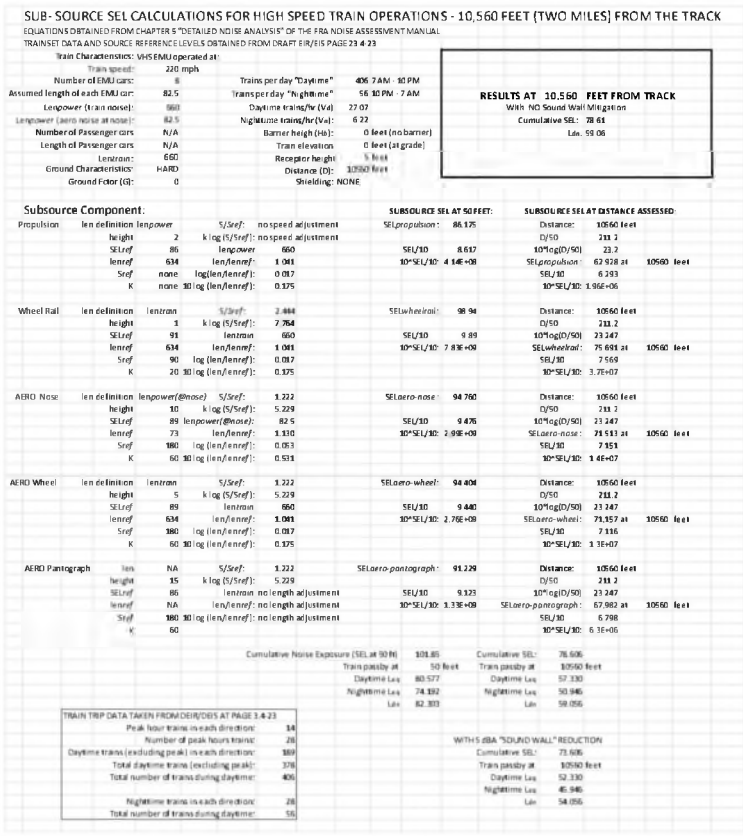
TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3.4-23	
Peak hour trains in each direction:	14
Number of peak hours trains:	28
Daytime trains (excluding peak) in each direction:	189
Total daytime trains (excluding peak):	378
Total number of trains during daytime:	406
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION

Cumulative SEL:	76.600
Train passby at	5300 feet
Daytime Leq	55.324
Nighttime Leq	46.939
Ldn	57.050

Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4413-10276



SUB-SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 10,560 FEET (TWO MILES) FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 2.3.4-23

Train Characteristics: VHS EMU operated at:

Train speed:	220 mph		
Number of EMU cars:	8	Trains per day "Daytime"	405 7 AM - 10 PM
Assumed length of each EMU car:	82.5	Trains per day "Nighttime"	56 10 PM - 7 AM
Lenpower (train noise):	660	Daytime trains/hr (Vd)	27.07
Lenpower (aero noise at nose):	82.5	Nighttime trains/hr (Vn):	6.22
Number of Passenger cars	N/A	Barrier heigh (Hb):	0 feet (no barrier)
Length of Passenger cars	N/A	Train elevation	0 feet (at grade)
Lentrain:	660	Receptor height	5 feet
Ground Characteristics:	HARD	Distance (D):	10560 feet
Ground Fctor (G):	0	Shielding:	NONE

RESULTS AT 10,560 FEET FROM TRACK

With NO Sound Wall Mitigation

Cumulative SEL: 78.61

Ldn: 59.06

Subsource Component:						SUBSOURCE SEL AT 50 FEET:		SUBSOURCE SEL AT DISTANCE ASSESSED:		
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment		SELpropulsion:	86.175	Distance:	10560 feet	
	height	2	k log (S/Sref):	no speed adjustment				D/50	211.2	
	SELref	86	lenpower	660		SEL/10	8.617	10*log(D/50)	23.2	
	lenref	634	len/lenref:	1.041		10^SEL/10:	4.14E+08	SELpropulsion:	62.928 at	10560 feet
	Sref	none	log(len/lenref):	0.017				SEL/10	6.293	
	K	none	10 log (len/lenref):	0.175				10^SEL/10:	1.96E+06	
Wheel Rail	len definition	lentrain	S/Sref:	2.444		SELwheelrail:	98.94	Distance:	10560 feet	
	height	1	k log (S/Sref):	7.764				D/50	211.2	
	SELref	91	lentrain	660		SEL/10	9.89	10*log(D/50)	23.247	
	lenref	634	len/lenref:	1.041		10^SEL/10:	7.83E+09	SELwheelrail:	75.691 at	10560 feet
	Sref	90	log (len/lenref):	0.017				SEL/10	7.569	
	K	20	10 log (len/lenref):	0.175				10^SEL/10:	3.7E+07	
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222		SELaero-nose:	94.760	Distance:	10560 feet	
	height	10	k log (S/Sref):	5.229				D/50	211.2	
	SELref	89	lenpower(@nose):	82.5		SEL/10	9.476	10*log(D/50)	23.247	
	lenref	73	len/lenref:	1.130		10^SEL/10:	2.98E+09	SELaero-nose:	71.513 at	10560 feet
	Sref	180	log (len/lenref):	0.053				SEL/10	7.151	
	K	60	10 log (len/lenref):	0.531				10^SEL/10:	1.4E+07	
AERO Wheel	len definition	lentrain	S/Sref:	1.222		SELaero-wheel:	94.404	Distance:	10560 feet	
	height	5	k log (S/Sref):	5.229				D/50	211.2	
	SELref	89	lentrain	660		SEL/10	9.440	10*log(D/50)	23.247	
	lenref	634	len/lenref:	1.041		10^SEL/10:	2.76E+09	SELaero-wheel:	71.357 at	10560 feet
	Sref	180	log (len/lenref):	0.017				SEL/10	7.136	
	K	60	10 log (len/lenref):	0.175				10^SEL/10:	1.3E+07	
AERO Pantograph	len	NA	S/Sref:	1.222		SELaero-pantograph:	91.229	Distance:	10560 feet	
	height	15	k log (S/Sref):	5.229				D/50	211.2	
	SELref	86	lentrain	no length adjustment		SEL/10	9.123	10*log(D/50)	23.247	
	lenref	NA	len/lenref:	no length adjustment		10^SEL/10:	1.33E+09	SELaero-pantograph:	67.982 at	10560 feet
	Sref	180	10 log (len/lenref):	no length adjustment				SEL/10	6.798	
	K	60						10^SEL/10:	6.3E+06	

Cumulative Noise Exposure (SEL at 50 ft)	101.85	Cumulative SEL:	78.606	
Train passby at	50 feet	Train passby at	10560 feet	
Daytime Leq	80.577	Daytime Leq	57.330	
Nighttime Leq	74.192	Nighttime Leq	50.945	
Ldn	82.303	Ldn	59.056	

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3.4-23	
Peak hour trains in each direction:	14
Number of peak hours trains:	28
Daytime trains (excluding peak) in each direction:	189
Total daytime trains (excluding peak):	378
Total number of trains during daytime:	406
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION

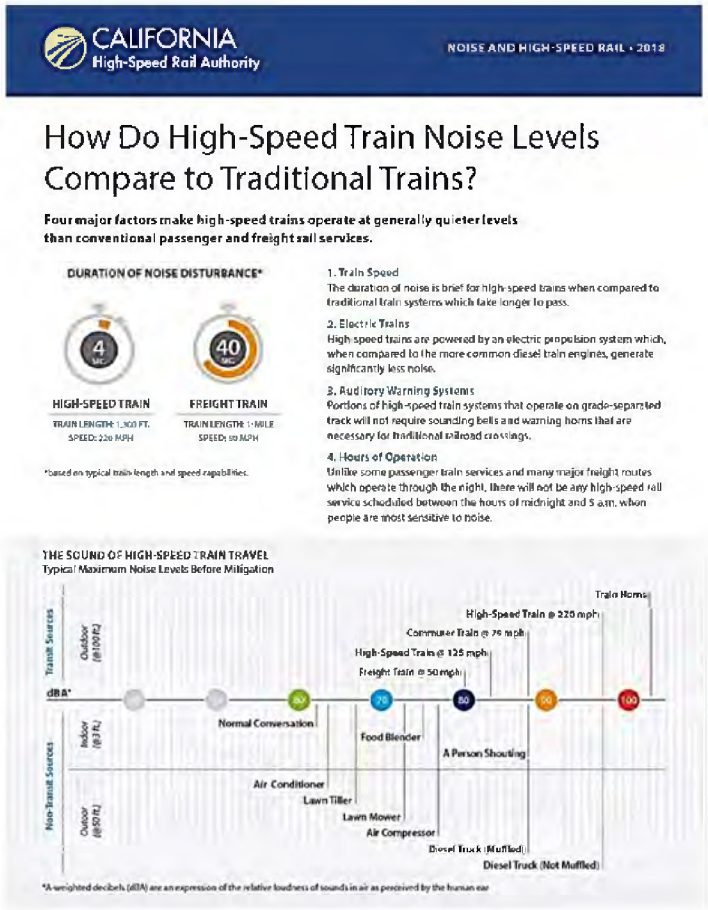
Cumulative SEL:	73.606
Train passby at	10560 feet
Daytime Leq	52.330
Nighttime Leq	45.945
Ldn	54.056

ATTACHMENT 2

Brochure titled "How Do High-Speed Train Noise Levels Compare to Traditional Trains?"
(Source: California High Speed Rail Authority)

Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4413-10277



ATTACHMENT 3

Excerpts From a Letter Submitted by the Acton Town Council to CHSRA in 2016 Analyzing the Efficacy of FRA "Noise Impact Criteria".
(Source: California High Speed Rail Authority)

4413-10277

FRA 's "Noise Impact Criteria" that will be Used in the Palmdale-Burbank DEIR Fail to Properly Consider Noise Impacts on Rural and other "Non-Urban" Areas.

The HSR "Noise Impact Criteria" which CHSRA intends to implement for the Palmdale-Burbank segment EIR are published in the FRA Manual [Figure 3-1] and they establish three impact categories: "no impact", "moderate impact", and "severe impact". It is understood that CHSRA will not consider project modifications or implement mitigation measures unless HSR noise impacts exceed the "severe" thresholds established by Figure 3-1, therefore, it is necessary to analyze these "severity" thresholds to ensure they properly consider the wide spectrum of existing ambient noise conditions that will be degraded by HSR operations. Because Acton is a relatively quiet rural community that has (on average) low ambient noise levels, the EIR will establish "severe" (aka "significant") impacts based on what Figure 3-1 identifies as low existing noise exposure levels (reported as 24 hour "average" L_{dn} noise values) Therefore it is this low noise interval (40-55 dBA) that is considered herein.

First, it is noted that neither CHSRA nor FRA consider it "significant" if the HSR project *triples* the average noise level in a quiet area. This is clearly depicted in Figure 3-1, which shows that a 15 dBA noise increase (or a tripling of noise "loudness"[1]) is not considered a "severe" impact in any quiet area that has an existing average noise level of 43 dBA. Even more surprising, Figure 3-1 establishes that no HSR noise impacts are ever deemed "severe" until they cause outdoor noise to ***exceed*** the 55 dBA "outdoor activity" protection level established by EPA and others (as discussed in more detail below). In other words, CHSRA and FRA consider it "insignificant" if the outdoor noise environment is degraded to such an extent that it impairs outdoor activities and even speech. Additionally, for rural areas that are currently at the 55 dBA limit for "acceptable" outdoor conditions, Figure 3-1 establishes that no significant degradation occurs even if the noise level increases above 61 dBA (which is higher than what is experienced by most urban dwellers[2]). It is clear that these "Noise Impact Criteria" are not intended to preserve the outdoor environment in quiet communities like Acton. To the contrary, they actively facilitate noise increases to such an extent that they successfully convert quiet rural environments into loud urban environments. To understand why these "Noise Impact Criteria" fail to prevent (or even consider) the degradation of rural outdoor environments, it becomes necessary to study how these criteria were developed.

According to Section A.3 of the FRA Manual, the "Noise Impact Criteria" thresholds were derived from "research" (in the form of the "Schultz Curve" depicted in Figure A-5), EPA findings, and "relevant literature" such as HUD standards and EPA publications. As set forth below, an analysis of these cited references reveals that the

[1] On average, each 10 dBA noise increase doubles the loudness of the noise [FRA Manual page 2-3]. Therefore a 10 dBA increase is generally perceived as doubling the "loudness", and a 15 dBA increase essentially triples the "loudness.

[2] See Figure 4 from the EPA "Levels Document" – Condensed version found cited on Page A-13 of the FRA Manual.

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FRA "Noise Impact Criteria" only reflect circumstances which occur in the urban environment and do not take into account any of the cited research addressing quiet rural (non-urban) areas. In other words, the "research" cited by the FRA Manual *does not support* the application of FRA's "Noise Impact Criteria" to non-urban areas (like Acton) which have existing ambient noise exposure levels at or below 55 dBA. Indeed, the "research" papers and reports cited in the FRA Manual draw a clear distinction between "significant" noise impacts in "quiet" environments and "significant" noise impacts in "loud" environments. These distinctions are completely obliterated by the FRA "Noise Impact Criteria", which were derived solely from an "urban platform" and without consideration for the rural environment. These facts are set forth in detail over the following paragraphs, which carefully consider each and every "research" element cited as justification for the FRA "Noise Impact Criteria" in Sections A.2 and A.3 of the FRA Manual.

The "Schultz Curve": The "Schultz Curve" (depicted in Figure A-5) was derived from a technical paper titled "Synthesis of Social Surveys on Annoyance" authored by T.J. Schultz and published in 1978 by the "Journal of the Acoustical Society of America" ("JASA"). The "Schultz Paper" was actually a compilation of 11 urban noise studies that measured human "annoyance" as a function of noise level. It considered noise profiles along urban streets in Paris, London, and elsewhere, and it also considered noise levels in urban areas surrounding airports in England, Switzerland, and various Scandinavian countries. Based on the urban research presented in the Schultz paper, the FRA Manual concludes that "very few people are highly annoyed when the L_{dn} is 50 dBA" and "an increase in L_{dn} from 50 to 55 dBA results in an average of 2 percent more people highly annoyed" [See Page A-14; bullet item 3]. These conclusions form the foundation of FRA's "Noise Impact Criteria" (depicted in Figure 3-1) yet they are entirely unsupported by the Schultz Paper, and are completely erroneous:

- These conclusions are derived from the "low end" of the fitted "Schultz Curve" published in the JASA paper and depicted in Figure A-5 of the FRA Manual. However, the author (T.J. Schultz) himself admits that the "Schultz Curve" does not properly address the data collected "at the low end", and he suggests various solutions to achieve a better "curve fit" which would (in some cases) be completely arbitrary (see JASA Vol 64 No. 2 page 391). Moreover, Mr. Schultz clearly identifies the 50 dBA L_{dn} noise level as being "outside the data range" anyway, and he explicitly argues against "extrapolating the fitted curve beyond the range of the given data set" [see page 391, column 1]. Therefore, the author's own words explicitly contradict FRA's conclusion that "very few people are highly annoyed when the L_{dn} is 50 dBA"
- The Schultz paper explicitly demonstrates that more than 10% of urban populations are so significantly disturbed by an average ("L_{dn}") noise level of 55 dBA that it interrupts conversation, disturbs sleep, and interferes with conversation [see Figure 23]. This fact unequivocally controverts FRA's assertion that "an increase in L_{dn} from 50 to 55 dBA results in an average of 2 percent more people highly annoyed." More importantly, there is no doubt that these

Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4413-10277

substantial adverse impacts on more than 10% of the population constitute a "significant effect on the environment" as that phrase is contemplated in CEQA, Therefore, and according to the Schultz Paper itself, projects which increase ambient noise levels to 55 dBA do indeed create "severe impacts" in every sense of the word. The FRA Manual ignores all of this, and it incorrectly concludes that the Schultz Paper somehow supports a conclusion that increasing noise levels to 55 dBA is not "significant". This conclusion is abjectly false and is entirely repudiated by very same Schultz "research" that it purports to reflect.

- Figure A-5 shows very clearly that the fitted curve does not accurately represent the data points plotted for noise values below 55 dBA; all but one of the data points lie *well above the curve*. As Figure A-5 shows, four times more people are "highly annoyed" by noise levels approaching 55 dBA than what the "Schultz Curve" predicts. What this means is that the "Schultz Curve" demonstrably under-predicts human "annoyance" at noise levels below 55 dBA and *provides no basis* for FRA's conclusion that "an increase in L_{dn} from 50 to 55 dBA results in an average of 2 percent more people highly annoyed".

- With regard to what constitutes an "acceptable environmental noise exposure", the Schultz paper explicitly clarifies that achieving and maintaining a Noise Standard of 55 dBA ***is the desired condition*** [see page 389 column 1]. Under no circumstance does the Schultz paper state (or even suggest) that it is reasonable to exceed the 55 dBA noise standard in areas that already meet the 55 dBA standard, and it certainly does not in any way advocate or support FRA's contention (embodied in Figure 3-1) that areas which already meet the 55 dBA standard will not be "severely impacted" if ambient noise levels increase significantly and even exceed 61 dBA. Moreover, there is nothing in the Schultz Paper that supports FRA's contention (reflected in Figure 3-1) that 55 dBA is merely the "lower bound" limit for determining the "significance" of noise impacts; to the contrary, the Schultz Paper affirmatively establishes 55 dBA as the "upper bound" limit for such determinations, and in fact it limits the consideration of increases beyond the 55 dBA standard only in those urban areas where existing conditions already exceed the 55 dBA standard.

- The Schultz Paper is essentially a compilation of urban noise studies addressing the "annoyance" responses of urban residents to different urban noise levels occurring within urban communities (such as Paris, London, Vienna, Copenhagen, Basel, Brussels, and 7 unnamed US cities) and adjacent to large urban airports (such as Heathrow and Munich). The Schultz Paper makes it clear that these studies assessed noise impacts exclusively in the urban environment, and measured human "annoyance" only in urban areas. Therefore, the Schultz Paper is narrowly constrained to consider human noise "reactions" only in urban areas where high noise profiles are already "woven into" the fabric of the community. It does not consider rural environments, and it certainly does not assess human "annoyance" to increased sound levels in essentially quite areas (like Acton) where ambient L_{dn} noise levels are less than 50 dBA. The Schultz Paper clearly indicates 1) That its scope is constrained only to urban environments; and 2) That its conclusions regarding increases in "acceptable"

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noise limits beyond 55 dBA ONLY APPLY to urban environments where the 55 dBA noise limit is already exceeded [see page 389]. The FRA Manual ***ignores*** all of these constraints that are clearly stated in the Schultz paper. Worse yet, the FRA Manual uses the urban data from the Schultz Paper to derive "noise impact criteria" which are applied uniformly to all environments (including rural and wilderness areas). The FRA Manual fails to consider that people living in quiet rural areas respond differently to increased noise levels than people living in urban areas where existing ambient noise levels are already quite high (see for example the "EPA Levels Document" discussed below). Moreover, the FRA Manual fails to cite ***any*** noise studies that address human noise "annoyance" response in areas where ambient noise levels are 50 dBA or less. Therefore, FRA has absolutely no basis for imposing on rural communities the urban-based "Noise Impact Criteria" that are depicted in Figure 3-1, and it certainly lacks any justification for the standard imposed by Figure 3-1 that rural areas with an ambient L_{dn} noise level of only 43 dBA are not "severely impacted" by a nearly threefold increase in ambient noise to 58 dBA.

- The "annoyance" reactions addressed in the Schultz Paper are demonstrably biased low because (as the paper itself admits) "annoyance" response data were often collected from people located **indoors** who were responding to noise events **outdoors** [page 378] Because these people hardly heard the noise, they provide a "low annoyance" response (which skews the results with a low bias). The Schultz paper found very poor correlation between noise levels and "annoyance" response when the respondents were located indoors with their windows closed. This seems like an obvious thing which should have been accounted for in the studies that were "synthesized" in the Schultz Paper, but apparently it was not. Schultz actually makes the following recommendation: "If one wishes to increase dramatically the correlation between the measured noise and the subjective response of the subjects, one should open the windows so that the official survey microphone and the noise to which the subjects are actually exposed are the same" [page 378]. The author also posits the argument that half of the sample population at each noise exposure who respond below the median may "have simply not heard the noise measured in the survey". The "biasing" elements of the Schultz study (such as the fact that only indoor annoyance responses were addressed) are even more troubling when they are considered against the urban backdrop where these studies were conducted. Why? Because it renders them even more inapplicable to Acton's quiet, rural environment where residents spend much of their time "outdoors". It is flat out **impossible** to infer or predict the extent to which an Acton resident will be "annoyed" by an 85 dBA HSR noise event occurring every 3 minutes based on noise reactions from people sitting indoors who occasionally react to urban street noises outside their windows. Such an idea is absurd, yet, that is precisely what CHSRA and FRA are doing when they assess HSR noise impacts on Acton based on the "Noise Impact Criteria" set forth in Figure 3-1 of the FRA Manual.

- The FRA Manual considers all noise impacts through the "urban lens" of the Schultz Paper, and because it uses this "urban lens" to assess noise impacts on rural areas, it draws conclusions which utterly contradict the Schultz Paper itself.

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For instance, the Schultz Paper states categorically that the standard for an "acceptable" environmental noise exposure is 55 dBA (L_{dn}), and it does not under any circumstance recommend increasing this 55 dBA "acceptability" limit in any area where it is already met. Yet, incredibly, FRA's "Noise Impact Criteria" deems an increase in ambient noise levels from 55 dBA to 61 dBA to be "insignificant". In other words, the FRA Manual uses the urban studies considered in the Schultz Paper to shift the "acceptability" baseline from 55 dBA to 61 dBA for all areas (both rural and urban) in a manner that is utterly contrary to the foundational principals upon which the entire Schultz Paper is based. Worse yet, the "Noise Impact Criteria" (provided by Figure 3-1 of the FRA Manual and derived from the urban-based Schulz Paper) clearly establish that no area (whether it be a monument, a cemetery, or a wilderness) is considered "severely impacted" by a project unless the project results in ambient noise levels ***exceed*** the 55 dBA urban baseline!!! Clearly, the "low end of the FRA "Noise Impact Criteria" is utter nonsense because it *contradicts in every way possible* the very same "Schultz paper" that it purports to reflect.

- The Schultz paper designates the 55 dBA noise exposure level as not only an "acceptable" standard, but also a "desirable" standard for areas where existing ambient noise levels do not exceed 55 dBA [see page 389 column 1]. The Schultz Paper also expressly limits its consideration of the circumstances under which the 55 dBA noise standard could be exceeded to only those urban areas where the ambient noise level already exceeds 55 dBA. Yet incredibly, the FRA Manual ***flat out ignores*** all of Schultz's research establishing 55 dBA as the acceptable and desirable standard for non-urban areas where ambient noise levels are at or below 55 dBA. Instead, it arbitrarily establishes 61 dBA as the "threshold of significance" for areas that meet the 55 dBA standard, and it declares that project noise levels below this 61 dBA threshold constitute "less than significant" impacts. In other words, the FRA Manual establishes that non-urban areas which already meet the 55 dBA standard (and therefore have an "acceptable environmental noise exposure") are not "severely impacted" by any project unless noise levels rise above 61 dBA. The FRA "Noise Impact Criteria" essentially turned the Schultz Paper on its head by establishing that projects impacts are not "significant" even if they generate noise levels which exceed Schultz's "desired and acceptable" 55 dBA standard! Nothing about the Noise Impact Criteria established by the FRA Manual for "quiet" (<55 dBA) areas is supported by the Schultz Paper. Indeed, the manner in which the FRA Manual incrementally increases the "acceptable noise threshold" in areas which meet the 55 dBA standard is entirely inconsistent with, and wholly unsupported by, the very Schultz study it purports to reflect.
- The Schultz Paper was published nearly 40 years ago before 'high speed" trains exceeding 180 mph were developed, and it considered historic urban noise profiles predominated by mid- and high-frequency noise sources. It is firmly established that noise profiles of high speed trains traveling in excess of 200 mph differ significantly from slower trains, and that the noise profiles of faster trainsets include substantial low-frequency components [http://www.uic.org/cdrom/2008/11_wcrr2008/pdf/S.1.1.4.4.pdf]. The Schultz paper never

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considered low-frequency noise levels introduced into the urban environment by 220 mph HSR trains, and it certainly never accounted for significant low-frequency aerodynamic noise elements introduced by HSR projects into rural areas like Acton. This further repudiates FRA's reliance on the Schulz paper to establish appropriate HSR "Noise Impact Criteria" for rural communities like Acton.

The US. EPA "Levels Document" establishes that, to protect the "health and welfare" of farming and residential areas (like Acton) where people spend considerable amounts of time in the outdoors, the average noise levels (both "L_{dn}" and "L_{eq}") *should remain below 55 dBA* [Table VII in the "EPA Levels Document – Condensed Version" at https://nepis.epa.gov/]. This is utterly contradicted by the FRA "noise impact criteria", which *unequivocally* establish that it is "insignificant" if a project causes outdoor noise levels to exceed this 55 dBA "health and welfare" threshold (see FRA Figure 3-1). In fact, Figure 3-1 clearly establishes that FRA deems it acceptable to nearly the double the noise in areas that meet (or nearly meet) EPA's recommended 55 dBA level. Moreover, the FRA "Noise Impact Criteria" also completely ignore the EPA's explicit warning that urban community noise response factors should not be applied to non-urban areas (like Acton) which have a significantly quieter ambient environment [page 21 of "Levels Document" – condensed version]. There is no doubt that applying the urban-based FRA "Noise Impact Criteria" to Acton is utterly contradictory to the EPA's "Levels Document" in every way possible. The only way to render FRA's "Noise Impact Criteria" in a manner that is consistent with the EPA "Levels Document" is to revise the "Severe Impact" curve to intersect the point where the "Existing Noise Level" [x axis] value is 55 dBA and the "Project Noise Exposure" [y axis] is also 55 dBA.

HUD Standards are intended to achieve the goal of providing a suitable living environment. HUD has established that outdoor L_{dn} noise levels which exceed 75 dBA provide an unacceptable living environment, and does not authorize HUD development in such areas. HUD has also established that outdoor L_{dn} noise levels which exceed 65 dBA provide a *normally* unacceptable living environment, and requires that all new HUD construction in such areas include noise attenuation features to mitigate outdoor noise impacts. Yet, in a number of scenarios, the FRA "Noise Impact Criteria" do not consider project impacts to be "significant" even when they increase noise levels beyond the 65 dBA HUD threshold[3]. In fact, the FRA "Noise Impact Criteria" do not even consider the noise degradation impacts of HSR operation until the ambient noise level is 68 dBA as evidenced by Figure 3-1 (which deems moderate noise increases to be "insignificant" up until existing noise levels reach 68 dBA.) For all these reasons it is clear that FRA's "Noise Impact Criteria" are patently inconsistent with adopted HUD standards.

[3] As clearly shown in Table 3-1 of the FRA Manual, an area with an existing average ambient noise level of 64 is not deemed significantly impacted until the average noise level exceeds 65.5 dBA, and an area with an average noise level of 65 dBA is not deemed significantly impacted until the project noise increase exceeds 66 dBA.

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CHABA Guidelines: Address the "Health and Welfare" effects of noise in *urban and suburban* environments [page 33 paragraph 2 accessed via https://nepis.epa.gov/]. Regarding the "Health and Welfare" effects of noise on *urban/suburban* areas, the CHABA Guidelines advocate a "single indicator" method (page 34 para 2) that is based on the "Schultz Curve", and calculated based on the 1978 Schultz Paper [Page 37 equation 2a]. The "Single Indicator" method recommended by the CHABA Guidelines for urban/suburban environmental is clearly embodied in the FRA "Noise Impact Criteria". ***However***, the CHABA Guidelines *do not recommend* the use of the "single indicator" method for assessing noise impacts on rural areas (see page 64 paragraph 2) or where "environmental degradation" can occur due to new noise sources being introduced in quiet areas (like Acton). In fact, the CHABA Guidelines clearly draw a "bright line" distinction between the assessment of noise impacts on urban/suburban areas (addressed in Section 2.2) and the assessment of noise impacts on rural and other areas that will experience "environmental degradation" due to project noise impacts (addressed in Section 2.4). CHSRA *completely ignores this distinction*, and it blindly applies the "single indicator" method to ***all*** environments by slapping the urban-based "Noise Impact Criteria" depicted in Figure 3-1 onto every single impact assessment that it prepares. For instance, CHSRA does not consider a serenely quiet areas with an existing ambient noise level of only 43 dBA to be "significantly impacted" by a project even if the average noise level is tripled! Equally important, the CHABA Guidelines explicitly identify the 55 dBA threshold as the "point of significant adverse noise effects" (page 31 paragraph 1). *This assertion is completely ignored by the FRA Manual*, which establishes that "significant adverse noise effects" do not occur until noise levels substantially ***exceed*** 55 dBA [Table 3-1]. There is no doubt that the FRA "Noise Impact Criteria" fail to comport with the CHABA Guidelines and in fact they explicitly contradict these guidelines in the manner in which they address "Environmental Degradation" and noise impacts on quiet rural areas like Acton.

DOT Report No UMTA-MA-06-0099-79-3: This document is cited in footnote 74 of the FRA Manual, and it considers urban noise impacts of conventional trainsets traveling through urban and suburban Paris and London, and slightly faster trainsets (126 mph) traveling through various Japanese communities. The urban study portions of this DOT report are not particularly relevant to the matters raised herein (which consider only impacts on rural areas). However, the portions of the DOT report that address the Japanese study are perhaps relevant because they appear to consider receptors outside of an urban environment. The DOT report notes that the receptor "annoyance" is driven by 2 independent factors: the peak noise exposure (SEL) and the train frequency (trips per day). According to the DOT report, the Japanese study indicates that high annoyance occurs even with relatively slow (126 mph) trains and at relatively low peak (SEL) sound levels (less than 75 dBA as shown in Table I). These results demonstrate that high annoyance will occur at receptors located more than 11,000 feet (or 2 miles) from a 220 mph train traveling on flat ground at grade in areas (like Acton) where there is little ground attenuation and receptors have a "direct line of site" to the HSR tracks (see attached calculation sheet marked Exhibit A). The Japanese data also shows that "startle" occurs even with slow (126 mph) trains and at peak sound levels (SEL) as low as 80 dBA [see Table I]. These results demonstrate that human "startle" reactions will occur at receptors located more than 5000 feet from a 220 mph train traveling on flat

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ground at grade in areas (like Acton) where there is little ground attenuation and most receptors will have a "direct line of site" to the HSR tracks (see attached calculation sheet marked Exhibit B). Remarkably, none of this information is reflected *anywhere* in the FRA Manual. To the contrary, the FRA Manual categorically refuses to consider receptor noise impacts based on peak (SEL) noise levels, and instead considers only 24 hour "average" (L_{dn}) noise levels (see Sections 3, 4 and 5 of the FRA Manual). The FRA Manual also refuses to acknowledge that "startle" effects can and will occur on receptors located more than 50 feet from a high speed train traveling at 220 mph (see Figure 4-2).

Other Publications: The FRA Manual cites two additional studies as justification for the "Noise Impact Criteria" that it adopts. One study is a 1991 paper that "updates" the original Schultz paper published in 1978 by the JASA, and the other is a "French High Speed Rail Noise Survey" of the TGV-Atlantique line published in 1993. The latter does not consider noise impacts of train speeds that exceed 180 mph, and merely points out that nighttime noise impacts should be factored into any "noise impact criteria" that are developed. This is not in dispute; therefore, the "French High Speed Rail Noise Survey" is not addressed further. However, the "Shultz Update" paper is foundationally important, and is therefore addressed in detail here. The "Schultz Update" considers 15 additional urban noise studies, and combines data from these additional urban noise studies with the urban noise data presented in the original "Schultz Paper" published in 1978. Like the original "Schultz Paper", the "Schultz Update" Paper focusses exclusively on urban noise profiles, and it does not controvert any of the points addressed in the "bullet item" discussion presented above. However, the "Schultz Update" Paper does call into substantial question whether the "Original Schultz Curve" accurately represents "annoyance" response at noise levels below 60 dBA. First, the "Schultz Update" paper clarifies that, when a "Revised Schultz Curve" is fitted to the new data, it reveals that "annoyance" on the low-end of the noise range (below 60 dBA) is significantly higher than what was predicted by the "Original Schultz Curve" [see page 229 column 2]. For instance, it is noted that annoyance levels at a 57.5 dBA noise level are nearly twice as high as what is predicted by the "Original Schultz Curve" [See Figure 14]. The "Schultz Update" paper also includes a "95% confidence interval" analysis of the combined datasets [plotted in Figure 15] and the "annoyance response" [tabulated in Table III]. These "95% confidence interval" analyses reveal "considerable uncertainty" regarding "percentages of respondents highly annoyed" [page 231 column 2]. The "Schultz Update" paper does not attempt to reconcile the differences between the "Original Schultz Curve" and the "Revised Schultz Curve"; to the contrary, the "Schultz Update" Paper states categorically that these curves are "simply convenient data fitting functions, devoid of physical meaning" [page 233]. This statement is *simply extraordinary*, given the extent to which FRA and CHSRA have relied on the "Schultz Curve" to determine whether or not California citizens are "severely impacted" by the HSR Project. Not only does the "Schultz Update" Paper abjectly confirm each and every criticism levied previously herein (see the "bullet item" discussion above); but it also invalidates the FRA "Noise Impact Criteria" because it relegates the "Schultz Curve" upon which these criteria are based to nothing more than a "data fitted function" that is "devoid of meaning"! Above all, the "Schultz Update" Paper demonstrates that, in the ambient noise range applicable to quiet rural areas like Acton (<55 dBA) actual human "annoyance" response levels are *significantly higher* than what is predicted by the

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urban-based "Schultz Curve". The exceedingly high "error margin" embodied in the "Schultz Curve" at low ambient noise levels proves beyond the shadow of a doubt that the "Schultz Curve" is entirely unreliable in this "low noise" regime, and that both FRA and CHSRA grievously err in their reliance on the "Schultz Curve" to establish "noise impact criteria" for quiet rural areas like Acton.

All of the shortcomings of FRA's adopted urban-based "Noise Impact Criteria" can only be corrected by developing Non-Urban "Noise Impact Criteria" based on "annoyance" studies conducted in areas that have ambient noise conditions below 60 dBA. Neither FRA nor CHSRA have taken these simple steps to ensure appropriate noise impact criteria are relied upon in the Palmdale-Burbank Segment EIR. Instead, they intend to (wrongly) apply the urban-based noise impact criteria established in Figure 3-1 of the FRA manual; thereby providing fertile ground for any number of successful CEQA and NEPA lawsuits.

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FRA's HSR "Noise Exposure Assessment" Methodology Fails to Correctly Address Rural Community Noise Impacts

To truly understand the extent to which FRA's high speed rail "noise exposure" assessment methodology fails to properly address rural "community impacts", it is useful to look at the results derived from FRA's methodology through the lens of FRA's "Noise Impact Criteria" set forth in Figure 3-1 of the FRA Manual. This is accomplished by a "scenario" analysis which considers various HSR operations in different "quiet" zones within a rural community like Acton:

Scenario 1: Existing noise levels is 56 dBA: A relatively quiet residential area that has an existing average ("L_{dn}") noise level of 56 dBA and is nearly a mile from the train with a "line of sight" view of the tracks will experience an 82 dBA noise event every 2.7 minutes starting at 6 AM according to CHSRA's proposed operating schedule (Exhibit B). To be clear, an 82 dBA noise event is equivalent to a metro train traveling at 50 mph just 50 feet away. Nonetheless, according to the FRA" Noise Exposure Assessment" methodology, this noise impact is not deemed "significant". The notion that a project does not pose "significant adverse impacts" on a quiet residential area when it clearly introduces noise levels equivalent to a metro train running by at least three minutes is ***absurd on its face.*** Yet, that is precisely what FRA's methodology and "Noise Impact Criteria" conclude.

Scenario 2: Existing noise levels is 50 dBA: A very quiet residential area that has an existing average noise level of 50 dBA and is nearly two miles from the HSR train with a "line of sight" view of the tracks will experience a 79 dBA noise event every 2.7 minutes starting at 6 AM (Exhibit D). Though a 79 dBA noise event is louder than a blender operating just 3 feet away, the FRA's "Noise Exposure Assessment" methodology does not deem this impact to be "significant". The notion that a project does not pose a

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"significant adverse impact" on a very quiet residential area when it continually introduces noise levels equivalent to a kitchen blender is ***absurd on its face.*** Yet, that is precisely what FRA's methodology concludes.

Scenario 3: Existing noise levels is 45 dBA: A serenely quiet residential area that has an existing average noise level of 45 dBA and is more than 3 miles from the HSR with a "line of sight" view of the tracks train will experience 77 dBA noise events every 2.7 minutes starting at 6 AM (Exhibit E). A 77 dBA noise event is louder than a kitchen blender, yet this is not deemed to pose any nose impact on this serenely quiet area. The notion that a project does not pose a significant impact on such a quiet place when it clearly introduces noises that are louder than a kitchen blender on at least once every 3 minutes is ***absurd on its face.*** Yet, that is precisely what FRA's methodology and "Noise Impact Criteria" conclude.

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CHSRA has not Developed Technically Credible or Legally Defensible "Noise Impact Criteria" for Assessing HSR Impacts on Animals

The community of Acton is an equestrian community, but it is also a community that is home to a wide assortment of animal facilities and rescue operations. Animals that are cared for and housed in Acton facilities include llamas, emus, lions, cattle, pigs, ducks, cats, sheep, tigers, dogs, goats, chickens, turkeys, geese, doves, rabbits and donkeys. ALL of the proposed HSR alignments in Acton travel above ground through and over such facilities, and will generate significant low- and mid- frequency sound levels exceeding 100 dBA outside of the HSR "right of way" areas. CHSRA 's treatment of noise impacts across this wide spectrum of animal types is the same: no significant noise impacts are deemed to occur if the noise level in the vicinity of any animal is less than 100 dBA. CHSRA has absolutely no data to support this 100 dBA "animal impact criteria"; as FRA points out: "There are no established criteria relating high-speed train noise and animal behavior" [page 3-2 of the FRA Manual]. In fact, tabulated data provided by the FRA Manual clearly show that animal "disturbance" response thresholds can be as low as 77 dBA [Table A-1 in the FRA Manual]. What is most remarkable is that CHSRA has relied on this "interim" threshold for more than 8 years and has employed it *in every single project EIR/EIS that it has certified*, and in all that time, it has never done any studies or taken any steps to establish the efficacy or assess the reasonableness of this assumption. For all intents and purposes, CHSRA has implemented this "interim" threshold as if it had the full weight and authority of a formally adopted standard, and it has done so with impunity and without regard for whether it is reasonable or appropriate. *This is not acceptable for the Community of Acton, where noise levels exceeding 90 dBA will occur more than 600 feet from the tracks.* Prior to commencing any noise assessment of the Acton area, CHSRA must develop reasoned and defensible "animal response" thresholds that properly address the wide range of animals that call Acton "home".

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The Community of Acton is also home to a number of wild animals (both large and small), and it is the primary linkage between the Sierra Pelona range and the San Gabriel Mountains. Acton's large wildlife includes mountain lions, coyotes, deer, bobcats, and raptors such as red tailed and cooper's hawks. Acton is also home to a number of protected species such as the red legged frog and the San Diego coast horned lizard. ALL of the proposed HSR alignments in Acton travel above ground through and over habitat where these species are found, and all of the proposed alignments will create low frequency sound levels exceeding 100 dBA outside the HSR track "right of way". CHSRA has established a 100 dBA "interim" threshold to evaluate wildlife noise impacts, and has implemented this "interim" threshold for more than 8 years. In all that time, it had never conducted any studies to determine whether it reasonably represents an appropriate noise response indicator for the wide spectrum of wildlife that are present in all of the HSR corridors in Acton. In other words, CHSRA utterly lacks the information necessary to establish the technical credibility or legal sufficiency of this 100 dBA "interim" wildlife impact criteria, therefore it has no basis for relying on this "interim" criteria for assessing wildlife impacts in Acton.

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CHSRA and FRA are Required to Provide Noise Contour Maps (or Equivalent) of Predicted Sound Exposure Levels in Acton.

CHSRA's "Environmental Methodology Guidelines" state (on page 3.4-14) that the EIR "shall conform to the requirements and topics set forth in Section 11.1 (The Technical Report on Noise and Vibration) and Section 11.1.1 (Organization of Technical Report) of the FRA 2012 guidance manual". Section 11.1.1 of the FRA Manual specifies that the computed noise levels predicted by the noise assessment model must be "tabulated AND illustrated by contours, cross sections, or shaded mapping" [page 11-2]. Despite these clearly stated reporting requirements, neither FRA nor CHSRA have ever provided any noise level illustrations in any of the HSR EIR/EIS documents certified to date. At most, CHSRA has reported a "range of noise levels" applicable to an entire segment, and it has mapped points of "severe" impact and "less than severe" impact without indicating any actual noise levels. Because of this, the public has been unable to analyze CHSRA's calculated results to confirm their accuracy or completeness. ***This is unacceptable***. The DEIR/DEIS that is issued by FRA and CHSRA for the Palmdale Burbank segment must comply with CHSRA's and FRA's reporting standards, and include noise contour (or equivalent) illustrations which clearly establish the peak noise levels that Acton residents are projected to experience with and without mitigation. Consistent with DOT's *Railroad Noise Emission Compliance Regulations*, these illustrations must depict noise levels extending from the 100+ dBA level occurring at the HSR track right-of-way out to either the 73 dBA noise level (if $L_{max_{fast}}$ data are plotted), or out to 73 dBA (if $L_{max_{slow}}$ data are plotted).

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Moreover, both CEQA and NEPA demand that actual noise projections be provided in the DEIR/DEIS because both require the environmental document to clearly identify the "effects" of a project on the environment[6] And, both CEQA and NEPA define "effects" to include "direct effects" which "are caused by the project and occur at the same time and place[7]" In other words, the only way that CHSRA and FRA can comply with CEQA and NEPA regulations is to include in the DEIR/DEIS the peak noise levels that will be created within Acton at the time that the HSR passes through Acton. These state- and federally-imposed requirements are not met by simply plotting "L_{dn}" values because "L_{dn}" values merely reflect "bulk" noise levels averaged over a 24 hour period; they do not in any way reflect actual noise levels occurring "at the time and place" of an HSR passby event. This has been pointed out time and again in writing and verbally at public meetings and stakeholder meetings with CHSRA and FRA staff. It is now pointed out again with this submittal and in a manner which makes clear that all administrative remedies regarding this issue have been exhausted.

6 NEPA - 1502.16(a) of the CEQ Regulations for Implementing NEPA. CEQA – Guidelines Section 15126.2(a).

7 NEPA – 1508.8 of the CEQ Regulations for Implementing NEP. CEQA – Guidelines Section 15358. 19.

Response to Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022)

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Commenter claims that the noise analysis is deficient under CEQA and NEPA and requests that the deficiencies be corrected in the Final EIR/EIS. This is general introductory material, and responses to specific comments about the Draft EIR/EIS's noise analysis made by this commenter in this comment letter are addressed in turn and demonstrate that the noise analysis presented in the Draft EIR/EIS is thorough and supported by substantial evidence and is therefore sufficient in complying with NEPA and CEQA. Under CEQA, EIR analysis and conclusions must be supported by substantial evidence. Under NEPA, an EIS must take a hard look at the environmental effects of an agency action. Both of those standards have been met here. As discussed under Impact N&V#6, the SR14A Build Alternative would result in only one moderate noise impact in or near the Town of Acton, from Soledad Siphon to Acton Canyon Road. This is because the SR14A Build Alternate would be in tunnel through the town of Acton, and noise and vibration would not be perceptible at the surface.

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Refer to Standard Response PB-Response-GEN-7: Access to Technical Reports, PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors.

The commenter criticizes the noise modeling and analysis of noise impacts, and asserts, amongst other things, that the Draft EIR/EIS does not provide any specific information pertaining to the noise calculations performed for the project, and that the FRA Manual's noise impact criteria are "lenient" because of the use of Ldn and not appropriate for evaluating noise impacts of the project.

Relevant information about modeling inputs, assumptions, and methodology for the noise modeling and analysis are included in the Draft EIR/EIS in Section 3.4.4.3, on pages 3.4-21 to 3.4-24. Additional information is also included in Chapter 4 of the publicly available Noise and Vibration Technical Report (pp. 4-2 to 4-9). See also Standard Response PB-Response-GEN-7: Access to Technical Reports for more detail. This combined information includes the source noise levels for each component of the train, operational information specific to the project, and information about propagation and ground effects specific to the project, contrary to assertions made in footnote 2 of the comment.

The model equations methodology used for the noise analysis are included in the 2012 FRA Noise and Vibration Guidance Manual (aka, the FRA Guidance Manual). For a detailed explanation on the use of the FRA Guidance Manual, please refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors. The Ldn noise descriptor, used by the FRA “to assess noise for residential land uses" (FRA Guidance Manual, p. 2-4), is almost universally accepted as the best way to measure human response to environmental noise and changes in noise. Ldn is a very effective metric because it includes information about how loud each event is, how long that event occurs, how often it occurs, and when the events occur (daytime vs nighttime) during a 24-hour period. If a noise assessment were to only use the maximum noise level at any given moment to assess impact, one event would be the same as 400 events, and an event that occurs for 3 seconds would be the same as one that occurs for an hour. Because Ldn takes all these factors into account, it is the best metric to assess human response to noise in the environment. Additional information regarding the Ldn metric can be found in Section 2.1.1 and Appendix A of the FRA Guidance

Response to Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

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Manual.

At locations where the alignment would not be in tunnel, the effects of the track structure and elevation, as well as the ground effects, were taken into consideration in the assessment (see Draft EIR/EIS, p. 3.4-24; see also Noise and Vibration Technical Report, p. 4-6). To be conservative in the assessment, the effects of shielding from terrain were not included; although existing terrain shielding in the Acton and Agua Dolce areas would indeed result in a reduction in noise levels below those modeled in the Noise and Vibration Technical Report. The ground effect represents a small reduction in noise levels due to interference with the ground as the sound travels over it. The ground effect is based on the distance over which sound travels from the source to the receiver, and the path height of the sound, which takes into account both the height of the source and the height of the receiver. For sources of noise that are either higher on the vehicle (such as pantograph noise) or for elevated structures, the ground effect, or reduction in noise, is much lower than it would be for wheel/rail noise operating on non-elevated structures. The noise modeling takes this into account for each source of noise on the vehicle, the track height, and the receiver height. For the SR14A Build Alternative (the Authority's Preferred Alternative), much of the alignment would be underground, and when underground there would be no noise effects.

For additional detail on operational noise analysis and for a response to the comment on noise contour illustrations, please refer to Standard Response PB-Response-N&V-1.

In response to the commenter's independent assessment of noise impacts, referred to in the comment as Attachment 1 and discussed in footnote 4, as explained in detail below, the Authority has identified several errors in the commenter's analysis, resulting in falsely higher noise levels than those reported in the Draft EIR/EIS.
The commenter provides noise calculations that it modeled and alleges that the noise calculations provided in the Draft EIR/EIS are inaccurate, specifically that residences that have "an unobstructed 'line of site [sic]' view to the train tracks" (within 3,600 feet, and up to 5,300 feet, of elevated tracks, as discussed in Comment # 10246) under specific conditions, will experience severe noise levels. For its noise analysis, the Draft EIR/EIS used a screening distance of 1,200 to 1,800 feet (please refer to Standard Response PB-Response-N&V-1 for more details). Screening distances are conservative

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by design to fully capture the potential for impacts in the study area (see Section 4.1 of the FRA guidance manual). A larger screening distance is not required under these conditions by FRA or by any other potentially applicable standard, even where there may exist an unobstructed line-of-sight from an elevated train track to a residence, and, notably, the commenter does not suggest one. Furthermore, a larger screening distance would not change the Draft EIR/EIS impact conclusions, which found a significant and unavoidable impact to residential receptors in the Central Subsection (in which Acton and Agua Dolce are located) for all alternatives, despite some amount of impact reduction with implementation of mitigation measures (see discussion under Impact N&V#6: Operational Train Noise Impacts). Moreover, several errors within the commenter's modeling, discussed just below, result in inaccurately inflated train noise levels which, in turn, appear to have resulted in the commenter's inaccurate conclusion that residences located up to 5,300 feet away from elevated portions of the train would encounter severe noise levels. There is no scenario for HSR operations, even at the highest speeds, in which there would be severe noise impacts over one mile from the tracks, given the existing noise levels measured in the area.

The first error identified by the Authority is the commenter's incorrect use of "hard" ground in its model. In almost all cases, outside of pavement, ground is considered acoustically "soft" when modeling noise levels, including dirt and other ground types. The ground effect has a slight reduction in noise level with distance based on the source and receiver height above ground. Hard ground will overestimate noise levels by an increasingly large amount as the distance increases. The noise model in the Draft EIR/EIS used "soft" ground in the assessment, with the correct source heights for each component of the HSR noise, as appropriate. Hard ground is defined by the International Organization for Standardization (ISO), in ISO 9613-2-1996(E) (Acoustics —Attenuation of sound during propagation outdoors —Part 2: General method of calculation) as ground types which include paving, water, ice, concrete and all other ground surfaces having a low porosity. This definition does not describe the potentially affected areas in the Acton and Agua Dulce, which may include a small amount of pavement and concrete between the source and the receiver, but the primary ground type would be acoustically soft. The same reference defines soft ground as ground types that include ground covered by grass, trees or other vegetation, and all other ground surfaces suitable for growth of vegetation, which describes the majority of the

Response to Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

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ground type at issue.

The second error identified by the Authority is a more than doubling of the HSR operations in the commenter's model. In the Noise and Vibration Technical Report (p. 4-5), the volumes of trains are stated as 189 trains during the daytime, 28 trains during the nighttime, and 14 trains during peak hours. These numbers are for "both" directions in total, and not in each direction. In the text of the Draft EIR/EIS noise section (page 3.4-23), the volumes of trains were inadvertently incorrectly reported as 189 trains during the daytime in "each" direction, 28 trains during the nighttime in each direction and 14 trains in each direction during the peak hour. This represents a total of 217 trains (in both directions) that would operate daily during a 24-hour period. However, the correct train volumes were reported in the noise and vibration technical report. The use of these doubled numbers in the commenter's independent assessment erroneously inflated its resultant noise levels. Because Ldn is a cumulative noise metric, the Ldn values will increase with a larger number of trains. Although the noise section in the Draft EIR/EIS contained an inadvertent error in language usage, the correct number of daily trains was used in the actual modeling and assessments presented in the Draft EIR/EIS, which relied on accurate modeling and data contained in the Noise and Vibration Technical Report (a copy of which the commenter possessed when preparing these comments, see Comment # 4413-10247; see also Noise and Vibration Technical Report, pp. 4-2 to 4-9). For the purposes of clarification, the noise section of the Final EIR/EIS has been revised to properly characterize the total number of trains that would operate daily. The correct number of trains, as reported in the Technical Report, is 189 trains during the daytime, 28 trains during the nighttime and 14 trains during peak hours. This change does not result in any other changes to the calculations or analysis presented in the Draft EIR/EIS.

The third error identified by the Authority is that the commenter mistakenly used the peak trains as an addition to the daytime trains, when in fact, the peak hour trains are a subset of the daytime trains, used for calculations for institutional receivers. With the error in the addition of peak trains and the doubling of the train volumes, the noise levels in the commenter's assessment are overstated significantly, by at least 8 dB, with a larger increase in the error at greater distances.

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The fourth error identified by the Authority is that the commenter used the assumption that all receptors have an unobstructed view of the tracks (i.e., no "shielding"). This is not an accurate assumption because there are certain locations where shielding occurs. Shielding (non-terrain) was used in the Authority's noise model where appropriate. For example, where prominent features, such as berms, walls, and rows of buildings were present, a shielding adjustment was included in the noise modeling, consistent with FRA guidance (see Draft EIR/EIS, p. 3.4-24; see also Noise and Vibration Technical Report, p. 4-7; FRA Guidance Manual, p. 2-12). See also the "line of sight" discussion above.

In its independent analysis, the commenter did correctly note, however, that its calculations assumed that there is no ground attenuation for trains traveling in the aerodynamic regime. This is consistent with the Authority's modeling, which included the assumption that aerodynamic sources, which are only present at the highest speeds, do not include ground effects in the calculations.

The benchmark results, presented in Section 4.3.4 of the Noise and Vibration Technical Report show that the results from the noise assessment for the Palmdale-Burbank Section are accurate with regards to the standard input parameters used on all segments of the California High Speed Rail Project. The assessment for Palmdale to Burbank used site specific parameters along the corridor with the approved, benchmarked model. Thus, the noise levels reported in the Draft EIR/EIS are correct and there are no additional impacts on any of the alternatives that weren't identified in the Draft EIR/EIS.

Also briefly mentioned in footnote 4 of the comment is Attachment 2 of the comment submission, containing a 2018 brochure produced by the Authority on the noise levels of various train types (and equipment). Please refer to Standard Response PB-Response-N&V-1 for a discussion on the comparison of train noises.

In response to the comment's concluding remark that the noise analysis will not withstand judicial review, the Authority disagrees. There is ample substantial evidence, between the Draft and Final EIR/EIS, these responses to comments, standard responses, and the applicable technical report, supporting the EIR/EIS's noise analysis and impact conclusions.

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Finally, please note that the SR14A Build Alternative is the Authority's preferred alternative, and the majority of the alignment would be in tunnel. There would be no noise impacts in locations with tunnels; thereby rendering the bulk of the commenter's concerns moot.

4413-10246

The commenter provides noise calculations that they modeled (comment submission Attachment 1) and expresses concerns regarding the accuracy of the noise calculations provided in the Draft EIR/EIS, amongst other things, specifically that residences within 3,600 feet and up to 5,300 feet of elevated tracks, under specific conditions, will experience severe noise levels.

For a discussion on Attachment 1, and associated and other issues that arise in this comment, such as the screening distance for noise analysis, the provision of technical data in the Noise and Vibration Technical Report, and the conservative nature of the Draft EIR/EIS modeling, please refer to response to comment #10245.

In response to the comment that the Draft EIR/EIS "does not properly report 'severe' impact thresholds established by the FRA Manual", the measured noise levels and impact thresholds reported in the Draft EIR/EIS are rounded to the nearest decibel in the tables. The actual measured noise levels and criteria to the nearest tenth of a decibel are used in the assessment and the criteria are calculated using the equations in Section A.3.3 of the FRA guidance manual, rather than using the approximations shown on page 3-4 of the FRA manual.

In response to the comment that the Draft EIR/EIS analysis "may have failed to properly account for the lack of vegetation and sparse development profile in Acton and therefore assumed incorrect noise attenuation parameters," refer to response to comment #10245 regarding hard and soft ground types.

Lastly, the commenter mischaracterizes its modeling by calling it "conservative." The term conservative is used when modeling makes potential impacts seem worse than they actually will be. Here, however, the commenter's modeling does not "factor in the incrementally higher noise levels attributed to elevated tracks," which means that the commenter's modeling would present impacts to be better than they actually will be. Nevertheless, this further demonstrates that the commenter's analysis is inaccurate.

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4413-10247

The commenter is concerned about noise levels near Aliso Canyon in Acton (intersection of Aliso Canyon Road and Avenue Y-8) due to the E1, E1A, E2, and E2A Build Alternatives and potential impacts to receivers in this area that were not identified in the Draft EIR/EIS. The commenter also states that an existing noise measurement for location "N8" was not included in the noise analysis in the Draft EIR/EIS.

The commenter referenced the use of three 1-hour noise measurements of existing noise at this location, rather than a 24-hour noise measurement. The three 1-hour noise measurements method is described in Appendix B of the FRA's High Speed Ground Transportation Noise and Vibration Impact Assessment manual and appropriately used for the project here. This method is used when a 24-hour noise measurement cannot be conducted, as occurred here, because physical access was not obtained for this type of measurement. For a 24-hour noise measurement, the typical procedure is to secure noise monitoring equipment on private property for the duration of the noise measurement, which provides security for the equipment. Because the Authority did not have permission to access private property at this location, the Authority conducted three 1-hour measurements from public right-of-way, consistent with FRA guidance. A 24-hour noise measurement at this location was not feasible because noise monitoring equipment could not be left unattended in public right-of-way, and the Authority did not have permission to access private property to secure noise monitoring equipment.

Because of the way the Ldn is calculated from the 3 measurements, this method returns lower noise levels than a corresponding 24-hour measurement. A lower existing noise level increases the likelihood of identifying impacts at a particular location; therefore, the methodology used here resulted in a more conservative analysis. At this location, the closest sensitive receivers to the E1, E1A, E2, and E2A Build Alternatives alignments are more than 2,200 feet from the alignment. The FRA guidance manual has a maximum screening distance of 1,300 feet for identifying the potential for noise impacts. For this project, in the rural areas, this distance was increased to 1,800 feet, as described on page 3.4-38 of the Draft EIR/EIS. Because the receivers in question are significantly outside this already-extended screening distance, no impact assessment was conducted, per FRA guidance. Because no assessment was conducted at this location, the noise measurement in question was not used in the noise analysis or reported in the Draft EIR/EIS.

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Additionally, the commenter is concerned that there should be impacts at this location, based on the commenter's analysis. Please refer to Response to Comment #10246, which describes errors that the Authority has identified in the commenter's analysis that result in higher noise levels than those reported in the Draft EIR/EIS. The commenter correctly notes that the SR14A Build Alternative (the Authority's preferred alternative) would not have noise impacts to Blum Ranch or in Acton.

Response to Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4413-10248

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter states that the Draft EIR/EIS does not comply with CEQA and NEPA requirements because it does not provide any indication of how the Project will alter the existing noise environment, because it does not include specific noise impacts, and because the Draft EIR/EIS does not report noise effects "at the same time and place" they occur. The commenter also notes that the Draft EIR/EIS does not contain noise contours.

The Authority respectfully disagrees with the characterization made by the commenter. The Authority has described how the Project could alter the existing noise environment through a methodology using FTA and FRA criteria. Please see Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, which addresses operational noise impacts; provides additional information about why HSR has chosen to use the FRA and FTA Guidance; describes why noise contours are not necessary; and points to the places in the Draft EIR/EIS where the commenter and the public can review the geographic location of noise impacts.

The commenter also offers specific locations of concern for noise impacts and offers expected noise levels; however, the noise levels are not correct, as detailed in the Response to Comment #10245, which describes errors that the Authority has identified in the commenter's analysis. The commenter states that the Draft EIR/EIS does not explain that the Project will result in 80 dBA more than 400 times per day at residences within a mile of elevated tracks; noise exceeding 100 dBA at equestrian trails in Acton under elevated tracks; or that noise at Vazquez High School will exceed 85 dBA and will require staff to wear hearing protection while outdoors.

Regarding the commenter's concern about noise impacts at residences, it is unclear how the numbers provided by the commenter were developed. Regardless, please note that there would not be 400 daily trains, as a result of the project. There would only be 189 total daily trains during daytime hours and 28 daily trains during nighttime hours. Please refer to both the Standard Response PB-Response-N&V-1: Operational Noise

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and Impacts to Sensitive Receptors, for a discussion of how the Authority considered noise impacts on sensitive receptors, including residences.

Regarding the commenter's concern about impacts on equestrian trails, the Authority respectfully disagrees that the Draft EIR/EIS did not disclose potential impacts on use of equestrian trails. Impact N&V#7 in Section 3.4, Noise and Vibration of the Draft EIR/EIS discloses the potential locations where noise impacts could occur at equestrian trails and identified mitigation (Mitigation Measure N&V-MM#8) in order to reduce this impact to a less than significant level. Please also refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife, which provides additional information on noise impacts on domestic animals, including horses.

Regarding the commenter's concern about impacts on Vazquez School, the Authority has identified five schools, for which there could be significant and unavoidable construction noise impacts. This includes Roscoe Elementary School, Maclay Middle School, Hillary Broadous Early Education Center, and Hillery T. Broadous Elementary School for the E1, E1A, Refined SR14 and SR14A Build Alternatives. This also includes the Stonehurst Avenue Elementary School for the E2 and E2A Build Alternatives. The Draft EIR/EIS found that construction noise impacts on Vazquez School would not be significant or severe. Additionally, regarding the commenter's independent assessment, referred to in the comment as Attachment 1, please refer to Response to Comment #10245, which describes errors that the Authority has identified in the commenter's analysis, which result in noise levels that are higher than those reported in the Draft EIR/EIS. Based on the analysis conducted in the Draft EIR/EIS, the impacts to Vazquez School were found to not be significant or severe.

The commenter also states that Ldn does not provide an adequate basis for asserting direct noise impacts. The Ldn noise descriptor is almost universally accepted as the best way to measure human response to environmental noise and changes in noise. Noise from a single event does not correlate with human response to noise, and noise levels from single events are not described in the Draft EIR/EIS, as they are not a part of the FRA noise and vibration guidance. The Ldn is a very effective metric because it includes information about how loud each event is, how long that event occurs, how often it occurs and when the events occur (daytime vs nighttime). If a noise assessment were to

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only use the maximum noise level to assess impact, one event would be the same as 400 events, and an event that occurs for 3 seconds would be the same as one that occurs for an hour. Because more events would be a greater impact on a receiver and longer duration events would also be a greater impact on a receiver, using a single event metric would not fully capture the impacts at a location. Because Ldn takes all these factors into account, it is an appropriate metric to assess human response to noise in the environment. Please refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, which further addresses this issue.

Furthermore, the commenter states that the issues they identified in their comment would be moot if the Authority selects the SR14A Build Alternative. The SR14A Build Alternative is the Authority's preferred alternative.

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Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, PB-Response-N&V-4: Tunneling Impacts (Noise and Vibration) under Homes and Businesses.

The commenter states that the model for the noise assessment was not properly validated and lists several specific reasons purportedly supporting this claim. These comments are addressed in turn below.

The commenter first states what it believes is necessary to properly validate a model, and asserts that the project's benchmark test did not do this and therefore the model is "not valid or accurate." Notably, the comment does not cite any sources or expert references to support its idea of how to validate a noise model. The FRA Guidance Manual serves as the basis for the project's benchmark validation. The reference noise levels in the FRA Guidance Manual, which are used as the basis of the benchmark validation model, are based on extensive real-world noise measurements ("actual physical measurements," to use the language in the comment) of high-speed trains operating in Europe (see FRA Guidance Manual, Section 5.2.1). The equations in the FRA Guidance Manual are based on these actual measurements and standard acoustical models for train events. The data and equations in the FRA Guidance Manual underwent an extensive peer review process to ensure they were appropriate (please refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors). The data has been used on HSR projects throughout the country (please refer to Standard Response PB-Response-N&V-1). The benchmark tests were created at the onset of the environmental analysis for the California HSR Program to ensure that each project section uses the same input data and obtains the same results. The benchmarks were set up to capture a wide range of situations, including elevated structures, noise barriers, and different speeds. Accordingly, each benchmark is based on acoustical models included in the FRA Guidance Manual, which are based on real world measurements and a peer review process. The Authority then reviewed these benchmarks and determined they accurately reflect the situations described.

In response to the commenter's questions on the output results used for the benchmark test, Table 4-2 and 4-3 in the Noise and Vibration Technical Report shows both the benchmark results established by the Authority for 28 different operating scenarios at

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different speeds, distances, and track/receiver height combinations and the modeled results. The benchmarks are compared with the modeled results to ensure that the models used in each section of the project are consistent with the Authority benchmark and with each other. The benchmarks are not meant to reflect a specific operating scenario in the Palmdale to Burbank Project Section, but rather a standard set of general scenarios to test the models used in the assessment and ensure that they are consistent with the benchmark results.

In response to the commenter's questions on one particular benchmark model with a 63-foot-high barrier, this height is relative to the ground level and represents the distance from the ground level to the elevated structure, plus the elevated structure, plus a 4-foot barrier on top of that structure. It does not represent a barrier beginning on the ground level. The HSR source elevation shown in Tables 4-2 and 4-3 in the Noise and Vibration Technical Report is referenced in the header as relative to the ground level, and the barriers are correspondingly referenced to the ground level. For the purposes of clarity, the Authority has revised the Noise and Vibration Technical Report by adding a footnote to Tables 4-2 and 4-3 explaining that the 63 feet represents the aforementioned measurements (distance from ground to elevated structure plus elevated structure plus 4-foot barrier).

The commenter also questions the noise barriers present in each benchmark model. The 4-foot barrier height represents the standard edge of the track structure that is present but would only provide minimal shielding for wheel/rail sources.

Lastly, regarding the commenter's independent assessment, referred to in the comment as Attachment 1, please refer to Response to Comment #10245, which describes several errors that the Authority has identified in the commenter's analysis, resulting in higher noise levels than those reported in the Draft EIR/EIS.

Additionally, please note that the SR14A Build Alternative is the Authority's preferred alternative, and the majority of the alignment would be in tunnel. There would be no noise impacts in locations with tunnels (see PB-Response-N&V-4: Tunneling Impacts (Noise and Vibration) under Homes and Businesses). The commenter is correct that project operations for the SR14A Build Alternative would have no noise impacts in

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Acton.

The comment concludes by stating that the noise analysis and results in the Draft EIR/EIS are not accurate or reliable but, as demonstrated above, and in each response to comment prepared for this letter, the noise analysis performed is indeed accurate, reliable, and supported by substantial evidence.

4413-10250

Refer to Standard Response PB-Response-GEN-7: Access to Technical Reports.

The commenter states that the technical reports were not provided to the public and were not filed with the State Clearinghouse, which violated the CEQA and NEPA policies of open and public processes. Please see Standard Response PB-Response-GEN-7: Access to Technical Reports, which addresses this issue.

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4413-10251

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors.

The commenter questions information on page 3.4-8 of the Draft EIR/EIS and asserts that the Authority will apply European noise standards instead of federal standards to project noise generation and that the project will not comply with federal noise standards. Although the comment does not specify, it is presumed that the commenter refers to the information contained in the section entitled "United States Environmental Protection Agency Railroad Noise Emission Standards (40 C.F.R. Part 201)" on page 3.4-8 within section 3.4.2, Laws, Regulations, and Orders in the Draft ER/EIS. This section does not state that the project will not comply with applicable federal standards, it states that these USEPA limits may not apply to HSR, as the project is not an interstate carrier subject to federal noise standards. This section further states that any trainsets used for HSR that would comply with USEPA standards would, by default, comply with the European noise standard because European standards comply with USEPA standards, and not that the European standard would be used as the commenter suggest. The European standard is a set of emission noise limits applied to HSR operations across Europe for all HSR trainsets, regardless of country. The standards are summarized in the FRA document "High Speed Rail Noise Standards and Regulations" Report DOT/FRA/ORD-21/02, February 2021. Because any trainset would need to meet European noise limits to be used in Europe, those limits would by default also apply to any US project because they comport with the USEPA standard. This section also states that no HSR trainsets currently manufactured anywhere in the world meet the USEPA limit above 200 mph as a result of the limitations of current technology. Please also refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, which addresses the FRA and FTA criteria used to assess noise impacts and their use of American, not European, standards.

Lastly, the commenter notes that there is no rule requiring HSR to operate at 220 mph and no rule preventing it from operating at 190 mph. For a discussion on HSR operating speeds in Acton and Agua Dolce, which will be as slow as 180 mph, please refer to response to comment #10245.

4413-10252

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors.

The commenter states that the CEQA requires that lead agencies identify all instances in which the Project is inconsistent with adopted planning documents; identifies perceived inconsistencies with the Los Angeles County General Plan based on calculations the commenters made in "Attachment 1"; and requests that the EIR/EIS be revised to show how the Project would interfere with the County's objectives of reducing excessive noise impacts.

With regards to the project's consistency with local policy and zoning regulation, please refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, which identifies how the project is not subject to local government general plan policies or zoning regulations, as well as how the Authority has endeavored to develop a project design that minimizes local impacts. Although the project would not be subject to local government general plan policies or zoning regulations, the Draft EIR/EIS did disclose that the project would be inconsistent with certain provisions of the Los Angeles County General Plan, as described in Table 3.4-2 of the Draft EIR/EIS.

The commenter raises specific noise concerns from the commenter's independent assessment, referred to in the comment as Attachment 1. Please refer to Response to Comment #10245, which describes errors that the Authority has identified in the commenter's analysis, which result in noise levels that are higher than those reported in the Draft EIR/EIS.

In addition, at the end of this comment, the commenter states that their concern would be eliminated if the Authority selects the SR14A Build Alternative. The Authority's Preferred Alternative is the SR14A Build Alternative.

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4413-10253

The commenter states that text in the Draft EIR/EIS related to the Los Angeles County General Plan, referring to the Los Angeles County Code for direction on and definition of specific noise criteria, is incorrect. The Los Angeles County General Plan has the same noise criteria as the Los Angeles County Municipal Code. Table 11.2 in the General Plan Noise Element (page 195) outlines the community noise criteria for the county. The source for the table is cited as "Section 12.08.390 of the Los Angeles County Code (a portion of the Noise Control Ordinances)." As such, the General Plan does refer to the Code for specific noise criteria, and the statement in the EIR/EIS is correct.

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Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors.

The commenter states that although the project is a State project, it should still evaluate impacts based on local land use and zoning regulations as required by CEQA. The commenter also states that the Draft EIR/EIS fails to mention that the Project is inconsistent with the Los Angeles County General Plan 2035's 70-dBA noise objective, does not address the inconsistency or offer mitigation measures to ameliorate it, and does not comply with CEQA.

As discussed in Section 3.4.3 of the Draft EIR/EIS, the Authority is a state agency and therefore is not required to comply with local land use and zoning regulations and, therefore, not required to evaluate impacts based on local and regional land use regulations. However, it has endeavored to design and construct the HSR project to be consistent with land use and zoning regulations wherever possible. For more detail on this issue, please refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors. The noise and vibration impact assessment completed for the Palmdale to Burbank Project Section is consistent with both FRA and FTA guidance.

4413-10255

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors.

The commenter claims that, except for the SR14A Build Alternative, all the Build Alternatives will have substantial noise impacts to the Acton community. The commenter also claims Project's noise profile in Acton will not be consistent with local laws and plans. Additionally, the commenter claims that N&V-MM#1 is impermissible under CEQA, because it defers the development of mitigation measures to reduce significant noise impacts until after the Project is approved and that noise mitigation policies provided in Appendix 3.4-C do not actually reduce noise impacts in most areas.

As a matter of clarification, the Authority's preferred alternative is the SR14A Build Alternative. As discussed in Section 3.4, Noise and Vibration, sensitive receivers for the E1, E2, E1A, E2A, and the Refined SR14 alignment would experience moderate to severe noise impacts along areas near the Antelope Valley Freeway (Refined SR 14) and near the Vincent Substation (E1, E1A, E2, and E2A). Please see Figure 3.4-18, Figure 3.4-28, and Figure 3.4-31 for exact noise impact locations. Mitigation Measures N&V-MM#3 through N&V-MM#6 would be implemented to reduce noise from HSR operations. Additionally, as discussed in Chapter 8, Preferred Alternative, the Authority identified SR14A as the Preferred Alternative, as the alternative balances functional, technical, economic, and constructability factors with minimized impacts on natural resources and human communities. Noise impacts were considered in the process of determining the preferred alternative.

With regards to the project's consistency with local policy and zoning regulation, the Authority is a state agency and therefore is not required to comply with local land use and zoning regulations (see discussion in Section 3.4.3 of this Final EIR/EIS); however, it has endeavored to design and construct the HSR project so that it is consistent with land use and zoning regulations. The noise and vibration impact assessment completed for the Palmdale to Burbank Project Section is consistent with both FRA and FTA guidance. Please refer to Standard Response N&V-1: Operational Noise and Impacts to Sensitive Receptors, which provides additional information about why HSR has chosen to use the FRA and FTA Guidance.

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4413-10255

Additionally, as discussed in Section 3.4.7, the project will implement Mitigation Measure N&V-MM#1. Under N&V-MM#1, prior to construction (any ground-disturbing activities), the contractor will prepare a noise-monitoring program for Authority approval. The noise-monitoring program will describe how, during construction, the contractor will monitor construction noise to verify compliance with the noise limits (8-hour equivalent sound level (Leq) dBA noise limits are 80 dBA during the day and 70 dBA at night for residential land use; 85 dBA both day and night for commercial land use; and 90 dBA both day and night for industrial land use) where a noise-sensitive receptor is present. This can be done by either prohibiting certain noise-generating activities during nighttime hours or providing additional noise control measures to meet the noise limits. In addition, the noise-monitoring program will describe the actions required of the contractor to meet required noise limits including use of low-noise emission equipment, use of high-grade engine exhaust silencers, and other noise reducing measures. As described in N&V-MM#3, where noise barriers are not suitable, other noise reducing measures such as sound insulation and noise easements may be applied.

The Authority would commit to its mitigation through adoption of an Mitigation Monitoring and Reporting Plan; mitigation includes specific performance standards (i.e., specific noise levels that shall be reached); and identifies the actions that can be achieved to meet performances standards (actions are listed in each mitigation; for example, N&V-MM#1 has a bullet list of actions). For these reasons, mitigation for noise and vibration is not deferred.

4413-10256

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors.

The commenter claims that none of the proposed route alternatives except for SR14A will meet the Los Angeles County General Plan noise standards in Acton. The commenter is requesting that Table 3.4-2 be revised to state that it "will not be possible to meet standards" in the Los Angeles County Plan and further clarify that this constitutes a significant environmental impact.

As clarification, the Authority's Preferred Alternative is the SR14A Build Alternative. As documented by the commenter, the SR14A Build Alternative would minimize noise and other impacts in Acton.

Regarding the commenter's independent assessment, referred to in the comment as Attachment 1, please refer to response to comment #10245, which describes errors that the Authority has identified in the commenter's analysis, which result in noise levels that are higher than those reported in the Draft EIR/EIS.

As discussed in Section 3.4.3 of the Draft EIR/EIS, the Authority is a state agency and therefore is not required to comply with local land use and zoning regulations. However, the determination statements in Table 3.4-2 use the word "may" because, despite inconsistencies with regional and local noise policies, the Authority has endeavored to design and construct the HSR project so that it is consistent with land use and zoning regulations. The noise and vibration impact assessment completed for the Palmdale to Burbank Project Section is consistent with both FRA and FTA guidance. Please see Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, which addresses operational noise impacts.

Response to Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4413-10257

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors.

The commenter disagrees with a statement on page 3.4-14 of the Draft EIR/EIS that the project is consistent with the majority of regional and local noise policies and plans. Please refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, which identifies how the project is not subject to local government general plan policies or zoning regulations, as well as how the Authority has endeavored to develop a project design that minimizes local impacts. The statement that the project is consistent with the majority of regional and local policies and plans has been removed from the Final EIR/EIS. While this statement has been removed, please note that the Authority will continue to endeavor to work with local jurisdictions to develop a project design that minimizes local impacts and is made as consistent with local plans as possible.

4413-10258

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors.

The commenter claims that except for the SR14A Build Alternative, noise impacts from project operations within the Community of Acton will not be reduced by any IAMFs or mitigation measures. The commenter is requesting that the Draft EIR/EIS be revised to clarify that, even with IAMFs and mitigation measures, the project will not meet most local policy objectives.

Regarding the comment about the project not meeting local policy objectives for Los Angeles County and Acton, please refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, which identifies how the project is not subject to local government general plan policies or zoning regulations, as well as how the Authority has endeavored to develop a project design that minimizes local impacts. The noise and vibration impact assessment completed for the Palmdale to Burbank Project Section is consistent with both FRA and FTA guidance. As noted in the standard response, Section 3.4.3, Consistency with Plans and Laws, and Table 3.4-2 in Section 3.4, Noise and Vibration, of the Draft EIR/EIS, which discloses that it may not be possible to meet all local noise standards.

Note also that the commenter's independent noise analysis, upon which it bases much of its comments, including this one, uses incorrect assumptions. For more detail, please refer to Response to Comment #10245.

Finally, note that the Authority's Preferred Alternative is the SR14A Build Alternative, which the comment acknowledges will not result in significant noise impacts in the community of Acton that might conflict with local policies; thereby rendering the bulk of the commenter's concerns moot.

Response to Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4413-10259

The commenter expresses concern about construction noise and perceived deficiencies in NV-IAMF#1.

The noise and vibration assessment evaluated noise and vibration impacts from temporary construction activities for all the HSR Build alternatives. The assessment is based on the criteria and methodology contained in the FTA and FRA noise and vibration guidance manuals. Because specific equipment, methods and durations of construction activities cannot be fully defined in the EIR/EIS stage, NV-IAMF#1 requires the Authority's construction contractor to prepare a noise and vibration technical memorandum documenting how the Federal Transit Administration and Federal Railroad Administration guidelines for minimizing construction noise impacts will be employed when work is being conducted within 1,000 feet of sensitive receivers. Although NV-IAMF#1 would reduce construction noise, noise impacts would temporarily or periodically substantially increase ambient noise levels in the project vicinity above levels existing without the project. As discussed in Section 3.4.7, the project will implement Mitigation Measure N&V-MM#1. Under N&V-MM#1, prior to construction (any ground-disturbing activities), the contractor will prepare a noise-monitoring program for Authority approval. The noise-monitoring program will describe how, during construction, the contractor will monitor construction noise to verify compliance with the noise limits (8-hour equivalent sound level (Leq) dBA noise limits are 80 dBA during the day and 70 dBA at night for residential land use; 85 dBA both day and night for commercial land use; and 90 dBA both day and night for industrial land use) where a noise-sensitive receptor is present. This can be done by either prohibiting certain noise-generating activities during nighttime hours or providing additional noise control measures, such as barriers, to meet the noise limits. In addition, the noise-monitoring program will describe the actions required of the contractor to meet required noise limits, including use of low-noise emission equipment, use of high-grade engine exhaust silencers, and other noise reducing measures. As described in N&V-MM#3, where noise barriers are not suitable, other noise reducing measures such as sound insulation and noise easements would be applied.

CEQA Guidelines Section 15126.4 (B) states: "…formulation of mitigation measures shall not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to

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include those details during the project's environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will considered, analyzed, and potentially incorporated in the mitigation measure." The Authority would commit to its mitigation through adoption of a Mitigation Monitoring and Reporting Plan; mitigation includes specific performance standards (i.e., specific noise levels that shall be reached); and identifies the actions that can be achieved to meet performances standards (actions are listed in each mitigation measure; for example, N&V-MM#1 has a bullet list of actions). For these reasons, mitigation for noise and vibration is not deferred.

Regarding the commenter's concern about impacts on Vazquez School, the Authority has identified five schools, for which there could be significant and unavoidable construction noise impacts. This includes Roscoe Elementary School, Maclay Middle School, Hillary Broadous Early Education Center, and Hillery T. Broadous Elementary School for the E1, E1A, Refined SR14 and SR14A Build Alternatives. This also includes the Stonehurst Avenue Elementary School for the E2 and E2A Build Alternatives. The Draft EIR/EIS found that construction noise impacts on Vazquez School would not be significant or severe.

Regarding the commenter's concern about use of federal thresholds, please refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, which identifies why the Authority chose the FRA and FTA thresholds.

At the end of the comment, the commenter indicates that the Authority could select the SR14A Build Alternative to avoid the impacts they are concerned with. The Authority's preferred alternative is the SR14A Build Alternative.

Response to Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4413-10260

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter is concerned with startle effects to domestic animals. Please refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife, which addresses this issue and provides detailed information regarding this topic. The assessment methodology for animal startle effects are in Section 3.4.4.3 of the Draft EIR/EIS, on page 3.4-34. The information contained in the Draft EIR/EIS is based on information contained in Appendix A of the FRA guidance manual, which synthesizes information related to animal response to startle effects. The FRA startle effects are based on the data available and has been peer reviewed and used on dozens of HSR projects across the country. Some of the projects include the Texas High Speed Rail project, the Florida High Speed Rail project, and the Northeast Corridor project, among many others. Based on the threshold of 100 dBA SEL and the operational parameters of the CAHSR project, animal startle effects would occur within approximately 50 feet of the tracks. For human response to startle noise, please refer to PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, which discusses operational noise impacts and the use of federal noise thresholds. Additionally, the methodology for addressing startle effects is also contained in Section 3.4.4.3. of the Draft EIR/EIS, on page 3.4-33. Startle effects related to humans are based on information contained in Appendix A of the FRA guidance manual. The FRA guidance is based on data from the Air Force and research into noise effects from mag-lev trains. The commenter refers to a study from 1974 by Theodore Shulzte, which was an early attempt to correlate human annoyance with noise levels. There is one instance where Japanese residents were asked if they were startled by train noise; however, the parameter for startle are not well defined in this report. The commenter does not reference another document until the 1992 Air Force Study, which is one of the underlying documents used by the FRA guidance manual for discussing startle effects. All the research, including the Air Force Study and the 2021 FRA paper and others, have clearly defined startle effect as a result of the onset rate (change in noise level) and not the overall noise level, as the commenter states numerous times. While higher noise levels will cause annoyance (which is included in the operational noise assessment), mixing annoyance from high noise levels and startle from a high onset rate is not correct. The 1974 report has been

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superseded by numerous studies and is not considered a reference document on startle effects on humans. The Air Force study, as stated previously, is one portion of the information that was used to determine startle and onset rates for the FRA, but not the only one. The Air Force study was combined with a study on mag-lev noise to determine the startle effects in Appendix A of the FRA guidance manual. The Air Force study does not contradict the FRA guidance, but rather is one part that was used in the FRA guidance. The 2021 study cited by the commenter does not suggest that noise at the levels stated by the commenter cause startle. The study refers to a survey in the Netherlands, where people complained of startle effects, but there was no correlation to noise levels. Research into human startle effects looks at the onset rate (increase in noise) as a factor in startle, and not the noise level itself. The 2021 paper did not evaluate the onset rate as a correlation with annoyance, and clearly states that onset rate is the factor in startle, and not the overall noise level. Based on the information in Appendix A of the FRA guidance manual, human startle effects at 220 mph would occur within 45 feet of the tracks. At lower speeds, the distances would be less. Finally, the SR14A Build Alternative is the Authority's preferred alternative, and the majority of the alignment would be in tunnel. There would be no startle effects in locations with tunnels, thus rendering the majority of the commenter's concerns moot.

Response to Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4413-10261

The commenter expresses concern that blasting will be used to construct the tunnels in Acton for the E1, E1A, E2, and E2A Build Alternatives, noting potential noise impacts and startle impacts to horses, livestock, and other domesticated animals. The commenter states that the Draft EIR/EIS does not disclose whether blasting techniques would be used in Acton, does not adequately analyze impacts of blasting, and does not identify mitigation to reduce impacts from blasting.

Smaller segments of tunnels may not use tunnel boring machines (TBMs) but instead rely on "conventional" methods to build the tunnels. This does not imply that the tunnel will be excavated using explosives, as there are many other different "conventional" excavation methods for tunnels, and the selection of the method depends mainly on the type of rock or soil to be excavated. A tunnel built with a "conventional" method of construction is also referred to as a "mined tunnel." As noted in Section 2.9.5.3 in the Draft EIR/EIS, this may include drill-and-blast or mechanical excavators, depending on the strength of the ground being excavated. The drill-and-blast method of excavation involves the controlled use of explosives to break rock. Drill-and-blast tunneling is a form of subsurface construction and can be used as an option to mine tunnels using sequential excavation methods or TBMs. Drill-and-blast is used mostly to mine through hard rock, where it is more cost and time effective.

The typical cycle of excavation by blasting is performed in the following steps: (1) drilling blast holes and loading them with explosives; (2) detonating the blast, followed by ventilation to remove blast fumes; (3) removal of the blasted rock (mucking); (4) scaling crown and walls to remove loosened pieces of rock; (5) installing initial ground support; (6) advancing rail, ventilation, and utilities. When used in tunnel construction, blasting is controlled. The individual blasting rounds are usually designed and calculated by a blasting specialist. The design is reviewed by the engineer for compliance with specifications. Controlled blasting is performed with a careful design and selection of all aspects of the round-geometry of the tunnel, hole diameter, hole charges, hole spacings and burdens, and delay. Controlled blasting allows a few feet of excavation to advance on each individual blasting round.

In the areas noted in the comment (around Foreston Drive and Aliso Canyon Road), conventional mining may be used, including drill-and-blast techniques.

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As noted above, any drill-and-blast would occur underground and would not occur in the open where noise could adversely affect livestock or people. Section 2.9.5.3 of the Draft EIR/EIS explains that conventional mining techniques including drill-and-blast are typically used for tunnels less than 3 miles in length that present suitable conditions. The tunnel in the area referenced in the comment (around Foreston Drive and Aliso Canyon Road) is approximately 1.6 miles in length. If drill-and-blast techniques are used, it would occur underground in a controlled environment; the blasting would produce no external noise due to the natural sound attenuation properties of the surrounding ground, which prevents noise from traveling to the surface. For noise generated underground, whether it is from construction or from operations, there is no pathway for that noise to be heard on the surface. Because of that, industry professionals do not quantitatively assess noise from underground sources (i.e., because there is no pathway for that noise to be heard on the surface). As such, any blasting would not result in significant noise impacts such as those asserted by the commenter. Vibration at sensitive receptors from drill-and-blast methods would depend on many factors, including the size of the charge, the distance from the charge to a receiver, the type of rock, and any focusing or damping used to direct the charge. NV-IAMF#1 requires the contractor to prepare a noise and vibration technical memorandum that documents how the FTA and FRA guidelines for minimizing construction vibration impacts will be employed when work is being conducted within 1,000 feet of sensitive receptors. Finally, please note that the SR14A Build Alternative is the Authority's Preferred Alternative.

Response to Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4413-10262

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors.

The commenter expresses concern regarding the use of FRA construction noise standards, and notes concern for continuous exposure to noise levels in rural communities. The commenter believes the Draft EIR/EIS fails to comply with CEQA directives due to the Authority's use of federal standard instead of considering local conditions. The commenter suggests the SR14A Build Alternative should be chosen to eliminate noise impacts to Acton.

The noise and vibration assessment in the Draft EIR/EIS evaluated noise and vibration impacts from temporary construction activities for all the HSR Build Alternatives. The assessment is based on the criteria and methodology contained in the FTA and FRA noise and vibration guidance manuals. Please refer to Standard Response N&V-1: Operational Noise and Impacts to Sensitive Receptors, which provides additional information about why HSR has chosen to use the FRA and FTA Guidance.

Because specific equipment, methods and durations of construction activities cannot be fully defined in the EIR/EIS stage, NV-IAMF#1 requires the Authority's construction contractor to prepare a noise and vibration technical memorandum documenting how the Federal Transit Administration and Federal Railroad Administration guidelines for minimizing construction noise impacts will be employed when work is being conducted within 1,000 feet of sensitive receptors. Although NV-IAMF#1 would reduce construction noise, noise impacts would temporarily or periodically substantially increase ambient noise levels in the project vicinity above levels existing without the project. Mitigation Measure N&V-MM#1 (discussed in Section 3.4.7 of this Final EIR/EIS) will require the Authority's construction contractor to prepare a noise-monitoring program describing how the contractor will monitor construction noise to verify compliance with the noise limits. Mitigation Measure N&V-MM#1 includes specific actions that would be implemented to reduce construction noise. The noise-monitoring program will describe the actions required of the contractor to meet required noise limits of 80 dBA Leq during daytime hours and 70 dBA equivalent sound level (Leq) during nighttime hours. In addition, the noise-monitoring program will describe the actions required of the contractor to meet required noise limits. In addition, the noise-monitoring program will

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describe the actions required of the contractor to meet required noise limits. However, due to the Build Alternatives' proximity to sensitive receptors, some receptors may still experience noise in exceedance of acceptable noise limits.

Finally, the Authority's preferred alternative is the SR14A Build Alternative, which would avoid noise impacts to the community of Acton (as identified by the commenter).

4413-10263

The commenter questions the total number of trains used in the assessment. Please refer to Response to comment #10245, which provides an explanation and clarification of the number of trains used in the analysis, including how peak trains are a subset of the total daytime trains. in summary, the text at the bottom of page 3.4-23 in the Draft EIR/EIS has been modified. It now reads that for the Palmdale to Burbank Project Section, a total of 217 trains (in both directions) would operate daily during a 24-hour period.

Response to Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4413-10264

Refer to Standard Response PB-Response-N&V-2: Noise Mitigation and selection of Proposed Sounds Barriers.

The commenter expresses concerns about the use of ground effects in the noise assessment and the effectiveness of barriers for aerodynamic sources on the HSR trainsets.

The ground effect represents a small reduction in the noise levels due to interference with the ground as the sound travels over it. The ground effect is based on the distance over which the sound travels from the source to the receiver, and the path height of the sound, which considers both the height of the source and the height of the receiver. For sources of noise that are either higher on the vehicle (such as pantograph noise) or for elevated structures, the ground effect, or reduction in noise, is much lower than it would be for wheel/rail noise operating on non-elevated structures. The sources of noise on the HSR vehicle change with speed. At lower speed regimes, the wheel-rail noise (which is very low on the vehicle) dominates the noise, and the ground effects would be greater. At the highest speed regimes, aerodynamic and pantograph noise (which are much higher up on the vehicle) dominate the noise, and the ground effects would be much less. The noise modeling takes this into account for each source of noise on the vehicle, the speed regime, the track height, and the receiver height. The CAHSR Noise Mitigation Guidelines, which are included as Appendix 3.4-C of the Draft EIR/EIS, outline where noise barriers would be constructed. Barriers would need to achieve between 5 and 15 dB of noise reduction and meet cost thresholds to be considered reasonable and benefit a minimum number of impacted locations. In areas where barriers are not effective or not feasible, sound insulation of buildings could be considered. In some cases, the mitigation measures may not be fully effective, and locations exist where sound walls would not be feasible, based on the mitigation guidelines. Some unavoidable adverse noise effects would result from implementation of the Build Alternatives. For the SR14A Build Alternative (the Authority's Preferred Alternative), much of the alignment would be underground. Only areas of the Build Alternative alignment that contain sensitive receivers are analyzed in Section 3.4, Noise and Vibration of the Draft EIR/EIS because areas of the alignment where there are no sensitive receivers would not experience noise impacts, as described in Section 3.4.5, Affected Environment. Similarly, locations where the Build Alternative alignment would

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be in a tunnel are omitted from the noise impact discussions because there would be no increase in surface noise where trains would operate in a tunnel (Authority 2019). For additional information, please refer to Standard Response PB-Response-N&V-2: Noise Mitigation and selection of Proposed Sounds Barriers.

4413-10265

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter is concerned with startle effects to domestic animals. Please refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife, which addresses this issue.

The assessment methodology for animal startle effects is in Section 3.4.4.3 of the Draft EIR/EIS, on page 3.4-34. The information in the Draft EIR/EIS is based on information in Appendix A of the FRA guidance manual, which synthesizes information related to animal response to startle effects. The FRA startle effects are based on the data available and has been peer reviewed and used on dozens of HSR projects across the country. Some of the projects include the Texas High Speed Rail project, the Florida High Speed Rail project, and the Northeast Corridor project, among many others. Based on the threshold of 100 dBA SEL and the operational parameters of the project, animal startle effects would occur within approximately 50 feet of the tracks. For human response to startle noise, please refer to PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, which addresses operational noise impacts and the use of federal noise thresholds. Additionally, the methodology for addressing startle effects is also contained in Section 3.4.4.3. of the Draft EIR/EIS, on page 3.4-33. Startle effects related to humans are based on information contained in Appendix A of the FRA guidance manual. Please refer to comment #10260 for more information regarding FRA guidance.

Response to Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4413-10266

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors.

The commenter is concerned about the methodology used in the Draft EIR/EIS to assess noise impacts, the validity of the FRA noise impact criteria, and operation noise impacts to sensitive receptors, amongst other things. Please refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, which addresses these issues. Please refer also to response to comment #10245.

As stated in response to comment #10245, while the commenter may criticize the basis of the FRA criteria, it has suggested no alternative basis or criteria. Indeed, the Authority is not aware that any better criteria or basis has been developed. Furthermore, there is no basis for constructing a new set of criteria for one type of location, as the commenter suggests. The FRA criteria were developed for urban and suburban areas, as the commenter points out, as well as rural (see FRA Guidance Manual, e.g., Table 4-1). However, to characterize the noise environment in areas in Acton, where some HSR alignments would be above ground, as rural noise environments (as the comment does), is not correct. The existing noise levels in Acton are between 57 and 60 dBA Ldn, due largely to the proximity of SR14. These levels are above typical "rural" noise levels, which usually do not exceed 50 dBA Ldn (see Figure from Appendix B of the FTA Noise and Vibration Guidance Manual; see also FRA Guidance Manual, Appendix G). Thus, noise levels between 57 and 60 dBA Ldn are well within the range of expected urban or suburban noise levels. The commenter then remarks that the noise analysis is contrary to CEQA Guidelines 15064(b)(1) because FRA criteria are not appropriate for use with the Acton noise setting, but this is not true. FRA Criteria were developed for use in a myriad of settings, including settings like Acton where existing noise levels can be as high as 60 dBA Ldn.

One factor the commenter fails to mention is the existence of a "rail bonus." It has been well documented in research that the annoyance response to rail noise is lower to much lower as compared to other modes of transportation and the Shultz curve itself (see The Railway Noise Bonus - Discussion paper on the noise annoyance correction factor, Final Report, International Union of Railways, November 2010). While this effect has been known for some time, it was not included in the development of the FTA (and FRA)

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noise criteria; thus, likely making the analysis in the Draft EIR/EIS more conservative.

Regarding the comment referencing Attachment 3 of this comment submission, please refer to Response to Comment #10277.

Regarding the commenter's independent assessment, referred to in the comment as Attachment 1, please refer to Response to Comment #10245, which describes errors that the Authority has identified in the commenter's analysis that result in higher noise levels than those reported in the Draft EIR/EIS. Finally, please note that the SR14A Build Alternative is the Authority's preferred alternative, and the majority of the alignment would be in tunnel. There would be no noise impacts in locations with tunnels; thereby rendering the bulk of the commenter's concerns moot.

Response to Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4413-10267

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors.

The commenter states that the Draft EIR/EIS underrepresents noise impacts due to the Authority relying on federal thresholds. The commenter also expresses concern that Mitigation Measure N&V-MM#1 would not protect Acton residents due to the use of federal standards.

The noise and vibration assessment evaluated noise and vibration impacts from temporary construction activities for all the project alternatives. The assessment is based on the criteria and methodology contained in the FTA and FRA noise and vibration guidance manuals. Please refer to Section 3.4.4. of the Draft EIR/EIS, which provides the rationale for why the criteria used in its analysis is appropriate. In addition, please see Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, which provides additional information about why the Authority has chosen to use the FRA and FTA guidance.

Because specific equipment, methods, and durations of construction activities cannot be known at this environmental review stage of the project, NV-IAMF#1 requires the Authority's construction contractor to prepare a noise and vibration technical memorandum documenting how the Federal Transit Administration and Federal Railroad Administration guidelines for minimizing construction noise impacts will be employed when work is being conducted within 1,000 feet of sensitive receivers. Although NV-IAMF#1 would reduce construction noise, noise impacts would temporarily or periodically substantially increase ambient noise levels in the project vicinity above levels existing without the project. Mitigation Measure N&V-MM#1 (discussed in Section 3.4.7 of the Draft EIR/EIS) will require the Authority's construction contractor to prepare a noise-monitoring program describing how the contractor will monitor construction noise to verify compliance with the noise limits. Mitigation Measure N&V-MM#1 includes specific actions that would be implemented to reduce construction noise. The noise-monitoring program will describe the actions required of the contractor to meet required noise limits of 80 dBA equivalent sound level (Leq) during daytime hours and 70 dBA Leq during nighttime hours. However, due to the Build Alternatives' proximity to sensitive receivers, some receivers may still experience noise in exceedance of acceptable noise

4413-10267

limits.

4413-10268

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter is concerned with startle effects on humans.

Please refer to PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, which discusses operational noise impacts and the use of federal noise thresholds. Additionally, the methodology for addressing startle effects is also contained in Section 3.4.4.3. of the Draft EIR/EIS, on page 3.4-33. Startle effects related to humans are based on information contained in Appendix A of the FRA guidance manual. Please refer to comment #10260 for more information regarding FRA guidance.

Response to Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4413-10269

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors.

The commenter expresses concern about operational noise impacts to sensitive receptors and criticizes the noise impact methodology in the Draft EIR/EIS. The commenter asserts that the use of the FRA criteria is defective and states that conclusions in the Draft EIR/EIS are incomplete because the analysis used Ldn values. Please refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, and response to comment #10245. See also response to comment #10266 for a discussion on the nonexistence of other criteria, the commenter's improper characterization of Acton's noise environmental as rural, and the existence of a "rail bonus."

Finally, for the SR14A Build Alternative (the Authority's Preferred Alternative), much of the alignment would be underground, where there would be no operational noise effects; thereby rendering the bulk of the commenter's concerns moot.

4413-10270

The commenter cites text from the Draft EIR/EIS indicating that the E1, E1A, E2, and E2A Build Alternatives would not impact institutional uses and states that the Draft EIR/EIS gives the impression that the E1, E1A, E2, and E2A Build Alternatives would not result in significant noise impacts on residences. The commenter requests that the Final EIR/EIS be revised to reflect that the E1, E1A, E2, and E2A Build Alternatives would result in significant noise impacts on non-institutional uses.

The noise analysis in the Draft EIR/EIS evaluates noise impacts for residences and institutional receivers separately. The summaries for the E1, E1A, E2, and E2A Build Alternatives show residential impacts from project operations, and those impacts are clearly identified in the tables and summary sections in the E1, E1A, E2, and E2A Build Alternatives operational noise assessment sections (see Tables 3.4-32 and 3.4-33 of the Draft EIR/EIS). The columns under "Number of Effects" count the number of locations where the noise level threshold is exceeded because of project operations.

The Authority completed the same analysis for institutional impacts. The text identified by the commenter (pages 3.4-89 and 3.4-98 in the Draft EIR/EIS) that no institutional impacts were identified is simply to point out that unlike the residential impacts, there are no institutional impacts. No revisions are needed in the Final EIR/EIS.

Response to Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4413-10271

Refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter states that the Draft EIR/EIS does not comply with NEPA due to a lack of providing noise impact assessment methodologies and significance criteria and that it relies on deficient and insupportable analyses pertaining to human and animal startle impacts.

Regarding the comment about noise impact assessment methodologies and significance criteria, the Draft EIR/EIS does include this information. Please refer to Sections 3.4.4 in the Draft EIR/EIS, which addresses both the methodologies and significance criteria used for the Draft EIR/EIS noise and vibration analysis.

Regarding the comment about startle impacts, please refer to Impact N&V#5 in the Draft EIR/EIS, which analyzes potential impacts related to startle effects, and Impact N&V#7, Noise and Vibration Impacts on Domestic Animals. Additional detail is also provided in Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

For analysis of startle effects on humans, please refer to PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, which discusses operational noise impacts and the use of federal noise thresholds. Additionally, the methodology for addressing startle effects is also contained in Section 3.4.4.3. of the Draft EIR/EIS, on page 3.4-33. Startle effects related to humans are based on information contained in Appendix A of the FRA guidance manual. Please refer to comment #10260 for more information regarding FRA guidance.

4413-10272

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter expresses concern with the CEQA significance conclusions due to the commenter's belief that federal standards are not applicable for rural areas in assessing cumulative noise impacts, that the noise impact assessment methodologies did not properly evaluate the direct noise impacts that will result from project operations, and that the noise criteria are insupportable for assessing operation impacts on domestic animals, wildlife, and humans (i.e., startle and annoyance). Please refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, which discusses operational noise impacts and why it is appropriate to use federal noise thresholds. Please also refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife, which addresses affects to domestic and wild animals from noise.

For analysis of startle effects on humans, please refer to PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, which discusses operational noise impacts and the use of federal noise thresholds. Additionally, the methodology for addressing startle effects is also contained in Section 3.4.4.3. of the Draft EIR/EIS, on page 3.4-33. Startle effects related to humans are based on information contained in Appendix A of the FRA guidance manual. Please refer to comment #10260 for more information regarding FRA guidance.

Additionally, most of the project features that comprise the SR14A Build Alternative (the Authority's preferred alternative) are located either in tunnels, where there would be no noise effects, or close to SR14, which has much higher existing noise levels than other parts of Acton. These features are in areas more like urban areas, based on the noise levels generated by traffic on the roadway. At locations where severe noise impacts have been identified, mitigation measures, as described in Section 3.4.7 of the Draft EIR/EIS, will be implemented in accordance with the CAHSR Noise Mitigation Guidelines, which are included as Appendix 3.4-C of the Draft EIR/EIS. As acknowledged in the Draft EIR/EIS, the mitigation measures may not be fully effective and sound walls would not be feasible in some locations, based on the mitigation

Response to Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4413-10272

guidelines. For example, barriers would need to achieve between 5 and 15 dB of noise reduction and meet cost thresholds to be considered reasonable and benefit a minimum number of impacted locations. In areas where barriers are not effective or not feasible, sound insulation of buildings could be considered. Because the mitigation measures may not be fully effective, and locations exist where sound walls would not be feasible, some unavoidable adverse noise effects would result from implementation of the Build Alternatives. These residual effects following mitigation are described in Section 3.4.8, NEPA Impacts Summary and in Section 3.4.9, CEQA Significance Conclusions in the Draft EIR/EIS. Nonetheless, as shown in Figure 3.4-18 in Section 3.4, Noise and Vibration of the Draft EIR/EIS, there would be some severe and moderate noise impacts associated with portion of the Refined SR14 Build Alternative that would be at grade and elevated. However, as shown in that same figure, the SR14A Build Alternative alignment (the Authority's Preferred Alternative) would be underground through Acton, and when underground there would be no operational noise effects. As documented in the Draft EIR/EIS, the Authority's preferred alternative would not have moderate or severe operational noise impacts in Acton from operation of the SR14A Build Alternative.

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Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors.

The commenter is concerned about operations noise impacts to sensitive receptors in the Town of Acton, specifically referencing existing railway operations, and calling into question the use of the Ldn metric for assessing noise impacts. Please refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, which addresses these issues.

The commenter references the unique geography and vegetation in Acton. The noise modeling takes into account the ground type, which in this case is "soft" ground. The noise model in the Draft EIR/EIS used "soft" ground in the assessment, with the correct source heights for each component of the HSR noise, as appropriate. Hard ground is defined by ISO 9613-2-1996(E) as ground types which include paving, water, ice, concrete and all other ground surfaces having a low porosity. The same reference defines soft ground as ground types that include ground covered by grass, trees or other vegetation, and all other ground surfaces suitable for growth of vegetation. The model did not include any corrections for ground shielding, in order to be more conservative and overestimate the HSR noise levels. In response to Acton's "anecdotal evidence," which derives from observations of freight and commuter trains (given that HSR does not exist in Acton, or anywhere in California yet), please see the discussion on the differences between HSR and the freight or commuter trains that currently travel through Acton in Standard Response PB-Response-N&V-1. Notably, as stated in Standard Response PB-Response-N&V-1, freight and commuter trains can be 20-30 dB louder than HSR because of the sounding of their horns, which occurs at grade crossings throughout Acton. The HSR system, however, would be fully grade-separated in the Palmdale to Burbank Project Section and, therefore, would not have any need to sound horns regularly at grade crossings (because there would be no grade crossings). Overall, the HSR system, which will be largely underground going through Acton if the Authority selects the Preferred Alternative, will be much quieter than existing railway operations that pass through Acton. In addition, please refer to Response to Comment #10245 regarding ground effects and attenuation.

Please note that at locations where severe noise impacts have been identified,

Response to Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

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mitigation measures, as described in Section 3.4.7 of the Draft EIR/EIS, will be implemented in accordance with the Authority's Noise Mitigation Guidelines, which are included as Appendix 3.4-C of the Draft EIR/EIS. The Authority's Noise Mitigation Guidelines outline where noise barriers would be constructed. Barriers would need to achieve between 5 and 15 dB of noise reduction and meet cost thresholds to be considered reasonable and benefit a minimum number of impacted locations. As shown in Figure 3.4-18 in Section 3.4, Noise and Vibration, of the Draft EIR/EIS, some severe and moderate noise impacts would be associated with portions of the Refined SR14 Build Alternative that would be at-grade and elevated. However, as shown in that same figure, the SR14A Build Alternative alignment (the Authority's Preferred Alternative) would be underground through Acton, and when underground there would be no noise effects. As documented in the Draft EIR/EIS, the Authority's Preferred Alternative would not have moderate or severe noise impacts in Acton from operation of the SR14A Build Alternative; thereby rendering the bulk of the commenter's concerns moot.

4413-10274

The commenter claims that the noise analysis is deficient under CEQA and NEPA and requests that the deficiencies be corrected in the Final EIR/EIS. Responses to specific comments raised by the commenter are addressed in Response to Comment #10245 through Comment #10277 and demonstrate that the noise analysis presented in the Draft EIR/EIS is sufficient in complying with NEPA and CEQA.

The commenter also suggests that the Authority could adopt the SR14A Build Alternative and avoid noise impacts from operations in Acton. The Authority has identified the SR14A Build Alternative as its preferred Alternative. As discussed under Impact N&V#6, the SR14A Build Alternative would result in only one moderate noise impact from Soledad Siphon to Acton Canyon Road. This is because the SR14A Build Alternate would be in a tunnel underneath the town of Acton, and noise and vibration would not be perceptible at the surface. As described, only severe noise impacts are considered significant effects under CEQA.

4413-10275

The commenter notes the assumptions of the noise analysis they prepared, including the assertion that it was prepared in accordance with FRA guidance. Regarding the commenter's independent assessment, referred to in the comment as Attachment 1, please refer to Response to Comment #10245, which describes errors that the Authority has identified in the commenter's analysis, which result in noise levels that are higher than those reported in the Draft EIR/EIS. Finally, please note that the SR14A Build Alternative is the Authority's preferred alternative, and the majority of the alignment would be in tunnel. There would be no noise impacts in locations with tunnels.

4413-10276

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors.

The commenter attached an Authority brochure on high-speed train noise, which is first introduced in footnote 4 of the comment submission. This attachment explains some differences between high-speed train noise and traditional train noise. For discussions on and related to this attachment, please refer to responses to comments #10245 and #10273 and Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors.

Response to Submission 4413 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4413-10277

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

This comment consists of an attachment containing excerpts of a letter sent from the Acton Town Council to the Authority in 2016. This attachment was first introduced in comment #10266 of this submission as Attachment 3. In this previously submitted material, the commenter is concerned about the validity of the FRA noise impact criteria and about operation noise impacts to sensitive receptors, amongst other things. Please refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors and responses to comment #10245 and #10266 which address this and other issues, including the commenter's inaccurate independent assessment of impacts.

The comment also discusses several publications that appear in Section A.3 of the FRA Guidance Manual as "Relevant Literature" and argues that these publications only reflect an urban noise environment and, therefore, do not reflect the noise environment in Acton, and, seemingly, that because the FRA Guidance Manual's noise impact criteria are supposedly based on these publications, those criteria are not applicable to the Town of Acton. This logic, however, is flawed. First, the publications discussed by the commenter are not the totality of the literature consulted by the FRA when developing its criteria—they are noted in the FRA Guidance Manual as only "particularly relevant" but not as the definitive and dipositive resources for the creation of FRA guidance (FRA Guidance Manual, p. A-12). Indeed, the FRA Guidance Manual contains references to many other noise assessment resources within the body of the document (not relegated to an appendix) that the commenter does not discuss (see, e.g., footnotes on pp. 1-1, 2-1, 2-6, 2-8, 2-13, 2-14, 4-12, 5-6, 5-10, 5-13, 6-39). Second, some of the publications discussed by the commenter, per its assessment in this attachment, look at noise environments with existing noise levels that fall below the existing noise environment in Acton, which is between 57 and 60 dBA Ldn (see response to comment #10266). For example, per the commenter, the "'Schultz Curve'" included noise environments with levels as low as 45 dBA Ldn. The "U.S. EPA 'Levels Document" also looked at environments with existing noise levels at similarly low levels. This leads to the third flaw in the commenter's logic, the Acton noise environment does not align with standard rural

4413-10277

noise environments. For a discussion on this, please refer to response to comment #10266. Regardless, as stated in Standard Response PB-Response-N&V-1, "[t]he criteria are based on the best available data on human response to both absolute noise levels and changes in noise levels and are appropriate for urban, suburban, and rural areas."

The comment then asserts that the Authority has not developed credible noise impact criteria for assessing HSR impacts on animals. For a response to this comment, please refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife. Please note that the commenter's statement that "ALL of the proposed HSR alignments in Acton travel above ground through and over [domestic animal] facilities" is incorrect. The majority of the SR14A Build Alternative (the Authority's Preferred Alternative) would be underground.

In response to the comment that the Draft EIR/EIS is required to include noise contour maps, please refer to Standard Response PB-Response-N&V-1.

Submission 4414 (Jacqueline Ayer, Acton Town Council, December 1, 2022)

Palmdale - Burbank - RECORD #4414 DETAIL

Status :	Action Pending
Record Date :	12/1/2022
Interest As :	Business and/or Organization
First Name :	Jacqueline
Last Name :	Ayer
Attachments :	ATC, ADTC Joint Comment Letter on CHSRA DEIR-DEIS Utilities Section - signed.pdf (197 kb) Final Comments on Utilities Section.pdf (11 mb)

Stakeholder Comments/Issues :

PLEASE CONFIRM RECEIPT

To the California High Speed Rail Authority;
Attached please find comments submitted jointly by the Acton Town Council and the Agua Dulce Town Council pertaining to the "Public Utilities and Energy" impact analysis (Section 3.6) of the Draft Environmental Impact Report/Environmental Impact Statement issued by the California High Speed Rail Authority for the Palmdale-Burbank Section of the High Speed Rail Project.
Please contact the Acton Town Council at atc@actontowncouncil.org if you have difficulties opening the attached or require additional information.
Hard copies of the attached comments have also been submitted via USPS.

Sincerely,
Jacqueline Ayer
Correspondence Secretary

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P.O. Box 810, Acton CA 93510

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December 1, 2022

California High Speed Rail Authority
Southern California Regional Office
355 S. Grand Avenue, Suite 2050
Los Angeles, CA 90071
Electronic Transmission of 119 pages to
Palmdale_Burbank@hsr.ca.gov

Subject: Acton Town Council and Agua Dulce Town Council Joint Comments on Section 3.6 of the Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement.

Reference: Notice of Notice of Availability/Notice of Public Hearing for the California High-Speed Rail – Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement Issued September 2, 2022.

To the California High Speed Rail Authority;

Attached please find comments submitted jointly by the Acton Town Council and the Agua Dulce Town Council on Section 3.6 of the Draft Environmental Impact Report/Environmental Impact Statement prepared for the Palmdale to Burbank Project Section of the California High Speed Rail Project. If you have any questions or require further information, please contact the Acton Town Council at atc@actontowncouncil.org.

Sincerely,

Jeremiah Owen, President
The Acton Town Council

Don Henry
Don Henry, President
Agua Dulce Town Council – 2022

Hardcopy sent via USPS

cc: Rick Simon, Engineering Manager, Palmdale-Burbank Section [Rick.Simon@hsr.ca.gov]
Genoveva Arellano, Principal; Arellano & Associates [GArellano@arellanoassociates.com]

"Our lives begin to end the day we become silent about things that matter" Martin Luther King, Jr.

4414-8402

ANALYSIS OF THE "PUBLIC UTILITIES AND ENERGY" SECTION PRESENTED IN THE PALMDALE-BURBANK DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT.

1.0 INTRODUCTION

The utilities and energy impact assessment presented in Chapter 3.6 of the Draft Environmental Impact Report/Environmental Impact Statement (hereafter referred to as "the Draft") that was prepared by California High Speed Rail Authority ("CHSRA") and the Federal Railway Administration ("FRA") for the Palmdale-Burbank Segment of the High Speed Rail Project ("Project") has been evaluated and numerous material deficiencies, factual errors and other substantial insufficiencies have been identified. These deficiencies, errors, and insufficiencies are set forth in the comments provided below; they demonstrate that the Draft does not comply with either the California Environmental Quality Act ("CEQA") or the National Environmental Protection Act ("NEPA"). Please note: These comments were prepared by a competent engineer with more than 35 years of environmental engineering experience and they present expert opinion supported by fact pertaining to the significant environmental effects that will be caused by the Project and which must be mitigated. Accordingly, the comments provided herein constitute "substantial evidence" as that term is defined by the CEQA Statute [California Public Resources Code §21080(e)(1)] and Guidelines [California Code of Regulations Section 15064(f)(5)]. These comments also demonstrate that CHSRA/FRA have failed to conduct a substantive 'hard look' review of the Project's environmental impacts as required by NEPA.

2.0 MAJOR DEFICIENCIES NOTED IN THE DRAFT

4414-8403

2.1 The Draft Fails to Properly Account for Project Water Sources and Water Supply.

All of the alternative routes proposed for the Project will involve extensive tunnel construction and require significant volumes of water to cool the drill heads, transport "spoils", and maintain necessary equipment operations. Construction at each tunnel portal will require two Tunnel Boring Machines ("TBMs") operating in parallel to produce the twin tunnels that are necessary to accommodate the 462 train trips per day that are projected to occur between Palmdale and Burbank[1], and according to Page 3.6-78 of the Draft, each TBM will require 366 acre-feet per year (approximately 1 acre-foot per day). The SR14A and Refined SR14 route alternatives will involve four TBMs operating simultaneously in Acton and Agua Dulce and all the "E-Route" alternatives will involve two TBMs operating simultaneously from Acton[2]; accordingly, Project water demand during construction in Acton and Agua Dulce will be at least 732 acre-feet per year, and could be as much as 1,464 acre-feet per year. Both NEPA and CEQA

[1] Page 3.4-23 states (with emphasis added) "For the Palmdale to Burbank Project Section, it is assumed that there would be 189 trains per day *in each direction* during the daytime hours (7:00 a.m. to 10:00 p.m.), 28 trains per day *in each direction* during the nighttime hours (10:00 p.m. to 7:00 a.m.), and 14 trains *in each direction* during the peak hours"; these data indicate that 231 daily train trips are projected to occur *in each direction*. Therefore, the Project will result in 462 train trips through Acton each day.

[2] The SR14A alternative and the Refined SR14 alternative will have two TBMS drilling from Acton towards Palmdale and two TBMs drilling from Agua Dulce towards Acton; all the "E-Route" alternatives will have two TBMs drilling from Acton towards Burbank.

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require that CHSRA properly account for all the water resources needed for the Project and address the environmental impacts resulting from obtaining these water resources and distributing them throughout the project area; unfortunately, the Draft does not meet this requirement.

2.1.1 The Draft Incorrectly Presumes that Sufficient Water Resources will be Available from the State Water Project for Tunnel Construction in Acton and Agua Dulce.

Table 3.6-21 of the Draft asserts that project construction on the Central section (where the Communities of Acton and Agua Dulce are located) will rely on water resources supplied by the Antelope Valley-East Kern Water Agency ("AVEK") and according to Table 3.6-10, AVEK obtains water allocations from the State Water Project ("SWP") to serve an average annual water demand of 56,400 acre-feet per year. Additionally, Table 3.6-21 asserts that AVEK can supply its customers with 46,750 acre-feet of water under "Single Dry Year" circumstances and 74,350 acre-feet under "Multiple Dry Year" circumstances; these data suggest that it is reasonable to infer that AVEK is capable of supplying all the water required for project construction activities in Acton and Agua Dulce. However, the data presented in Tables 3.6-10 and 3.6-21 are incorrect; in fact, for the last several years, AVEK has only received 7,242 acre feet per year from the SWP, which is only 5% of the allocation it is supposed to receive[3]. Furthermore, the meager allocation that AVEK receives each year is already largely subscribed by the hundreds of thousands of customers in East Kern County and North Los Angeles County that AVEK already serves. In other words, the AVEK water resources which the Draft asserts will be available for Project construction do not actually exist and, contrary to what is presumed in Tables 3.6-10 and 3.6-21, AVEK does not demonstrably have the water resource capacity required to supply the nearly 1,500 acre-feet per year needed to construct the preferred SR14A Alternative.

Page 3.6-77 presents conclusions regarding water supply impacts created by the Project which suggest that CHSRA appears to understand that AVEK does not reliably receive water allocations from the SWP and that AVEK may not have water resources that are sufficient to serve CHSRA's construction needs (particularly during "dry years") because it states "the impact from construction water demand is conservatively assumed to result in a significant impact under CEQA". Unfortunately, the mitigation measure that addresses this significant impact (which is referred to as PUE MM#1 and merely consists of developing a plan after the Project is approved and securing additional water allocations from water agencies[4]) is completely infeasible and therefore deficient. For instance, SWP allocations are restricted by State Law and are based on extant environmental circumstances in the Sacramento Delta; thus, it is impossible for CHSRA to unilaterally obtain additional water supply allocations from the SWP. PUE MM#1

[3] https://www.avek.org/dwr-announces-5-allocation-for-swp-contractors. AVEK does not have higher water allocations during "Multiple Dry Years" than "Single Dry Year"; Department of Water Resources cuts water allocations with successive "Dry Years". Accordingly, Table 3.6-21 can be accorded no weight.

[4] PUE MM#1 states "The Authority will prepare an updated water supply analysis for the selected Build Alternative that identifies the detailed water supply needs for construction. Based on the results of this water supply analysis, the Authority would coordinate with relevant water agencies to determine if allocations for additional water supply are needed for construction. In the event that additional water supply is needed from the State Water Project, the Authority shall pay the water agencies its fair share of the State Water Project fees (per acre-foot of their allocations), which are used for constructing and operating the State Water Project conveyance facilities. In addition, the Authority will be required to utilize non-potable water during construction, to the extent feasible." (Page 3.6-90).

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also presumes without basis that the SWP has excess water resources which will be made immediately available to CHSRA upon request, when in fact nothing could be further from the truth. In other words, *CHSRA cannot purchase water allocations that do not exist*. Moreover, if CHSRA uses some sort of preemptive power to force water agencies to sell water which is intended for residential and municipal purposes, this will produce profound water shortages on the communities that have had their water "co-opted" for Project construction purposes. In short, implementing mitigation measure PUE-MM#1 by compelling AVEK to provide water for Project construction will result in significant environmental impacts on the municipal water customers who will have their water service cut by AVEK; these impacts are completely ignored by the Draft, therefore PUE-MM#1 is deficient and does not comply with CEQA or NEPA.

PUE-MM#1 also establishes that CHSRA will be ***required*** to utilize non-potable water for tunnel construction "to the extent feasible"; this means that AVEK water will not be used for tunnel construction in Acton and Agua Dulce. The Draft fails to explain the contradictions this mitigation measure contains (stating on the one hand that AVEK water will be used, and on the other, that groundwater will be used). It also does not describe what these non-potable water sources are and it certainly provides no indication of what factors will be considered in determining the "feasibility" of using non-potable water resources. Non-potable water generally comes from two sources: partially treated municipal (sewage) wastewater or untreated groundwater extracted from local groundwater basins. If the former is used for tunnel construction, it will result in the direct injection of partially treated sewage water into the ground where it will contaminate (and thus have significant adverse impacts on) all the aquifers, perched water, and other groundwater resources that the tunnel passes through. The Draft is substantially deficient because it fails to address the significant environmental impacts that this would have on local groundwater quality and the rural residents with residential wells who rely on these groundwater resources for drinking water. Notably, there are no municipal wastewater facilities located in Acton or Agua Dulce or anywhere else in the vicinity of the 20+ mile long HSR routes proposed between Palmdale and Santa Clarita; so, there are no sources of partially treated municipal wastewater available for most of the Central section of the Project. Accordingly, it can only be concluded that local groundwater resources will be tapped to supply the non-potable water that is referenced in PUE-MM#1 for tunnel construction in Acton and Agua Dulce; this will involve constructing new groundwater extraction facilities and increasing groundwater extraction rates in the communities of Acton and Agua Dulce which, as discussed below, will introduce new and significant stresses on local groundwater supplies and directly affect well yields in rural communities where residents rely on individual domestic wells. Moreover, the groundwater quality in certain areas of Acton and Agua Dulce is highly variable and several areas experience high nitrate and arsenic levels which exceed adopted water quality standards[5]; if groundwater containing high nitrate or arsenic levels is utilized for tunnel construction, then nitrate contamination will occur in all the aquifers, perched water, and other groundwater resources through which the tunnels pass. Furthermore, using local groundwater resources to construct the E1, E1A, E2, and E2A routes at the "window" proposed on property owned by The Nature Conservancy in Soledad Canyon will have a profound effect on riparian

[5] Nitrate concentrations extracted from local municipal wells in Acton are reported in Attachment 1. Also, arsenic is found in Agua Dulce groundwater (in fact, "Agua Dulce" or "sweet water" in Spanish is an historic term for water contaminated with arsenic. A study conducted by the Los Angeles County Health Department indicates many wells in Agua Dulce have detectible levels of arsenic and in some wells, the presence of Arsenic exceeds the MCL of 10 ppb [http://file.lacounty.gov/SDSInter/bos/supdocs/65110.pdf].

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habitat and vernal pools in the Santa Clara River. In other words, mitigation measure MM PUE#1 is both impractical and infeasible because it 1) Relies on AVEK water resources that do not exist; and 2) it will result in significantly adverse environmental impacts to local groundwater levels, groundwater quality, and rural drinking water resources. Moreover, none of these impacts are even mentioned in the Draft and they are certainly not addressed as required by CEQA and NEPA. The only way to avoid these impacts is to adopt a mitigation measure which asserts that Project construction will not rely on local groundwater resources and that tunneling will only be conducted using AVEK water resources during years when AVEK has water allocations which exceed their customer demand.

2.1.2 *The "Utilities Relocation Plans" Provided by the Draft Contradicts the Draft's Claim that AVEK Water Will be Used for Tunnel Construction in Acton and Agua Dulce.*

The intention expressed in Table 3.6-21 that construction on the Central section of the Project (where the Communities of Acton and Agua Dulce are located) will rely on AVEK water resources is utterly controverted by the "Utility Relocation Plans" presented in Volume 3 of the Draft which clearly demonstrate that CHSRA does not intent to utilize AVEK's water resources for constructing the central portion of the Project. Specifically, the "Utility Relocation Plans" definitively establish that CHSRA does not plan to connect to any AVEK facilities; they further indicate that local groundwater resources will be used for constructing all the Route Alternatives in Acton and Agua Dulce. For instance, Sheet UT-C4024-14A and Sheets UT-C4066-14A through UT-C4068-14A of the "Utility Relocation Plan" indicate that the water line serving the "Acton Window" construction site for the SR14A Alternative will originate in downtown Acton near an existing small waterline operated by Waterworks District 37 that connects to a local municipal well in the floodplain; there is no AVEK connection in downtown Acton. In fact, the nearest AVEK connection is located approximately 5 miles northwest of downtown Acton, and according to Sheet UT-C4013-14A, CHSRA does not intend to construct any water connections at that location. Similarly, Sheet UT-C4039-14A and Sheets UT-C4084-14A through UT-C4088-14A demonstrate that the water line that will serve the TBMs operating from the portal east of Agua Dulce Canyon Road to construct the SR14A and Refined SR14 Route alternatives will not connect to AVEK either; instead, the water line originates in the middle of Agua Dulce along Escondido Canyon Road. Sheets UT-C4031-E2, UT-C4032-E2, and UT-C4543-E2 through UT-C4547-E2 demonstrate that the water that will be used to operate the TBMs at the "Arrastre Canyon Window" location in South Acton for constructing all the "E" Route Alternatives will not come from AVEK either; instead, CHSRA will construct two new 16 inch water lines that originate at a location adjacent to the Santa Clara River floodplain near the intersection of Crown Valley Road and Arrastre Canyon Road where Waterworks District 37 has a small 12 inch water line that connects to a local municipal well to serve its customers. In other words, all of the "Utility Relocation Plans" presented in the Draft demonstrate that project tunneling and construction in Acton and Agua Dulce will rely on local groundwater resources either directly (by extracting water from the local basin) or indirectly (by connecting to Waterworks District 37 facilities that extract water from the local basin); this blatantly contradicts all the assurances provided in Section 3.6 that AVEK water resources will be used for tunnel construction in Acton and Agua Dulce. These contradictions provide abundant basis for legal challenge. It is not clear why Section 3.6 of the EIR/EIS substantially misrepresents material facts regarding the water resources that will be used for Project construction; the subterfuge is far too substantial to be a mere error. What is certain is that, the Draft neatly sidesteps the obligation imposed by CEQA and NEPA to assess potential environmental impacts

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on local groundwater quality, groundwater basins, and riparian habitat by declaring that Project construction along the Central section will rely on AVEK resources. This deception is unacceptable and substantial revisions are required to bring the Draft into compliance with CEQA and NEPA; the revisions must properly address the following significant environmental impacts that will result from using local groundwater for tunnel construction in Acton and Agua Dulce:

Impacts to groundwater levels: Many domestic well yields in Acton and Agua Dulce have been reduced over the last few years because of persistent drought conditions, thus extracting an additional 1,500 acre feet per year from local basins will further exacerbate these problems. This constitutes a significant environmental impact on all residents of Acton who rely on domestic residential wells for drinking water. The most recent complete hydrology study of the Acton groundwater basin is provided in Attachment 2 and is referred to hereafter as the "Slade Report"; it was conducted decades ago and thus does not reflect the severe drought conditions that Acton has experienced since 2008. According to the Slade Report, during years when precipitation occurs, the Acton drainage area can provide a groundwater recharge rate of 5,200 acre-feet per year or more. Unfortunately however, much of this groundwater recharge is already fully subscribed. For instance, and as indicated in Attachment 3: Waterworks District 37 has historically extracted up to 2,000 Acre-feet per year; it has also informed the community that it wishes to extract an additional 1,000 acre-feet pe year. Our local water hauling businesses that supply drinking water to residents who have dry or inoperable wells extract approximately than 400 acre-feet per year[6]. According to data obtained from the Los Angeles Regional Water Quality Control Board, the local "1000 Trails Campground" extracted approximately 400 acre-feet during 2020 when it was operating at only 25% because of COVID; at full operation, this campground (which is authorized to accommodate more than 10,000 campers[7]) will easily extract more than 1,200 acre-feet per year. Several thousand Acton residents rely on private domestic well that also pull from the Acton groundwater basin; these users are estimated to extract an additional 1,000 acre-feet per year. In total, these existing users in Acton's groundwater basin already use at least 5,100 acre-feet per year (2,000 from WWD37, 400 from the water haulers, 1200 from "1000 Trails" and 1,000 from domestic residential wells); thus, there is little excess capacity in the local groundwater basin to serve the Project's construction needs even during years when precipitation occurs. These statistics clearly demonstrate that there will be insufficient groundwater available to sustainably provide the water resources required for tunnel construction in Acton even during years when precipitation occurs; they also demonstrate that, under the drought conditions that Los Angeles County has experienced for the last 10 years[8], there is not even sufficient groundwater recharge to sustain existing uses. Accordingly, if the Project that CHSRA advances does rely on groundwater extraction to support tunnel construction in Acton and Agua Dulce, the EIR/EIS must be revised to include 1) a complete and accurate hydrology study of the Acton basin and

[6] The Conditional Use Permits ("CUPs") Issued to the Acton Water Company and the Lunde Water Company in 2021 limit each water hauler's extraction rate to 133 acre-feet per year. The Carson Water Company CUP is still pending, but it is assumed that it will also be limited to 133 acre-feet per year. Thus, the water haulers are presumed to collectively extract no more than 399 acre-feet per year from Acton.

[7] The CUP issued for the "1000 Trails" Campground authorizes more than 1,100 campsites and permits 10 campers per site.

[8] See the "U.S. Drought Monitor Map" for Los Angeles County provided in Attachment 4.

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the Agua Dulce basin that is based on projected drought conditions resulting from climate change and accounts for all existing uses in these basins; and 2) a detailed assessment of the effects that Project construction will have on groundwater levels in the Acton basin and the Agua Dulce basin.

Impacts to Residential and Municipal Wells in Acton and Agua Dulce: The results of the hydrology study described above must be used to assess the significant environmental impacts that the Project will have on residential and municipal well operations and local groundwater quality profiles. For instance, according to the statistics presented above, the Project will adversely impact local well yields because it will extract an unsustainable amount of groundwater from the basin; this concern must be addressed. Also, because the Project will essentially "compete" with domestic and municipal wells for scarce groundwater resources, it could result in contaminant migration within the basin which may cause local wells that currently produce relatively clean and potable groundwater to produce less clean (and perhaps even undrinkable) water. Also, the Project could introduce new contaminants into new locations where contaminants currently do not exist; this circumstance would result from tunnel construction using non-potable groundwater extracted from areas that have high levels of nitrates, arsenic, or other contaminants. All of these impacts must be fully and properly addressed and mitigation measures offered.

Impacts to Perennial Streams and Riparian Habitat: Because the Project will re-locate groundwater from the extraction location to a tunneling location far downgradient, it has the potential to significantly impact ephemeral and perennial streams in the Acton-Agua Dulce area which will in turn affect riparian habitat and the endangered Unarmored Three Spine Stickleback in Arrastre Canyon and the threatened Red-Legged Frog in Aliso Canyon [50 CFR § 17.11]. All of these impacts must be fully addressed and proper mitigation measures offered.

Avoiding These Impacts: It would be preferable for the Project to simply avoid all the impacts described above rather than develop strategies to mitigate them. This can be easily achieved by 1) Revising PUE-MM#1 to preclude the use of local ground water and non-potable water resources for tunnel construction in Acton and Agua Dulce; and 2) by revising all the "Utility Relocation Plans" to show that the water lines constructed to serve all tunnel portals in Acton and Agua Dulce are connected exclusively to AVEK facilities.

2.1.3 Recent Statements by CHSRA Staff Assert that Local Groundwater will be Used Instead of AVEK Water Resources for Tunnel Construction in Acton and Agua Dulce.

At a meeting that occurred on November 4, 2022 between members of The Nature Conservancy, local landowners, and CHSRA engineers and representatives, it was announced that CHSRA will ***not*** rely on AVEK water for constructing the tunnels in Acton and Agua Dulce and that local groundwater resources will be utilized instead. This was a shocking announcement which utterly contradicts the analysis presented in Section 3.6 of the Draft; it was apparently motivated by the belief that it would be a "waste" to use clean water to operate the TBMs and that local residents do not wish CHSRA to use AVEK water for tunnel construction. CHSRA's announcement that tunnel construction in Acton and Agua Dulce will rely on groundwater resources also appears to have been made without regard for, or an understanding of, the impacts to local groundwater basins that will result from extracting nearly 1,500 acre-feet of groundwater per year (as described above). This is all exceedingly untenable,

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and contradictions between CHSRA's statements and the Draft must be resolved in the Final EIR/EIS in a manner which affirms without equivocation that only AVEK water resources will be used for tunnel construction in Acton and Agua Dulce. The Final EIR/EIS must also address the impacts that this will have on AVEK's customers if AVEK's allocation of SWP water resources is insufficient to serve the Project and all of AVEK's existing customers.

2.1.4 The Draft Fails to Address the Growth Inducing Impacts of the Extensive Water Distribution Facilities that will be Extended into Undeveloped Areas.

The Project will result in the construction of extensive new water distribution facilities and water infrastructure throughout numerous undeveloped and underdeveloped areas in the Communities of Acton and Agua Dulce, and CHSRA has asserted publicly that these facilities would be made available to the County Waterworks District to supply water for development projects. For instance, the two 16-inch water lines that are proposed for construction of all the "F" Route Alternatives in Acton will have the capacity to carry more than 3 million gallons of water per day through an area that has remained largely undeveloped due to limited water supplies. If these water lines are turned over to the local waterworks district after Project construction, they can (and will) be used to support new development. Accordingly, the water infrastructure required for Project construction will have growth inducing impacts in the rural communities of Acton and Agua Dulce; CEQA and NEPA demand that these growth inducing impacts be addressed, but they are completely ignored by the Draft. This deficiency must be corrected and the Draft revised to address these impacts.

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2.2 The Draft Fails to Consider Project Impacts to Private Water Systems.

The Draft fails to adequately address potential impacts to private drinking water systems or residential well facilities[9] *even though* CHSRA received hundreds of public comments at public workshops, meetings, and in written scoping comments which expressed concerns regarding impacts to private well systems and requesting that these impacts be addressed. The Project threatens private water systems in three different ways: 1) it will result in reduced groundwater levels if Project construction relies on local groundwater resources; 2) tunnel construction can actually destroy a well shaft and well infrastructure and render a domestic well inoperable; and 3) tunnel construction can alter the configuration of groundwater and perched water resources and in turn cause a domestic well to "dry up". It is *astonishing* that the Draft does not properly consider the domestic well concerns that were clearly expressed in extensive public comments made by many Acton and Agua Dulce residents and does not offer any mitigation measures to address them. These deficiencies are also discussed in detail in comments we have submitted in response to Section 3.8 "Hydrology and Water Resources" (which are hereby incorporated herein by reference and made a part hereof[10]). The Draft must be revised to incorporate the following elements to address the significant environmental impacts that the Project will have on private water systems and residential wells: 1) A clear

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[9] The impacts contemplated by the Draft are summarized on pages S-58 through S-82 of the Executive Summary; none of the impacts address private water systems or residential wells.

[10] Comments titled "ANALYSIS OF THE "HYDROLOGY AND WATER RESOURCES" SECTION PRESENTED IN THE PALMDALE-BURBANK DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT", pages 5-8.

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statement that there is insufficient evidence to conclude that the impacts of tunnel construction on private water systems, residential wells, and groundwater resources in Acton and Agua Dulce will be less than significant; and 2) A mitigate measure to address the impacts of tunnel construction on private water systems, residential wells, and groundwater resources in Acton and Agua Dulce which includes an "Adaptive Management and Monitoring Plan" ("AMMP") that establishes protocols to determine baseline conditions of ground water levels at all wells in Acton and Agua Dulce that are located within ½ mile of any tunnel and detects changes in groundwater conditions at these locations which are related to tunnel construction to ensure timely implementation of remedial measures; these remedial measures must include supplying supplemental water to all affected well owners until baseline levels are restored or drilling new wells that comply with all applicable local and state requirements.

The primary purpose of "Scoping" in both CEQA and NEPA is to inform the Lead Agency regarding significant impacts of a Proposed Project that are not addressed or set forth in the Notice of Intent; accordingly, the Lead Agency is supposed to identify these impacts in the environmental review, assess their significance, and mitigate them. The Draft makes no mention of the residential well impact concerns raised by the public during Project Scoping and it certainly does not offer any mitigation measures. The Final EIR must correct these substantial CEQA and NEPA violations by 1) clearly identifying the adverse impacts that Project construction will have on residential wells; 2) establishing a "threshold of significance" in which the impact is considered significant if a single well is affected by project construction; and 3) adopting the mitigation measure described to groundwater levels and well yields and for all wells within 1/mile of reduce impacts on private water systems, residential wells, and groundwater resources in Acton and Agua Dulce to a level that is less than significant.

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2.3 The Draft Improperly Directs the Project's Stormwater Runoff Facilities to be Used for Wastewater Treatment.

The Draft address wastewater impacts during construction on pages 3.6-78 to 3.6-79, and it concludes that wastewater impacts will be less than significant because two "impact avoidance and minimization features" (HYD-IAMF#1 and HYD-IAMF#3) will be implemented and because the project will adhere to applicable dewatering regulation permitting requirements; this will ensure that "dewatering discharges during construction would not contribute to exceedances of water quality standards". This conclusion is erroneous for several reasons. First, HYD-IAMF#1 and HYD-IAMF#3 apply to stormwater runoff and require the development of stormwater management facilities and the implementation of a "Stormwater Pollution Prevention Plan" (SWPPP)[11]; they are not relevant to, and have nothing to do with, wastewater treatment. Stormwater is merely rainwater that lands on the earth and flows downhill, and in rural communities like Acton where there are few impervious areas, stormwater is generally clean with few contaminants other than sediment. Wastewater on the other hand is process water that is contaminated with oils, chemicals, and other constituents

[11] HYD-IAMF#1 is "Stormwater Management—This IAMF describes the Authority's commitment to coordinate with the contractor to prepare a stormwater management and treatment plan, prior to construction" and HYD-IAMF#3 is "Prepare and Implement a Construction Stormwater Pollution Prevention Plan—This IAMF describes the Authority's commitment to coordinate with the contractor to comply with the SWRCB Construction General Permit requiring preparation and implementation of a SWPPP, prior to construction (ground disturbing activities). See page 3.8-11.

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and it generally requires substantially more processing that rainwater to render it clean. In other words, "wastewater" and "stormwater" are two very different and completely unrelated project impacts that the Draft has improperly conflated; CHSRA cannot rely on the relatively small capacity of, and the limited treatment capabilities provided by, the Project's stormwater management facilities or its SWPPP to treat the significant wastewater volumes that will be generated at each tunnel portal location. For example, consider the "Acton Window" location that will occupy approximately 330,000 square feet; the capacity of the stormwater runoff facilities that will be required to accommodate a "1 inch" rain event at this location is only 27,500 cubic feet; this is a small fraction of the 130,000 gallons of wastewater that will be generated every day during tunnel construction at the "Acton Window"[12]. In other words, stormwater treatment facilities do not have either the capacity or the infrastructure required to properly clean the significant volumes of process wastewater that will be generated during construction; accordingly, the Draft errs in presuming that stormwater treatment facilities will mitigate wastewater impacts to a level that is "less than significant".

Second, meeting water quality standards is not the only factor that is relevant to determining whether wastewater impacts during construction will be less than significant; this is particularly true in rural areas where adverse impacts on downstream properties can be significant if the character, location, or flowrate of either stormwater or wastewater discharges result in new runoff patterns/conditions. The "Best Management Practices" (BMPs) and SWPPP measures that are described on page 3.6-79 may be perfectly reasonable for treating stormwater runoff in urban areas where the land surface is almost completely impervious and where extensive concrete drainage facilities capture and divert stormwater to large concrete-lined channels which carry the water to the ocean, but they are entirely inappropriate in rural communities like Acton where nearly all the roads are dirt and where natural drainage courses are relied upon almost exclusively because runoff infrastructure is virtually non-existent (as discussed in more detail below). The BMP described on page 3.6-78 is particularly alarming because it states that CHSRA will "minimize discharges of sediment" from all the tunnel construction sites; this means that CHSRA will discharge clean, "sediment free" wastewater and stormwater into the natural drainages surrounding the construction sites in Acton and Agua Dulce. These "sediment free" discharges will flow into the adjacent natural drainage courses and pick up sediment as they gain speed and flow toward the Santa Clara River[13]. Because this "sediment free" water will pick up sediment as it flows, it will cause significant erosion on the properties that are downstream of all tunnel portal and "window" construction locations. This will pose significant adverse erosion impacts on structures and residences located downstream of Project construction sites. For example, and as indicated on Sheets UT-C44023-14A and UT-C44024-14A, the "Acton Window" construction site is adjacent to, and immediately uphill from, an entire residential neighborhood and, as indicated in the drainage map provided in Attachment 5, there are several drainages across the "Acton Window" site that pass very close to the homes that are immediately south of, and downhill from. the construction site. If the BMPs

[12] Two TBMs will be operating from the "Acton Window", and according to page 3.6-78, each TBM will require 366 acre-feet per year; this will result in 653,500 gallons per day used at the "Acton Window". According to page 12 of Appendix 3.8-D, 20 percent of this water (or 130,700 gallons per day) will flow back and require treatment as contaminated wastewater.

[13] This is the principal characteristic of "two phase flow" conditions: clean water flowing over a natural surface will pick up sediment from the surface until an equilibrium is reached; the equilibrium is a measure of the sediment transport capacity of the flow.

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and SWPPPs described in the Draft are employed at the "Acton Window" site, then the drainage channels adjacent to these homes will be widened by erosion to such an extent that these homes will be substantially damaged. Similar problems are likely to occur at other tunnel and "window" construction sites located in rural residential areas. Accordingly, CHSRA must not utilize the BMPs and SWPPP measures that are described in the Draft in rural communities like Acton; instead, they must devise new BMPs for rural areas which provide discharges with sediment levels that are at equilibrium to prevent erosion on downstream properties.

2.4 The Draft Does Not Properly Describe Stormwater Runoff Characteristics in Rural Areas or Accurately Portray Conditions in Acton and Agua Dulce.

The Draft asserts on page 3.6-51 that "Generally, storm drain systems are more prominent in developed urban areas. In rural areas, roadside ditches, irrigation canals, and natural drainages convey stormwater runoff." This description of storm runoff characteristics in rural areas does not clearly reflect circumstances in most of Acton. Runoff patterns in much of Acton have remained unchanged for millennia; stormwater is typically sediment laden (because Acton is surrounded by mountains and most roads are dirt, thus rainwater runoff picks up and carries sediment down the hillsides to the Santa Clara River), it is generally not "conveyed" anywhere (because it flows naturally toward the Santa Clara River) and drainage paths in Acton are not irrigation canals or roadside ditches (though in some places the flood plain and drainage paths are adjacent to paved roadways). In a few areas, concrete v ditches have been installed to direct stormwater flows, but such facilities have caused terrible erosion problems on downhill properties because they remove sediment from the runoff and release "clean" water which picks up sediment as it flows downhill and thus erodes downhill properties (the Forecast Home development along Desert Road is an area where this is a particular problem).

Drainage patterns have generally dictated where development has occurred in Acton over the last 135 years; thus, to protect existing developments, it is critical that drainage patterns and characteristics remain unchanged. This, coupled with the fact that the only forces which alter drainage patterns in Acton are development and earthquakes, is why the community generally opposes stormwater "conveyance" facilities and works diligently to ensure that developments do not alter runoff patterns or characteristics. There are culverts under a few paved roads (the 14 Freeway, Escondido Canyon Road, Sierra Highway, and Soledad Canyon Road) but these culverts are located where natural flows occurred before the roads were built and they do not have sediment removal facilities; they simply carry sediment laden flows from one side of the road to the other and do not cause erosion or generally alter flow patterns. It is particularly important that the Final EIR clearly assert that the Project will not alter any stormwater runoff patterns or characteristics in Acton because of the devastating impact that such alterations would have on downstream properties. This is particularly true for the "Acton Window" location that will be constructed under the "preferred" SR14 A alternative because the residential neighborhood located just south of, and downhill from, the location has been configured with dirt roads and designed to accommodate existing flow patterns and characteristics. Any increase in flowrate or change in flow pattern will threaten these homes with inundation, and any decrease in sediment levels will threaten these homes with erosion. As indicated in the drainage map for this location provided in Attachment 5, homes are located near natural drainage swales that have not changed in many decades; the EIR must clarify that these drainage patterns and characteristics will be preserved.

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2.5 The Energy Impact Analysis Provided by the Draft is Substantially Deficient and Violates Both CEQA and NEPA.

Various statements and conclusions regarding electrical generation capacities, transmission capacities, natural gas capacities, and other "energy issues" are spread throughout Section 3.6 of the Draft, but they are internally inconsistent, rambling, and fail to address salient issues required by CEQA. For instance, the section titled "Existing Electric Power Generation Capacity" states that, as of 2017, California had an installed in-state generation capacity of 292,039 GWhr. However, this is contradicted by the paragraph above this section which indicates that, in 2016, California's in state generation capacity was only 195,027 GWhr (70,857 GWh from governmental and utility-owned in-state facilities and 124,170 GWh from commercial in-state generation facilities). It is known with certainty that the State of California did not add more than 100,000 GWhr of generation capacity between 2016 and 2017, so one of the values reported by the Draft is erroneous. It is assumed that the error is in the 292,039 figure which appears to represent "Nameplate" generation capacity rather than *actual* generation capacity. CEQA requires that a discussion of the energy demand and energy resources that are required to support a Project be realistic and "actual"; thus, CEQA conclusions pertaining to energy issues should never be based on "nameplate" generation capacity. This is particularly true for renewable resources which typically have "nameplate" generation capacities that are much higher than their *actual* generation capacities[14].

Section 3.6 also fails to provide the information required to conduct a thorough CEQA and NEPA energy impact analysis; it also fails to assess whether Project operations can be accommodated by existing and planned generation resources or whether it will affect statewide electricity reserves and transmission capacity or whether Project operation will require the addition of more generation and transmission capacities than what is already planned. This is particularly important given that CHSRA has stated that the Project will operate using 100% renewable energy; this will be very challenging given that there are insufficient renewable resources available to serve existing and projected energy demand (let alone satisfy the Project's energy requirements). The Draft must be revised to include a renewable energy assessment that complies with CEQA and NEPA; this will require an analysis of the following factors: 1) A realistic assessment of what the projected "non-Project" electrical generation capacity will be when the Project comes on line and when it is operating at "full buildout"; 2) A realistic assessment of what the projected "non-Project" electrical demand will be when the Project comes on line and when it is operating at "full buildout"; and 3) A realistic assessment of the Project's electrical demand when it comes on line and when it achieves full buildout. These factors must be reconciled to assess whether Project operations will require additional renewable generation beyond what is planned. It is likely that this analysis (if properly conducted[15]) will reveal that there will not be sufficient renewable generation capacity available

[14] A 1 MW wind turbine can theoretically generate 8,760 MWhr/year; thus, it has a very high "nameplate" generation capacity. However, high winds do not always blow and mechanical equipment is not always efficient; so the *actual* generation capacity of a wind turbine is much lower than the nameplate capacity. Many windturbines have capacity factors ≤ 30% [https://windexchange.energy.gov/maps-data/332].

[15] Specifically, the "non Project" electrical demand (factor 2) should be added to the Project's expected electrical demand (factor 3) and this sum should be compared to the projected "non-Project" electrical demand (factor 1); if the sum exceeds factor 3, then there will not be sufficient renewable generation capacity available to serve the Project when it comes online.

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to serve the Project when it comes online, and if so, the Final EIR must assess the environmental impacts that will result from creating the additional renewable generation capacity required for Project operation. This number will not be small: as indicated above, the Project is anticipated to result in more than 462 trips per day between Palmdale and Burbank. Unfortunately, the Draft fails to provide a CEQA/NEPA-compliant energy analysis; it also fails to provide the information necessary to perform such an analysis. Instead, the Draft simply declares (without basis or quantitative justification) that the Project will "not affect statewide electricity reserves or transmission capacity" because the will just "obtain electricity from the statewide grid" (page 3.6-86). Merely stating that the Project will not impact the State's electrical system does not meet CHSRA's burden to *demonstrate* that it will not. And, given that California's current energy landscape is so anemic and so inadequate that it is demonstrably incapable of reliably serving Californians today[16] it is profoundly likely that the substantial amounts of renewable electricity which will be required to operate the Project will indeed worsen California's electrical grid problems.

The Draft ignores all of this, and instead merely contends that the Project will "not affect statewide electricity reserves or transmission capacity" because "An industry survey in April 2013 indicated that there is sufficient renewable energy capacity to meet the system demand" (page 3.6-86). Notably, this "industry survey" is not included in the studies posted with the Draft, so the claim that the Project will "not affect statewide electricity reserves or transmission capacity" is unverifiable. Furthermore, in 2013, California only required 20% of electricity retail sales to be served by renewable resources; thus, any survey conducted in 2013 would reflect this low renewable energy target, and at that time, it could reasonably conclude that there would be sufficient renewable capacity to serve the Project. Now however, California has much more aggressive renewable energy goals[17] which the state is struggling to meet[18]; accordingly, there will be no surplus renewable generation capacity available to serve the Project and the Draft errs substantially in assuming that there will be. In other words, CHSRA's obligation to address the Project's impacts on local, regional, and statewide grid operations is not satisfied by a mere citation to some vague "industrial survey" conducted a decade ago that is not even available to the public and which presumes an energy landscape that simply does not exist. Oddly enough, the Draft obliquely admits that Project operations will require the development of significant amounts of new renewable energy resources because it states on page 3.6-86 that CHSRA is developing an entire "renewable energy procurement plan" requiring "extensive collaboration" to ensure sufficient power procurement. This suggests that Project operations will require the development of extensive new renewable resources; thus, CEQA and NEPA demand that impacts resulting from these renewable energy developments be assessed and mitigated.

This is no small thing; because the State of California has chosen to achieve its renewable goals via energy procurements from remote, utility-scale renewable energy farms rather than relying on more reliable, more resilient, and more environmentally responsible distributed generation facilities, hundreds of thousands of acres of desertland has already been decimated

[16] For several years now, brownouts and blackouts are routinely threatened during the summer because California has insufficient generation resources to meet energy demand. These facts must be represented in the Final EIR.

[17] SB100 (adopted 2018) requires 100 percent of electric retail sales be renewable/zero-carbon in 2045.

[18] Because electrical supply does not meet demand, Californians are threatened with Summer blackouts.

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and massive new transmission facilities have already been constructed through high fire hazard areas[19]. This is an ongoing trend which will eventually eliminate millions of acres of desertland. Accordingly, and given CHSRA's stated intent to develop a renewable energy procurement plan in order to secure sufficient renewable energy to operate the Project, it is certain that the Project will result in substantial decimation of desert resources. Both CEQA and NEPA require that the Project EIR address and mitigate the impacts associated with developing the utility scale renewable energy resources required to serve the Project.

3.0 ADDITIONAL SUBSTANTIVE DEFICIENCIES NOTED IN THE DRAFT

For simplicity and to facilitate review, additional deficiencies and factual errors noted in the Draft are presented sequentially by page number below.

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Page 3.6-10 identifies the Los Angeles County General Plan as a community plan that is pertinent to public utility issues addressed in the Draft, but it only identifies the "Public Services and Facilities Element" of the General Plan as being relevant; it fails to consider other equally important plan elements that pertain to utility issues (particularly in regards to water uses). For instance, and as indicated above, CHSRA has evinced a clear intent to substantially rely on local groundwater resources to construct all the tunnels for all 6 proposed routes through Acton and Agua Dulce; CEQA demands that CHSRA's plan to utilize local groundwater resources be evaluated through the lens of applicable goals and policies that have been adopted by the County but are omitted from consideration on Page 3.6-10. For example, Goal C/NR 6 (Protected and usable local groundwater resources) and Policy C/NR 5.6 (Minimize point and non-point source water pollution) should both be considered; they are from the Conservation and Natural Resources Element of the County General Plan. Goal C/NR 6 is relevant because the residents of Acton and Agua Dulce rely on local groundwater resources for their water supply; thus, protecting local groundwater resources in a sustainable manner is critical to our communities. Over the years, the "depth to groundwater" measured by the local waterworks district in Acton has increased and Acton and Agua Dulce residents have experienced reduced well yields and been forced to supplement their water supply by purchasing water from licensed water haulers; CHSRA's plan to utilize local groundwater for Project construction will further strain local groundwater resources and thus exacerbate this already significant problem. Accordingly, the Final EIR must address Goal C/NR 6 and assess Project impacts resulting from the use of local groundwater supplies to operate the TBMs. Additionally, General Plan Policy C/NR 5.6 pertaining to the minimization of point and non-point source water pollution is also relevant because contaminants will be distributed throughout the project area if groundwater containing excessive with nitrates or arsenic concentrations are utilized for TBM operations because the TBMs will pierce water channels and aquifers that serve as both public and private drinking water sources and inject unclean water directly into these groundwater sources. Accordingly, the Final EIR must address Policy C/NR 5.6 in assessing the impacts of TBM operation on

[19] The State of California intends to achieve its renewable energy goals via utility scale generation rather than distributed generation. For example, consider the map prepared by the California Energy Commission ("CEC") [Attachment 6] showing where streamlined approvals for renewable energy development is expressly encouraged; the map demonstrates that the CEC recommends that virtually all of unincorporated Antelope Valley be converted to renewable energy purposes. The lands earmarked for renewable projects currently support thriving wildlife and numerous rural communities; the CEC did not assess the impacts that these massive industrial energy projects will have on rural residents or the extent to which the stripping and fencing of huge tracts of land will decimate habitat and wildlife corridors.

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drinking water systems. Finally, the Draft fails to identify the Antelope Valley Area Plan or discuss its relevance to the Public Utilities section of the Draft; the policies that are particularly relevant include Policy COS 2.7 (Limit use of groundwater sources to their safe yield limits) and Policy COS 3.5 (Protect underground water supplies by enforcing controls on sources of pollutants); the relevance of these policies to the public utility issues related to the Project is self-evident. Accordingly, the Draft must be expanded to address Antelope Valley Area Policies.

4414-8408

Page 3.6-10 discusses the Los Angeles County General Plan but it does not specifically identify Policy PS/F 6.6 pertaining to the undergrounding of new utilities; in fact, the Draft only addresses this Policy in a very rudimentary and cursory manner because it only commits to undergrounding *relocated* utilities to the extent feasible [20] and makes no commitment to underground any *new* utility infrastructure that will be constructed for the Project. This is a substantial deficiency that is of particular concern to the Communities of Acton and Agua Dulce which are located in Very High Fire Hazard Severity Zones (VHFHSZs) and experience frequent and lengthy power shutoffs by Southern California Edison. The Project must not result in the construction of new electrical facilities in the Communities of Acton and Agua Dulce that are located above ground for two critical reasons: 1) above ground electrical utilities pose a very real and significant fire risk in VHFHSZs; and 2) above ground electrical utilities are susceptible to frequent power shutoffs that can last for days[21] and which will cause extensive service interruptions on HSR lines. Accordingly, the Final EIR must adopt a mitigation measure stating definitively that any above ground electrical facilities that are constructed in the Communities of Acton and Agua Dulce as part of the Project shall be installed underground. The new 230 kV line that is proposed in Northeast Acton is of particular concern because it will be constructed in a new "right of way" and it introduces a new ignition source within the Community of Acton. To ensure consistency with Policy PS/F 6.6, this new 230 kV line must be undergrounded.

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Page 3.6-13 addresses Project consistency with adopted County and local plans, and it defers to a "consistency analysis" presented in Appendix 2-H which concludes that the Project is consistent planning documents pertaining to the County of Los Angeles [pages 2.0-H-10 to 2.0-H-12]. However, the consistency analysis presented in Appendix 2-H is deficient. First, it does not even mention Goal C/NR 6 from the County General Plan or Policy COS 2.7 from the Antelope Valley Area Plan pertaining to protected and usable local groundwater resources which (as discussed above) are particularly relevant to Acton and Agua Dulce. Using local groundwater resources in Acton and Agua Dulce to operate the TBMs will conflict with Goal C/NR 6 and Policy COS 2.7; accordingly, these conflicts must be addressed and mitigation measures must be developed to resolve them. Second, Appendix 2-H does not even mention Policy C/NR 5.6 from the County General Plan or and Policy COS 3.5 from the Antelope Valley Area Plan pertaining to the protection of water supplies from pollution. Using non potable water for TBM operation will conflict with Policy C/NR 5.6 and Policy COS 3.5; accordingly, these conflicts must be addressed and mitigation measures must be developed to resolve them.

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Page 3.6-14 asserts that the goals and policies enumerated in various county and city General Plans which apply to the Draft's discussion of "Public Utilities and Energy" relate to "reducing demands for natural resources, ensuring that public infrastructure is developed so that sufficient

[20] Appendix 2.0-H-12.

[21] Most power shutoffs in Acton last more than 20 hours and often range from 36-48 hours.

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4414-8410

utilities are provided for the regional growth anticipated, and conserving energy". This statement is incorrect. As indicated above, there are a number of goals and policies in planning documents that have been adopted for unincorporated Los Angeles County which address protection of drinking water source, groundwater supplies, fire hazards, and electrical reliability and thus are directly applicable to "Public Utilities and Energy" matters. Page 3.6-14 must be revised to address these goals and policies which are entirely unrelated to "reducing demands for natural resources, ensuring that public infrastructure is developed so that sufficient utilities are provided for the regional growth anticipated, and conserving energy".

4414-8411

Page 3.6-14 asserts that "the project is consistent with the majority of regional and local policies and plans" and that "IAMFs (Impact Avoidance and Minimization Features) and mitigation measures will generally minimize utilities impacts and would ultimately meet the overall objectives of the local policies". This statement is incorrect. If CHSRA uses local groundwater supplies in Acton and Agua Dulce to supply water for TBM operation or if CHSRA does not underground all new and relocated utilities in Acton and Agua Dulce, the Project *will not* "meet the overall objectives of the local policies"; to the contrary, it will actively controvert such policies. Such circumstances would constitute a significant impact under CEQA and would require mitigation to render the project consistent with adopted "local policies".

4414-8412

Page 3.6-18 addresses "Utility Demands for Project Construction" and asserts that water supply estimates are compared to water supply forecasts from Urban Water Management Plans ("UWMPs). However, no UWMP has ever been prepared for the communities of Acton and Agua Dulce, therefore CHSRA lacks the information it requires to accurately assess water supply estimates for approximately half of all the route alternatives. This deficiency must be corrected and the Final EIR must property assess utility demands for project construction and compare it to accurate and representative data pertaining to water resource availability.

4414-8413

Page 3.6-19 presents Table 3.6-4 which asserts each TBM will require 55,000–105,000 gallons/day per tunnel boring machine; this equates to 0.17 - 0.32 acre feet per day or 61 – 117 acre feet per year. These values are inconsistent with the values reported on page 3.6-78 which states that "each TBM operating from each twin tunnel portal would require a total of 1,829 acre-feet (366 acre-feet per year)". There is an enormous discrepancy between the TBM water requirements described on page 3.6-19 and the TBM water requirements described on page 3.6-78; this discrepancy must be explained and corrected.

4414-8414

Page 3.6-21 addresses "Construction Energy Uses" and though it describes how construction energy usage was estimated, it does not assert what the construction energy usage will actually be or whether local infrastructure in rural areas like Acton are sufficiently robust to serve the Project's energy demand during construction. Acton is served by a very small electrical substation that is fed by two 66 kV subtransmission lines; power is distributed from this substation via three distribution circuits (<16 kV) which traverse Acton's 100 square mile area; power service is not always reliable and power shutoffs lasting 20 hours to 48 hours or more are common (particularly in the Fall and Winter). The Draft does not address these concerns, and it does not assess whether the capacity of the local Acton distribution station is sufficient to serve electrical demand for Project construction. Thus, the Draft fails to assess whether electrical service to Acton residents will be interrupted to maintain CHSRA's construction activities (particularly during peak demand); it also fails to identify mitigation measures to address such impacts. These deficiencies must be addressed in the Final EIR/EIS.

4414-8415

Page 3.6-21 also addresses "Operation Energy Uses" but it does not actually identify the amount of energy required to support high speed train operation (particularly given the projected 462 trips per day operating schedule between Palmdale and Burbank); it also fails to address whether the capacities of existing local and regional electrical facilities are sufficient to maintain Project operations. The CEQA Guidelines establish that EIRs are supposed to discuss the potential energy impacts of proposed project operations and, in particular, address whether the project will place a substantial demand on energy supplies or require additional capacity or increase peak electricity demand; as indicated above, the Draft fails to discuss any of these concerns and does not even identify an impact associated with such concerns. This deficiency must be corrected in the Final EIR/EIS.

4414-8416

Page 3.6-30 reports that Los Angeles County Waterworks District 37 (the local waterworks district in Acton that serves less than half of Acton residents) is supplied by the Metropolitan Water District, it is 473 square miles in area, and it has an annual average water demand of 659,000 acre feet. None of this is correct. Waterworks District 37 obtains its water from AVEK and from local municipal water wells, it serves an area that is less than 50 square miles and its annual water demand is approximately 2,000 acre feet. The Draft must be revised to reflect these facts.

4414-8417

Page 3.6-31 indicates that much of Central and North Acton does not have a natural gas pipeline; this is incorrect. Many areas in North, East, Central, and South Acton are served by a natural gas pipeline.

4414-8418

Page 3.6-41 indicates that much of Central and North Acton is not served by a water pipeline; this is incorrect. Numerous areas in North, East, Central, and South Acton are served by a water pipeline.

4414-8419

Page 3.6-45 asserts "The Acton Water Treatment Plant is a water treatment facility owned by AVEK. After treatment, the Acton Water Treatment Plant pumps about 4 million gallons of water per day from the plant site into a Los Angeles County Waterworks pipeline". This is incorrect. While the capacity of the Acton Water Treatment Plant is 4 million gallons per day, it does not operate at this rate; to the contrary, it pumps approximately 1 million gallons per day.

4414-8420

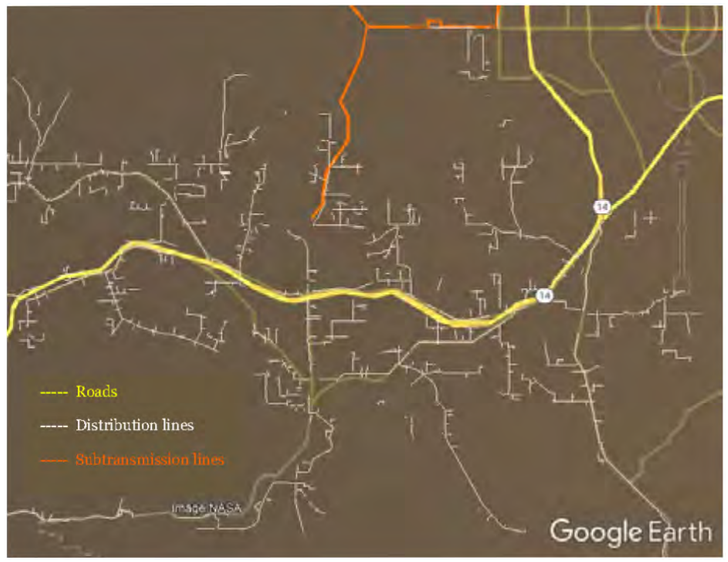
Pages 3.6-52 to 3.6-53 provide figures of "stormwater facilities" in Acton in the vicinity of all the proposed routes. Unfortunately, these figures fail to show most of the culverts in Acton which, as described above, release sediment-laden stormwater flows onto downstream properties. It is particularly worrisome that the figure provided on page 3.6-53 does not show the numerous culverts under the 14 Freeway that discharge sediment flows onto the property where the "Acton Window" is proposed for construction under the "preferred" SR14A Alternative; this suggests that CHSRA is unaware of these culverts. These figures must be revised to properly show the location of these culverts and the Final EIR must evince a clear plan which demonstrates that the Project will not alter any runoff flow patterns or flow rates or flow characteristics at any location in Acton.

4414-8421

Pages 3.6-58 to 3.6-59 provide figures of "electrical lines" in Acton in the vicinity of all the proposed routes. These figures show the location of high voltage transmission lines but they omit all the 66 kV subtransmission lines that serve the Acton substation and most of the 12 kV distribution lines in Acton. To ensure that CHSRA is aware of these facilities, they are indicated

4414-8421

in the figure provided below. The Draft must be revised to properly show the location of electrical facilities in the vicinity of all proposed route alternatives in the Community of Acton.



Subtransmission and Distribution Circuits in Acton

4414-8422

Page 3.6-63 discusses "Existing Electricity Demand" in California. Much of the information presented does not reflect current conditions and some of it is simply incorrect. For example, and contrary to what the Draft asserts, Statewide electrical consumption has actually dropped in recent years and was 277,764 GWhr in 2021[22]; this is approximately the same demand experienced in in 2010. There are many reasons for this reduction: more "behind the meter" distributed generation resources have been installed, the California population has dropped, and skyrocketing electrical costs are forcing people to use less electricity. Furthermore, the Draft reports that the highest recorded peak demand (which it describes as "the amount of generation needed to keep electrons flowing in the electricity system at any given moment of peak demand") was 60,713 MW in 2016; this is incorrect. The California Independent System Operator (CAISO) is responsible for keeping "electrons flowing in the electricity system" and according to CAISO, the highest peak demand on the California grid was 52,061 MW[23] recorded on September 6, 2022. There are no definitive citations provided in the draft for the 60,713 MW value that it reports, however it appears to have been obtained from a forecast study prepared by the California Energy Commission which made significant "adjustments" to historic data to project possible non-coincident peak loads under a variety of possible scenarios; such forecasts do not report actual peak demand and they cannot be relied upon for such information.

[22] https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2021-total-system-electric-generation

[23] https://www.caiso.com/documents/californiaisopeakloadhistory.pdf

4414-8423

Page 3.6-64 provides a Section titled "Existing Electricity Generation Capacity", but the associated paragraph merely describes the sources of electrical generation and does not materially address electrical generation capacity.

4414-8424

Pages 3.6-85 to 3.6-90 address the impacts of Project operations on energy demand. As discussed above, the impact analysis of project operation on energy resources presented in the Draft is substantially deficient; instead of analyzing the extent to which the electrical demand of Project operation will impact the local, regional, and national electrical system (as required by CEQA), the Draft presents a completely erroneous "net change in energy use" in which the Project's electrical usage is compared to hypothetical projections of fossil fuel reductions that could accrue from reduced vehicle and airline trips. The comparison is ludicrous and it fails to address the salient issue in CEQA; namely: will High Speed Rail operations adversely affect local, regional, or national electrical grids by drawing more electricity than the grids can provide? And if so, what measures has CHSRA developed to mitigate this significant adverse impact and what further impacts will result from implementing these mitigation measures? Answering these questions require CHSRA to look at Project energy demand and local and regional power systems. For example, the "Utility Relocation Plan" indicates that CHSRA intends to construct a new 33 kV power line along Aliso Canyon for all the "E" routes and a new powerline of unknown voltage and ampacity along Crown Valley Road for the SR14A routes; yet, the Draft fails to even consider whether the local electrical facilities in Acton are even sufficiently robust to serve these new powerlines, and it certainly does not provide any mitigation measures if the electrical facilities in Acton are insufficient for CHSRA's purposes. Insofar as the Community of Acton is aware, there are no 33kV service facilities anywhere near Acton; therefore, substantial substation modifications and transformer additions will be required to provide the 33 kV power that the Project construction apparently requires. These are the issues that must be analyzed pursuant to CEQA, not whether the Project will result in a "net change in energy use".

Furthermore, it is certain that the Project *will* adversely impact the electrical grid and the availability of renewable resources because CHSRA is apparently making plans to procure sufficient renewable resources to operate the High Speed Rail system (as discussed above). CHSRA's procurement of additional renewable resources will result in the development of thousands of acres of utility scale solar and wind farms which, in turn, will result in the destruction and fencing of thousands of acres of pristine desert habitats and the elimination of extensive wildlife corridors. The Draft fails to account for any of these impacts; in fact, it does not even report how much electricity is required to operate the Project. These are all substantial deficiencies which must be corrected. Specifically, the Final EIR/EIS must report the Project's construction energy demand and the Project's operating peak demand and total annual power demand at full buildout and reconcile these values with credible engineering factors to 1) determine what new electrical infrastructure will be required in Acton to supply electrical demand for both Project construction and Project operation; and 2) determine how much desertland will be converted to renewable energy farms to generate sufficient renewable energy for Project operation. For example, the Institute of Electrical and Electronics Engineers ("IEEE") estimates that 2.2 acres of solar panels are required to generate 1 GWh per year[24] (though this estimate does not account for the transmission lines and the battery storage

[24] https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9676427

4414-8424

that will be required to make energy continually available to the Project, therefore it is biased low). Additionally, the Final EIR must include measures to mitigate the significant impacts created by these utility scale generation, storage, and transmission projects (such as the ambient dust that these projects will create, elimination of habitat and wildlife corridors, etc.). Alternatively, the Final EIR can incorporate a mitigation measure that commits CHSRA to using distributed generation to supply electricity for the project rather than utility scale generation; this will eliminate all desertland and transmission impacts.

4414-8425

Page 3.6-91 through 3.6.97 present NEPA and CEQA significance conclusions which assert that the Project will "avoid, minimize, reduce, or compensate for all impacts on utilities and energy" (page 3.6-91) and that "Public utilities and energy impacts would be reduced to a less than significant level under CEQA with the implementation of the mitigation measures identified in this section". These statements are incorrect for the reasons set forth above and because:

- It is highly likely that sufficient water supplies will be unavailable from AVEK to construct the all the route alternatives within Acton and Agua Dulce. This is a significant environmental impact that is not addressed by the IAMFs or mitigation measures offered by the Draft; instead, the IAMFs and mitigation measures assume (wrongly) that AVEK will have excess water resources to sell to CHSRA when construction is initiated. If CHSRA uses its authority to compel AVEK to sell water for project construction, then AVEK's customers will be severely impacted; yet, the Draft fails to address these impacts.

- The use of local groundwater extracted from Acton and Agua Dulce for Project construction will severely impact local groundwater levels, local groundwater quality, and both municipal and residential well yields. These impacts are completely ignored by the Draft.

- Section 3.6 of the Draft states explicitly that AVEK water resources will be used for Project construction in Acton and Agua Dulce. Yet, the Project's "Utility Relocation Plans" indicate that the Project will not connect to AVEK facilities or use AVEK resources for Project construction in Acton and Agua Dulce; this has been confirmed by recent public statements made by CHSRA officials. These glaring inconsistencies demonstrate that the Project is neither stable nor finite; this, combined with the paltry environmental impact analysis provided by the Draft, this makes it impossible for the public to provide meaningful comment and it will prevent the decisionmakers from properly contemplating the Project and its associated impacts.

- The Draft fails to address the hundreds of scoping comments submitted by the public that expressed concerns regarding Project impacts on local well facilities.

- The Draft fails to assess the impacts of Project operation on local and regional electrical grids and the impacts of all the new utility scale generation projects that will be required to supply electricity for Project Operations.

- The Draft improperly relies on stormwater treatment facilities to treat the significant wastewater flows that will be generated during project construction.

- The Draft adopts BMPs and SWPPP measures that are entirely inappropriate for rural areas and which, if implemented, will result in significant erosion on downhill properties.

4414-8426

Sheet UT-C4537-E1 indicates that the water needed to construct the tunnel portals adjacent to Aliso Canyon Road for all the "E" route alternatives will not come from AVEK and will instead be supplied by a 16-inch water main that is supposedly proposed by Waterworks District 37 and which will extend from Avenue Y-8 out to Aliso Canyon; however, no such water line has been proposed insofar as the Community of Acton is aware.

4414-8427

Sheet UT-C4028-S14 indicates that the water needed to construct the tunnel portal adjacent to Red Rover Mine Road for the SR14A Route Alternative will not come from AVEK and will instead be supplied by a 16-inch water main adjacent to Hypotenuse Road that is supposedly proposed by Waterworks District 37; however, no such water line has been proposed insofar as the Community of Acton is aware.

4414-8428

Sheet UT-C4026-14A has mislabeled Hisey Ranch Road as Salty Dog Road; the house under which the 14A tunnel is located on the west side of this Sheet is on Hisey Ranch Road and not Salty Dog Road.

4414-8429

4.0 CONCLUSION

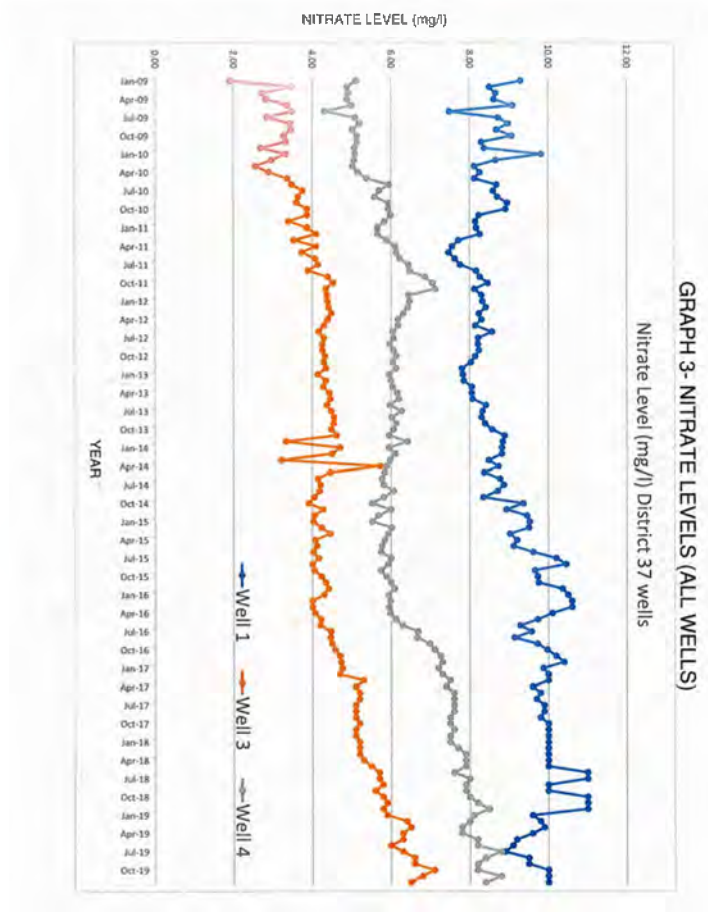
For the reasons set forth above, the Draft EIR/EIS prepared for the Palmdale to Burbank section is deficient and does not comply with CEQA or NEPA; these deficiencies must be addressed and the impacts identified herein must be fully mitigated in the Final EIR issued for the Project.

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ATTACHMENT 1

Nitrate levels measured in local groundwater in Acton (Source: Waterworks District 37).



GRAPH 3- NITRATE LEVELS (ALL WELLS)

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ATTACHMENT 2

Hydrology Report of the Groundwater Basin under the Community of Acton ("The Slade Report").

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ASSESSMENT OF HYDROGEOLOGIC CONDITIONS
Within
ALLUVIAL AND STREAM TERRACE DEPOSITS
ACTON AREA, LOS ANGELES COUNTY

For
County of Los Angeles
Department of Public Works
And
ASL Consulting Engineers

October 1990

Our Job 88931

Richard C. Slade
Registered Professional Hydrogeologist

23

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INTRODUCTION

GENERAL STATEMENT

Presented in this report are the findings, conclusions and recommendations regarding our assessment of the hydrogeologic conditions within the alluvial and stream terrace deposits along the upper reaches of the Santa Clara River in the Acton area, Los Angeles County, California. Particular regard is given in this report to the groundwater storage capacity within the alluvial and terrace deposits and to potential locations for new wells.

As depicted on Figure 1 - Location Map - the approximately 80-square-mile, rectangular-shaped mapped area includes a main study region centered around the community of Acton. This latter area consists of approximately 16 square miles enclosed within the boundaries of the service area of Los Angeles County Waterworks District No. 37-Acton. The mapped area is located between the narrows within Soledad Canyon on the southwest and the San Andreas fault on the northeast, and between the Sierra Pelona on the north and the western San Gabriel Mountains on the south.

This report has been provided with a list of references which have been specifically reviewed and/or cited during the course of this study. Plates which accompany this report are bound at the end of this text.

PURPOSE AND SCOPE

This hydrogeologic study has been undertaken to evaluate the alluvial and terrace aquifer system underlying Soledad Canyon and its tributaries in the Acton area with particular regard to: determining the surface boundaries and three-dimensional configuration of the local groundwater basin; assessing local hydrogeologic conditions within these deposits; determining their groundwater storage capacity; assessing general water quality conditions; and identifying regions for possible future groundwater development.

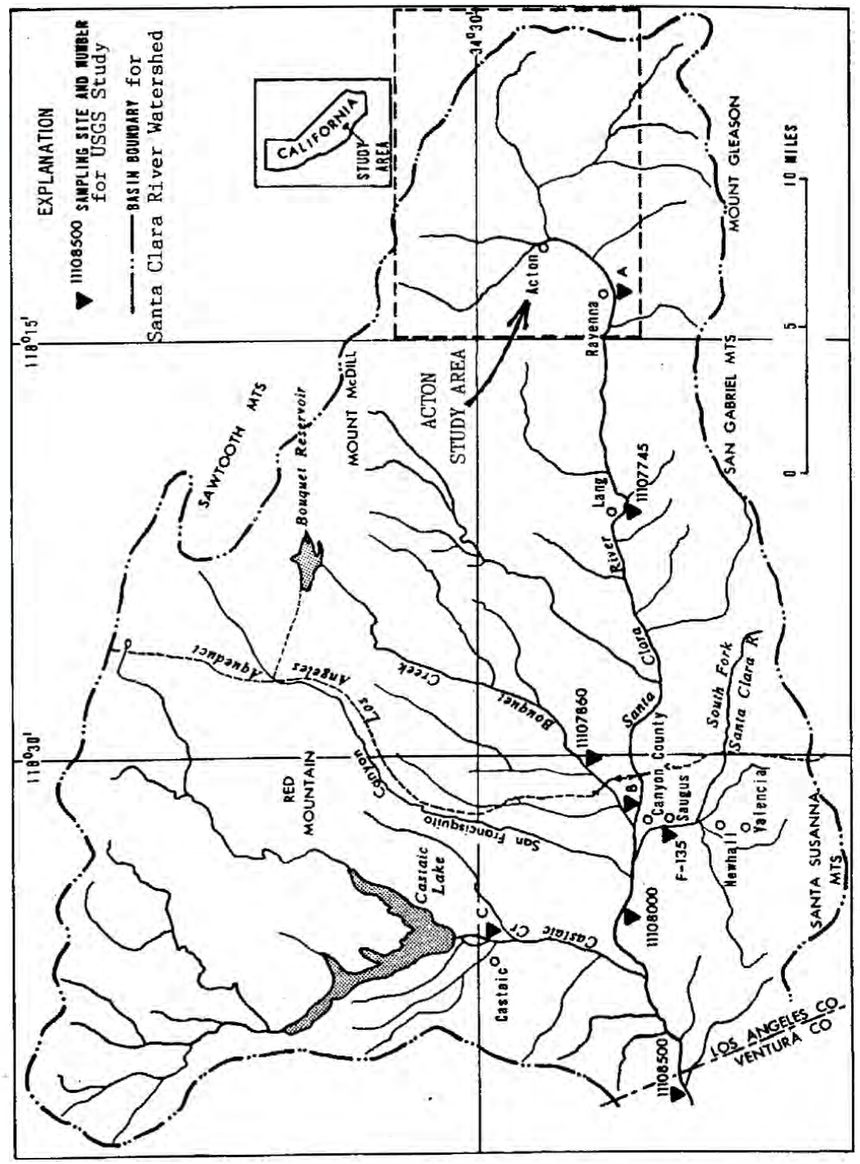


Figure 1 - Location Map

(figure adapted from USGS,WRI 77-99)

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This project has been conducted for the Los Angeles County Department of Public Works and for ASL Consulting Engineers. The scope of work was outlined as five tasks in our letter of proposal dated October 27, 1989, to Mr. Thomas O'Laughlin of ASL Consulting Engineers. A summary of the five work tasks performed for this investigation is as follows:

Task 1 - Acquisition of Available Basic Data

- Collect basic geologic, hydrogeologic, land use, rainfall and water-well records and data.
- Develop a screened mylar, topographic base map for all proposed plates in the final report.

Task 2 - Field Reconnaissance

- Conduct field visits to assess locations of active and inactive water wells and to validate topographic and geologic conditions.
- Review and verify geologic exposures and rock types, and observe local topography and watersheds.
- Obtain non-pumping water levels in active water wells, if possible.
- Collect water samples from active wells, if necessary.

Task 3 - Hydrogeologic Conditions

- Hydrogeologically analyze all available data.
- Prepare hydrogeologic maps and cross-sections.
- Prepare maps showing current and historic water level elevations.
- Assess general water quality, quality problems and problem areas in the region.
- Prepare hydrographs from selected water wells.
- Correlate electric logs of recently-drilled test holes in the region, if possible.

- Assess the three-dimensional configuration of the local groundwater basin.
- Identify the surface boundaries of the local groundwater basin.
- Assess the quantity of groundwater in storage for current conditions and for basin-high and basin-low conditions.
- Identify potential sites for new water wells.

Task 4 - Analyses and Reports

- Write and prepare our report with conclusions and recommendations regarding historic and current groundwater conditions in the basin.
- Provide supporting maps, figures and tables to document our findings.

Task 5 - Meetings and Consultation

- Provide hydrogeologic consultation during the project to ASL and to the Los Angeles County Department of Public Works via meetings, telephone communications, etc.

Analyses for this project relied solely on available background data and reports. No subsurface exploration or well testing was conducted for this study. Reports specifically reviewed for this project are shown on the list of References Reviewed.

Field work consisted solely of field meetings with County and Acton-Camp staff, and of reconnaissance geologic field mapping to more accurately define the surface boundaries of alluvial and terrace deposits in the project area. The field meetings occurred in December 1989, while the field mapping took place on January 12, 1990. On this latter date, which was prior to any significant rainfall in the area, we also made estimates of subsurface water runoff, if any, in various creeks in the region.

Throughout the remainder of this report, there will be numerous discussions of water wells in the region. The major purveyor in the region, the Los Angeles County Waterworks District No. 37-Acton is a public agency, and it uses its wells to meet local

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domestic water needs. In addition, Acton-Camp, which is located on the east side of Soledad Canyon approximately two miles south of Acton, uses a few wells to meet the domestic and irrigation needs of the Camp. The Big Dipper Water Delivery and Carson Brothers are local purveyors which each operate at least one well along Soledad Canyon south of Acton. These purveyors do not provide water for municipal purposes through a distribution system. Instead, both companies haul or provide bulk water for grading and individual home tanks which are used for domestic, irrigation and fire protection purposes.

In addition to the wells discussed above, there are an unknown number of wells used by private homeowners, ranches, new housing tracts, and/or commercial establishments in the area. For the purposes of this report, wells owned by this group of users will be called privately-owned wells.

This report has been written for the Los Angeles County Department of Public Works and for ASL Consulting Engineers with specific application to the hydrogeologic assessment of the alluvial and terrace deposits aquifer systems in the Acton area. This report has been prepared in accordance with the care and skill generally exercised by reputable professionals, under similar circumstances, in this or similar localities. No other warranty, either expressed or implied, is made as to the professional opinions presented herein.

AVAILABILITY OF BASIC DATA

Previous studies. Because the study area does not overlie any major oilfields and/or ore deposits, there has not been an extensive history of published and unpublished geologic reports and maps dealing with surface and subsurface geologic conditions. Other than a driller's log and well history from a wildcat oil well drilled to a depth of 1650 ft in 1926, there are no subsurface data for the area available from oil industry sources. This well

predates geophysical electric logs, therefore, no electric log is available to serve as control for correlation with the few available electric logs for shallower water wells in the area.

The earliest significant literature, dating from the 1920s and 1930s, addresses the petrography and relationships of the crystalline and metamorphic rocks in the western San Gabriel Mountains, immediately south of the study area (Miller, 1934). These rocks also occur in the Acton area and were the focus for reports which describe placer and gold mining operations that occurred north and south of Acton during the late 1800s and early 1900s (Simpson, 1934).

Investigations during the 1930s and 1940s provided the initial efforts at naming and mapping the surface exposures of the stratigraphic units and structure in the eastern part of the Ventura basin. The eastern Ventura basin is also referred to as the Soledad basin in reports prepared for the comprehensive geology of California presented in Bulletin 170 by the California Division of Mines and Geology (Jahns, 1954).

Adaptation of the geologic maps provided in Bulletin 170 and from investigations conducted by Noble (1953) and Dibblee (1960, 1967) permitted the preparation of Plate 1 - Geologic Map - in this report. Portions of the geologic conditions shown on Plate 1 were modified and updated from work recently available as a university thesis (Hendrix, 1986).

Published hydrogeologic and hydrologic information for the region is similarly limited. There have been essentially no previously-published studies detailing aquifer characteristics, well testing, water level fluctuation or groundwater variations in water wells in the Acton area.

The few hydrologic studies of the region that were reviewed for this project included a report published in 1967 by the United States Geological Survey in conjunction with the Antelope Valley-East Kern Water Agency (Bloyd, 1967) which included the Acton area

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in the extreme southwest portion of their study area. Generalized geology and water-level contours in the Acton area for the period 1958-1965 are shown on maps included with that study, but data were insufficient for the Acton area to permit that investigator to prepare maps showing average specific yield of sediments and specific capacity of wells in our study area. That report itself focuses on the region northeast of the San Andreas fault so there is little information specifically applicable to the Acton area.

Previous assessments of hydrogeologic conditions in the region are limited to those by: the Regional Water Quality Control Board for the Los Angeles Region (1975) in preparing the water quality control plan for the Santa Clara River basin; Williams (1979) which provided an evaluation of sediment discharge in the Santa Clara River basin for Ventura and Los Angeles Counties; and Bowers and Irwin (1978) which summarized water-quality data collected during a reconnaissance study in the upper Santa Clara River basin during August 1974 through June 1976.

A groundwater report on current water quality and the effects of private sewage disposal systems on that quality within the Acton area has recently been prepared for Acton Builders by Brockmeier Consulting Engineers, Inc. (Feb. 1990).

Water Well logs. Historically available records reveal that at least 90 water wells have been drilled in the basemap area for domestic, agricultural, and stock-watering purposes. As seen on Plate 2 - Basin and Water Agency Boundaries and Well Location Map - most of these wells have been drilled within the area of the alluvial or stream terrace deposits which underlie the channels of the upper reaches of the Santa Clara River and its major tributaries. It should be noted that well locations illustrated on Plate 2 are those adopted from maps on file at the Department of Water Resources (DWR) and the Los Angeles County Flood Control District (LACFCD). In addition to these, there is also a small

number of monitoring holes and/or test holes drilled for water well tests or other study purposes.

Most of the 90 wells are shallow (less than 200 to 250 feet) and are probably completed solely in alluvial and/or terrace deposits. Of these wells, about 26 drillers' logs and only two geophysical electric logs are available for analysis of subsurface conditions. Electric logs are available for Acton Camp Test Hole No. 4, which was completed into Los Angeles Co. Waterworks District (LACWWD) Well No. 37-3, and for Griffin Homes Test Hole No. 2, approximately located in the area of Township 4 North, Range 12 West, Section 32F.

The electric log below 110 ft for LACWWD No. 37-3 appears to show the extremely high resistivity characteristic of crystalline rocks. The sedimentary section in this well is too thin to correlate with any degree of certainty to the electric log for Griffin Homes Test Hole No. 2, which is located several miles to the northeast. Therefore, for the Acton area there is no geophysical data control on the subsurface configuration of sediments, and all lithologic assessments have to rely on interpretation of surface geology using drillers' logs.

Water Level and Water Quality Data. The historic collection and filing of basic hydrogeologic data for the study area has been sporadic and random in terms of the date and location of well monitoring. There is no comprehensive basin-wide program to provide consistent and periodic monitoring of water levels, quality, specific capacity and/or well efficiency on an on-going basis. In general, data are not available prior to about 1950. Most well records of water levels have a ten-year gap in data from roughly 1965 to 1975, with additional shorter data gaps during other time intervals. Water levels and pumping rates are obtained on a more or less monthly basis in LACWWD Well 37-1, and date from about 1970.

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Scrutiny of the water level data record for the area reveals occasional measurements which are anomalously low; these anomalously low water levels are considered to not be directly related to climatological fluctuations. Such anomalies are considered to relate to either monitoring error, the reporting of pumping levels or partial recovery levels instead of true static (non-pumping levels), or the monitoring of a water level in a well affected by mutual drawdown interference from another, nearby well.

For our assessment of water levels, we have plotted nine hydrographs, three of which consist of two nearby wells (one of which is LACWWD Well 37-1) each with pre-1965 and late-1960s/early-1970s to recent data in order to span the large data gaps found so consistently throughout the Acton area. Water-level contours from monitoring data on file with the LACFCD were independently prepared for water level high and low periods as identified by the hydrographs. For our assessment of water quality, we have relied on recent State data for nine wells, plotted on a trilinear analysis diagram later in this text. The only surface water data available, at Lang along the Santa Clara River downstream from Acton-Camp dates from January, 1969, and is also included on the trilinear diagram.

Agencies Contacted. Data repositories and persons contacted during this investigation included the following:

1. Los Angeles County Waterworks Districts - Department of Public Works: Mssrs. Gary Hartley, Joe Aja, and Ken Roseander. Data collected here included drillers' logs, water levels and water quality for wells owned by the Waterworks District and by Acton-Camp.

2. Los Angeles County, Flood Control District: Mr. George Farag for drillers logs, for historic water level data, for recently monitored water levels in the area, for possible surface water quality data, and for precipitation data from long-term rainfall stations.

3. California Department of Water Resources: Mr. Ed Lowe, for historic water level and water quality data, and for water well location maps.

4. California Division of Oil and Gas: office staff. Data collected included information on wildcat oil well (drillers' log and well history), wildcat well location map and reports published on various oil fields in the surrounding region.

5. California Division of Mines and Geology: Mr. Bob Hill, for published and unpublished geologic reports and maps for the various rock types in the mapped area.

6. United States Geological Survey: office staff. Basic data relating to any possible geologic and hydrogeologic maps and reports for the region.

7. University of California at Los Angeles Geology Library: office staff. Basic data relating to geologic maps and reports, and for any geologic theses for the region.

AREA OF INVESTIGATION

PROJECT LOCATION AND PHYSICAL FEATURES

As shown on Figure 1 - Location Map - the rectangular-shaped mapped area encompasses approximately 80 square miles along the upper reaches of the Santa Clara River within Soledad Canyon in north-central Los Angeles County. The mapped area includes the alluvial and stream terrace deposits within the nearby reach of the Santa Clara River and its tributaries, as well as a portion of the hills to the north and south of the river itself.

The Soledad basin is a topographic low as well as a basin of deposition. It lies north of the San Gabriel Mountains, south of the Sierra Pelona, and is bounded by the San Gabriel and San Andreas faults on the southwest and northeast, respectively. The Acton study area is located in the eastern portion of the Soledad basin (Muehlberger, 1958).

Geomorphically, the study area consists of the relatively wide and flat lands along the course of the east-west trending Santa Clara River (Soledad Canyon) and the hills and low-lying mountains which border both sides of the river. Elevations along the river valley in the study area range approximately from 2460 ft at

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Ravenna to 3200 ft at the river's headwaters in Soledad Pass near Vincent. The overall river gradient across this 8.3-mile long reach is on the order of 0.017 ft/ft (about 94 ft per mile). Maximum elevations in the hills north of the river are on the order of 4700 ft at Harold Beacon, while maximum elevations to the south are approximately 4400 ft, southeast of Kentucky Springs. Kentucky Springs Canyon represents the main tributary in the headwaters area of the Santa Clara River.

Acton, the only community in the area, has historically been a rural and equestrian-oriented development. Development consists of a school and a main commercial area near the intersection of Crown Valley Road and Soledad Canyon Road. Additional developments include Acton-Camp, a County-owned facility along Soledad Canyon Road south of Acton, a large trailer and recreational vehicle park and campground located just southwest of Acton-Camp, and numerous single-family homes and ranches scattered throughout the main valley and its tributary canyons. In the past few years, a few large residential tracts of single-family dwellings have been built and/or proposed.

At present, private subsurface disposal of onsite-generated sewage has been the sewage disposal alternative used throughout most of the region. Acton Camp reportedly discharges approximately 30,000 to 50,000 gallons per day of secondary-treated sewage effluent to Soledad Canyon. Commercial areas within the community of Acton, including at least one laundry, utilize subsurface disposal of their sewage effluent also. Another area for effluent disposal via leachfields is the large recreational vehicle park located within Soledad Canyon just downstream from Acton Camp.

GROUNDWATER BASIN BOUNDARIES

To facilitate analysis of water supply problems, the California Department of Water Resources established names and locations of groundwater basins along the course of the Santa Clara River in

both Los Angeles and Ventura Counties (1953, 1975 and 1980). Hydrologic unit boundaries were delineated principally on the basis of topography and watershed divides, and as such, included both alluviated valleys and the adjoining hills and mountains. Each hydrologic unit was further divided, using similar bases, into hydrologic subunits for further definition of runoff and other hydrogeologic conditions.

As a result of these studies, the principal hydrologic unit in the study area is known as the Santa Clara River Valley Unit. Within the region, it has been subdivided in Los Angeles County into the Eastern Subunit and the Acton Valley Subunit.

For detailed assessments of hydrogeologic conditions, DWR further delineated various groundwater basins within each of the above hydrologic units and subunits. Basin boundaries were selected on the basis of such features as faults, groundwater divides, exposures of bedrock in the hills, or at areas of rising water caused by the presence of bedrock shallowly underlying river alluvium. Where none of these types of conditions were determined to exist, arbitrary or even political divides were occasionally selected as groundwater basin boundaries.

The boundary between the Acton Valley and Eastern Subunits was selected by DWR along an arbitrary narrowing of the river channel (caused by exposures of nonwater-bearing bedrock) located between Ravenna and Lang. However, for the purposes of this study, only that portion of the Acton Valley basin, southwesterly to a narrows within the river channel that lies approximately 3000 ft northeast of Ravenna, is included in the analysis. This is because the area southwest of this position does not contribute to groundwater storage or recharge to the LACWWD-Acton area. The upstream boundary of the local groundwater basin for this study is considered to be the narrows through Soledad Pass, since surface and groundwater northeast of the narrows do not flow toward the LACWWD-Acton area. As shown on Plate 1 - Basin Boundaries and Water

Service Area - the LACWWD-Acton area groundwater basin is comprised by the alluvial and stream terrace deposits which lie along the Santa Clara River and its tributaries between the Soledad Pass narrows and 3000 ft northeast of Ravenna.

CLIMATE

The climate of the Santa Clara River basin varies from a moist, Mediterranean-type near the Pacific Coast to a near-desert-type at the extreme eastern boundary, near the study area (Williams, 1979). Climate within the study area is characterized by long, dry summers and relatively short, wet winters. Typical temperatures in the area range from maximums of approximately 100° F during the summer to minimums as low as 30°F, or less, occasionally in the winters. Mean monthly temperatures range between approximately 77°F in summer to 48°F in the winter.

Though not reproduced herein, an isohyetal contour map prepared by Los Angeles County-Department of Public Works, has been reviewed to assess mean annual precipitation in the Acton watershed area (Nov. 1988 report). That isohyetal map was prepared for a period of record of 1897-98 through 1946-47, and it reveals the following for the area mapped on our base maps:

a. Mean annual precipitation in the hills and mountains on the northerly and westerly side of Soledad Canyon (the Sierra Pelona) is relatively low. For the period of record, mean rainfall has ranged from about 8 inches per year in the northeastern portion of this watershed to about 12 inches per year in the southwestern portion of this watershed.

b. Mean annual precipitation in the hills and mountains on the southerly side of Soledad Canyon (the San Gabriel Mountains) is relatively high. For the period of record, mean annual precipitation has ranged from about 32 inches near the watershed divide on the south to about 12 inches along the foothills of these mountains on the north

Rainfall data have been obtained from Los Angeles County Flood Control District for two rainfall gages, one near Blum Ranch in Aliso Canyon (Station No. 341, elevation 2900 ft) and one near Acton-Camp (Station No. 250D, elevation 2625 ft). Locations for the gage stations are shown on Plate 2. These data, which are presented in Tables 1.1 and 1.2, respectively, have been graphed (Figures 2.1 and 2.2, respectively) to show the accumulated departure in percent from the mean annual rainfall, for each station.

Review of the annual rainfall and cumulative departure data reveals the following:

1. Blum Ranch Gage (upstream area):

   a. The average rainfall over the 1914-15 to 1987-88 period of record is 9.91 inches.

   b. The historic high was 24.09 inches and occurred in 1977-78; 22.99 inches occurred in 1982-83 and 22.38 inches in 1940-41.

   c. The historic low was 3.56 inches in 1959-1960; 3.79 inches occurred in 1950-1951.

2. Acton-Camp Gage (downstream area):

   a. The average rainfall over the 1929-1930 to 1987-88 period of record is 10.22 inches.

   b. The historic high was 26.96 inches in 1977-1978; 24.3 inches occurred in 1982-83.

   c. The historic low was 2.97 inches in 1959-1960; 3.09 inches occurred in 1950-1951.

Approximately 80 percent of the average annual precipitation in the region occurs between November and March. Moreover, the bulk of these winter storms last for one to only a few days; relatively long periods of clear weather typically occur between these storms. Notable on Figures 2.1 and 2.2 is that the precipitation fluctuates widely from year to year.

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Table 1.1

Rainfall Data, Blum Ranch Gage

CUMULATIVE DEPARTURE DATA: RAINFALL

GAGE NO. 343 BLUM RANCH ELEVATION 2900 FT

| | | |

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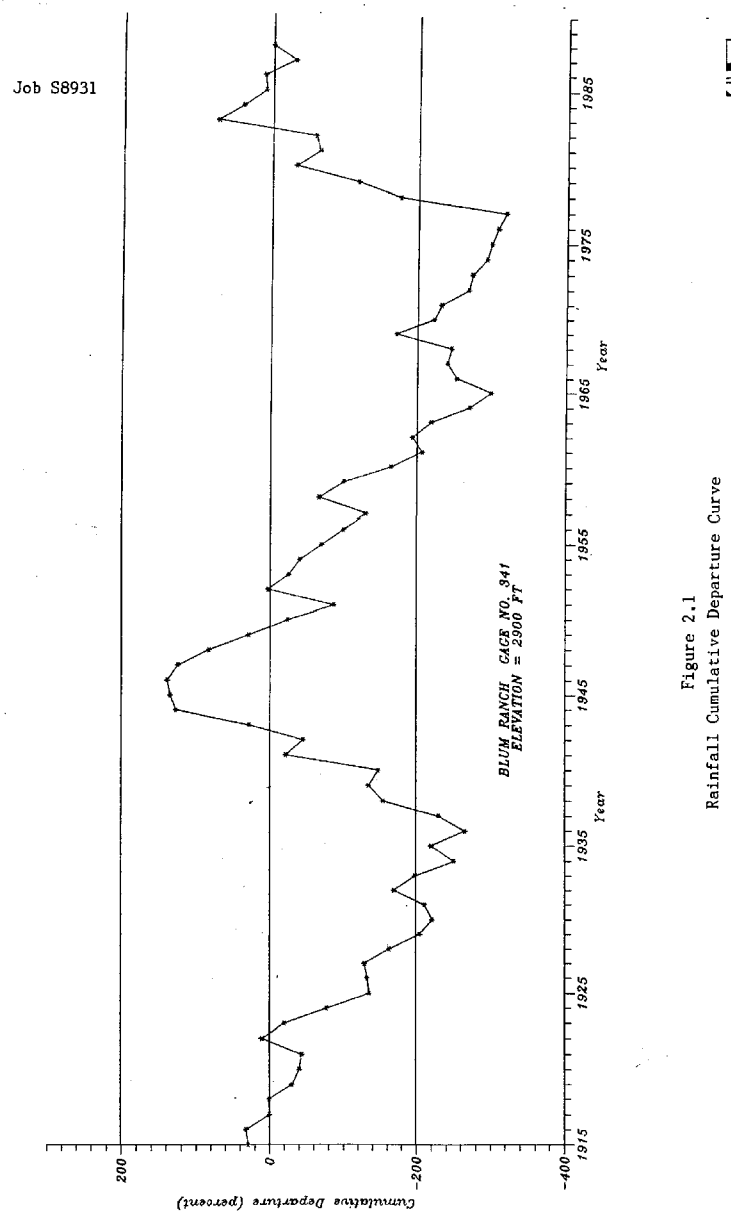


Figure 2.1
Rainfall Cumulative Departure Curve

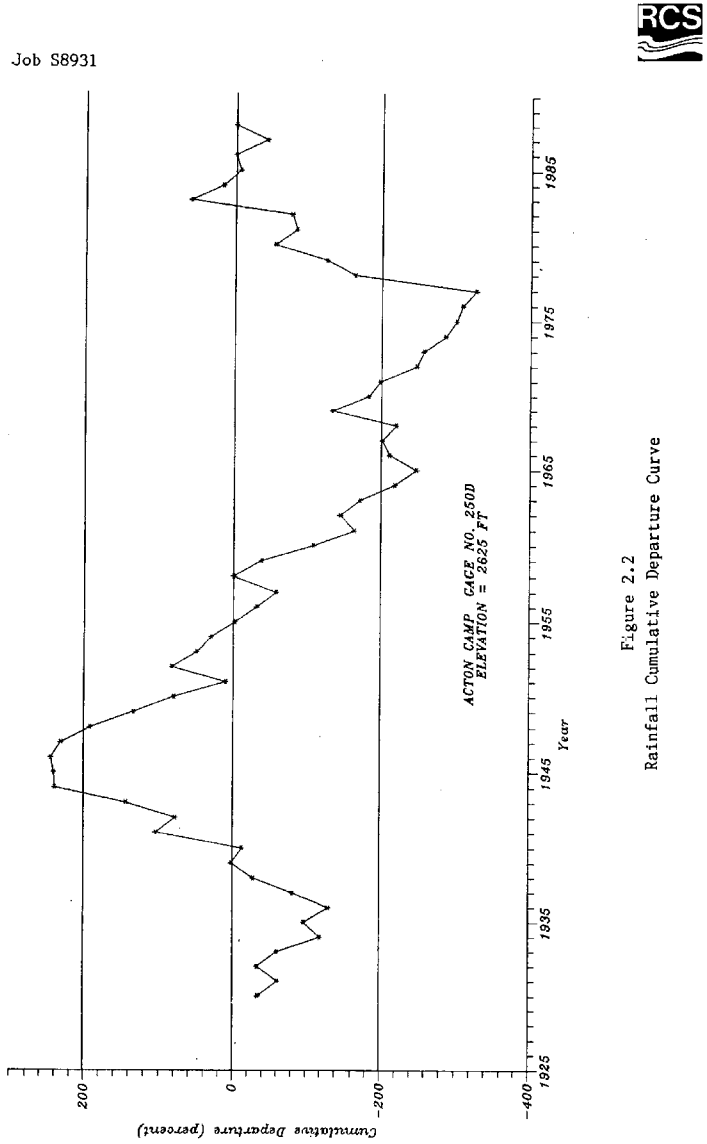


Figure 2.2
Rainfall Cumulative Departure Curve

As seen on the cumulative departure curves, there have been pronounced periods of dry years followed by periods of wet years. However, no rhythmical or fixed cycle of fluctuations is detectable. For these cumulative departures, a positive (or upward) slope for each curve indicates above-normal rainfall, while a negative (or downward) slope indicates below-normal rainfall, regardless of the position of the curve with respect to the ordinate representing the long-term mean (i.e., the zero percent cumulative departure).

For example, the period 1936 through 1946 on the cumulative departure curve for the Blum Ranch gage is characterized by positive (upward to the right) slopes; this is indicative of a hydrologically wet period which was characterized by an accumulation of years of average or above-average precipitation.

In contrast, the period 1947 through 1977 on the curves for both rainfall stations display a protracted, hydrologically dry period that was characterized by an accumulation of generally average or below-average rainfall (a negative or downward-sloping curve). The curves for both rain gages reveal a generally upward trend from 1977 to 1983, but since that time, the data appear to have begun a generally downward trend; deficient precipitation has occurred in the area in the past three to four years, including 1989-1990.

DRAINAGE

Regional drainage across this portion of Los Angeles County, and continuing westerly across Ventura County to the Pacific Ocean, is provided by the Santa Clara River (see Figure 1). The Acton area is located in the upper portion of Soledad Canyon, relatively near the headwaters of the Santa Clara River. The local watershed area comprises a total of approximately 55,600 acres (about 86 square miles), based on data presented by Brockmeier Consulting

Engineers, Inc. (1990, in conjunction with Geraghty & Miller, Inc.).

The nearest gage to measure surface water runoff in the Santa Clara River lies at Lang, several miles downstream from Acton (see Figure 1 for location of Lang). This gage (Station No. F93B-R) has a tributary drainage area of approximately 157 square miles. DWR (1968) reported that runoff in the Santa Clara River has ranged from nearly 550 percent of the mean to less than one percent. CRWQCB (1975) indicated that severe storms may cause river discharge to increase from nearly zero flow to flow as high as thousands of cubic feet per second within a few hours.

Principal tributaries draining in a southerly direction to their confluence with the Santa Clara River in Soledad Canyon include, from east to west across the study area: Soledad Pass, Acton Canyon, unnamed canyons leading to the Governor, Red Rover and Puritan Mines, and Jones Canyon. Principal tributaries which drain in a northerly direction to their confluence with the river include, from east to west: Kentucky Springs Canyon, Aliso Canyon, Arrastre Canyon, Bootleggers Canyon and Mattox Canyon.

Because the headwater areas of these drainages do not extend into high mountainous areas, and because the local climates preclude the buildup of large snowpacks in the watersheds, flow in all the stream canyons is considered to be ephemeral only and, thus, diminishes rapidly after most rainfall events.

For example, LACFCD records for the Santa Clara River gaging station near Lang date from 1949-50 and, through 1981-82, reveal the following information about flow variations:

a) Mean daily flows ranged from a low of 0.2 cubic feet per second (cfs) in 1976-77, to a high of 29.3 cfs in 1951-52. One cfs equals about 450 gallons per minute. There are no data for 1968-69 which is known to have had very high rainfall and runoff.

b) Peak flows ranged between about 2 cfs (in 1950-51 and in 1956-57) to an estimated 5900 cfs in 1968-69.

c) Total runoff ranged between 147 acre-feet (AF) in 1976-77 to 21,230 AF in 1950-51

In addition, during our field reconnaissance of January 12, 1990, the following runoff information was noted (this date was prior to any significant rainfall in the area): the channel of the Santa Clara River and all of its tributaries in the area mapped on Plate 1 - Basin Boundaries and Water Service Area - contained no surface water runoff, except as noted below (all these channels are wholly unlined in the study area). Surface flows were observed as follows:

1. A flow of about 15 to 20 gpm was observed in Arrastre Canyon about 300 ft southeast of (upstream from) its confluence with the Santa Clara River in Soledad Canyon. Just upstream from this confluence, and including the channel near Acton Camp, there was no runoff in the channel of the Santa Clara River.

2. Just downstream from the above confluence, and very near the center of Section 11, T4N, R13W, surface flow in the Santa Clara River was estimated at 20 to 30 gpm.

3. Within the river channel and about 700 ft downstream from (southwest of) the center of Section 11, surface flow in the river was estimated to be at least 200 gpm.

4. Within the river channel and about 1000 ft downstream from the site in No. 3 above, surface flow was also estimated to be at least 200 gpm.

5. In the river channel just south of Ravenna, runoff was estimated at 75 gpm.

6. About 2500 ft downstream from Ravenna, surface runoff in the river was again estimated to be at least 200 gpm.

LOCAL WATER PURVEYORS

The study area lies within the service area of the Los Angeles County Waterworks District No. 37-Acton. As seen on Plate 1, the approximately 16-square mile service area of this District occupies the heart of the Acton region. The service area extends along the Santa Clara River-Soledad Canyon and includes Acton Camp at its southwesterly boundary. Much of the service area of the District extends northerly from the main river channel. Metered groundwater production data for 1989 for District well No. 37-1 was 1223 AF. Plate 1 shows this well lies near the intersection of Crown Valley Road and Soledad Canyon Road.

Other major producers in the study area include: Acton Camp which reportedly produced approximately 115 AF of groundwater from its two active wells in 1989 (see Plate 1 for locations; neither of these wells are metered); Big Dipper Water Delivery which lies just north of Acton Camp and which reportedly produced an estimated 107 AF from its unmetered well in 1989; Carson Brothers, which lies just north of the Big Dipper Water Delivery and which reportedly produced an estimated 75 AF of groundwater from its unmetered well in 1989; and the Acton School well, currently used for irrigation purposes only due to high nitrates and which, reportedly, produced on the order of 20 AF in the 1989 irrigation season.

Hence, groundwater extractions by major producers for municipal purposes in 1989 may reasonably be assumed to total about 1520 AF. An additional 20 AF were pumped for irrigation by the single Acton School well, and an unknown additional volume of groundwater was pumped from the remaining active wells in the main river channel and its tributaries to meet all remaining domestic, irrigation, and stock watering needs in the entire study area.

GROUNDWATER GEOLOGY

GENERAL STATEMENT

Geologic materials depicted on Plate 2 - Hydrogeology Map - have been divided according to their relative water-bearing characteristics, that is, to their relative ability to contain, transmit, and yield groundwater to wells. As such, two divisions can be recognized: a water-bearing sediment group (map symbols Qal and Qt) and a relatively nonwater-bearing rock group (all other geologic unit map symbols). Plate 2 provides the exposures and areal extent of these materials, together with local geologic structure, including some folds and bedding attitudes for sedimentary units and the alignment of major faults.

Depending on water levels, the water-bearing sediments can become saturated, thereby permitting them to provide water to wells. Thus, they constitute the groundwater reservoir of the study area. Underlying the water-bearing sediments in the valley areas, and exposed on all adjoining hill and mountain areas, is the relatively impermeable, nonwater-bearing bedrock.

WATER-BEARING SEDIMENTS

This group comprises two units, as follows:

a. Undifferentiated Alluvium, of Holocene age (map symbol Qal). "Younger" alluvium consists of unconsolidated, poorly- to well-stratified clay, silt, sand and gravel and includes alluvial fan, flood-plain and streambed deposits.

b. Terrace deposits and older valley fill, of Pleistocene age (map symbol Qt). Terrace deposits generally consist of porous well-drained silt, sand and gravel capped by fairly well-developed soil where the upper surfaces are preserved.

In general, these water-bearing strata are geologically younger, more permeable, less consolidated and less structurally

deformed than the nonwater-bearing underlying bedrock. The water-bearing sediments have been penetrated to various depths by wells in the basin and historically have provided virtually all of the groundwater extracted by these wells.

Analysis of available drillers' logs reveals that these sediments are composed of extensively interlayered and interfingered mixtures of gravel, sand, silt and clay with variable concentrations of cobbles and boulders. Due to its unconsolidated to poorly-consolidated condition, and its lack of cementation, Holocene alluvium is subject to rapid erosion. Correlation of individual strata from one well to another is difficult due to the manner of deposition of these stream-deposited alluvial deposits.

Alluvial sediments lie within and along the course of the upper Santa Clara River in Soledad Canyon and its main tributaries (refer to Plate 2 and Plate 3 - Hydrogeologic Sections A-A' and B-B'), while terrace deposits are located along the low lying flanks of the foothills and upper reaches of the tributaries. Thickness of alluvial sediments varies along the river, but the maximum appears to be approximately 225 ft, located near the community of Acton. Typically, the alluvium tends to be thickest near the central portion of the river and thins or pinches out as the flanks of the adjoining hills are approached (refer to cross sections also).

Alluvial thicknesses in all of the tributary canyons are considered to be less than that in the main river valley of Soledad Canyon. In general, larger watershed areas such as Arrastre, Aliso and Kentucky Springs Canyons are underlain by more areally extensive and thicker accumulations of alluvium than the smaller tributary canyons, which generally contain only terrace deposits. In the larger canyons, the maximum alluvial thickness occurs near the confluence with the main river valley and is on the order of 90 to 200 ft (see Plates 2 and 3).

Older alluvium of late-Pleistocene age has been mapped to include the exposures of sediments that have been elevated onto mesas and terraces along the main river valley. These terrace deposits (map symbol Qt, on Plates 2 and 3) are considered to be of the same general composition as Holocene alluvium and were formed in much the same manner. Regional uplift and continued downcutting of the creeks and washes have left these terrace deposits elevated with respect to current stream gradients.

In general, the terrace sediments are more deeply weathered and characteristically reddish-brown in color; due to chemical and mechanical breakdown of the minerals within these sediments, there also tends to be light to moderate cementation by clays and/or iron oxides. These sediments are in relatively topographically-elevated positions in the study area, but appear to be in hydraulic continuity with the alluvial sediments, based on water level data. Maximum thicknesses of terrace deposits are approximately 195 ft in the Kentucky Springs area and 210 ft in the wide valley just north of the community of Acton (see Plates 1 and 3).

NONWATER-BEARING ROCKS

Underlying the water-bearing sediments in the study area are a series of consolidated, cemented sedimentary rocks of Tertiary geologic age, and/or an assemblage of crystalline or metamorphic rocks of pre-Tertiary age. This group is composed of the following units, from youngest to oldest:

a. Punchbowl Formation, of Miocene and Pliocene age (map symbol Tpb). The formation is confined to the northeastern portion of the study area and consists of white, buff to pink sandstone, grey to red siltstone and clay shale, and grey to red conglomerate.

b. Vasquez Formation, conglomerate and sandstone units (map symbol Tv), and volcanic rocks associated with the Vasquez Formation (map symbol Tvv), of Oligocene to Miocene age. The formation consists of up to 12,500 ft of red to light-brown, non-marine sandstone to cobble-boulder conglomerate units interlayered with nearly 4,200

ft of volcanic flows and volcanic sills of greenish-black basalt and dark reddish-brown andesite.

c. Granitic rocks, of Jurassic and/or Cretaceous age (map symbol gr). Crystalline granitic rocks in the area are usually medium- to moderately-coarse-grained, orange- to pinkish-grey, quartz-rich and massive to crudely-foliated.

d. Diorite, quartz diorite and granodiorite, of Jurassic and/or Cretaceous age (map symbol gd). These crystalline rocks are grey-white, massive, medium-grained and weather grey-buff from iron-oxide staining.

e. Quartz-bearing syenite, of pre-Cambrian age (map symbol sy). The crystalline syenite appears to be a differentiation product of the original anorthositic magma. Iron-bearing units are light-brown to grey, massive and medium-grained.

f. Mafic gabbroic rocks, of pre-Cambrian age (map symbol gb). Gabbroic rocks are part of the anorthosite-gabbro-syenite layered intrusive complex. These crystalline rocks may be mottled to very dark, banded, with coarse-to fine-grained texture.

g. Anorthosite, of pre-Cambrian age (map symbol an). These rocks are white, bluish-grey to light grey, medium- to coarse-grained and consist almost entirely of plagioclase feldspar.

h. Gneissic metamorphic rocks, of pre-Cambrian age (map symbol gn), are composed of blue-quartz-feldspar gneiss with some recrystallized limestone and quartzite.

i. Pelona schist, of pre-Cambrian age (map symbol ps). This metamorphic unit consists of silvery-grey to dark green, strongly foliated mica and chlorite-actinolite schist with a few beds of quartzite and marble.

In general, the older sedimentary and/or volcanic units (Punchbowl and Vasquez Formations) are exposed along the flanks of the hills and mountains which border the Santa Clara River valley in Soledad Canyon while the older crystalline and metamorphic rocks crop out in the upper watershed areas of the Sierra Pelona and the San Gabriel Mountains. The pre-Cambrian units consist of an

anorthosite-gabbro-syenite layered intrusive complex which intruded into older gneissic metamorphic rocks. The Pelona schist is confined to the northern part of the study area, along the southern flank of the east-west-trending Sierra Pelona Mountains.

Due to their cemented and/or crystalline nature, the above rocks possess only secondary porosity and may contain groundwater only along bedding planes, joints, shears or fractures. As a result, and due to their structural complexity and low permeability, these rocks are not considered capable of yielding water readily to wells. Moreover, they have a very limited storage capacity, and their ability to provide long-term sustained yields to wells is unpredictable. These cemented and/or crystalline rocks are not considered part of the groundwater reservoir in the Acton study area.

GEOLOGIC STRUCTURE

The principal geologic structures in the Plate 2 mapped area are the northwest to southeast-trending Kashmere Valley and Acton faults and the west to northeast-trending Soledad fault system. In the northeast corner of the mapped area is a small portion of the Nadeau fault, a branch of the northwest to southeast-trending San Andreas fault. The Acton area consists, essentially, of a relatively thin mantle of alluvial and terrace deposits overlying vast thicknesses of Miocene to Pliocene sedimentary and volcanic rocks, intrusive crystalline basement and older metamorphosed country rock.

The faults, as mapped by others, are recognized as rupturing certain bedrock formations of relatively old geologic age and/or juxtaposing separate bedrock formations of different geologic ages. However, those previous investigators did not reveal whether or not any of these faults are active or potentially active, and they did not definitively state whether or not any of these faults are considered to offset the geologically young alluvium or stream

terrace deposits in and along Soledad Canyon. Further, it is not within the scope of work for this investigator to determine the relative degree of activity for any of the faults in the area mapped on Plate 2.

As a result wherever any of the fault traces cross the alluvium or terrace deposits on Plate 2, the fault alignment is indicated by a dotted pattern. Such a pattern reveals the fault alignment in that area is either not known with certainty, and thus inferred, or is doubtful and questioned.

Because of the active scouring and/or alluviation of the youthful alluvial river deposits, it is probable that the faults neither intersect the alluvium nor create any groundwater barriers within the alluvium in the study area; this includes such faults as the Soledad, the Kashmere Valley, and the Acton faults (see Plate 2). Groundwater contours inferred within Soledad Canyon as discussed later in this report, do not clearly reveal the presence of any groundwater barriers created by faults displacing the alluvium.

HYDROGEOLOGY

GROUNDWATER OCCURRENCE, RECHARGE AND DISCHARGE

Within the saturated zone of the water-bearing alluvial and terrace deposits of the Acton basin, groundwater occurs in the pore spaces and voids between the individual sedimentary grains. In general, water table conditions appear to prevail throughout the alluvial and terrace deposits, although semi-perched conditions may exist locally in portions of the main river valley and its tributary canyons, particularly within the terrace deposits. Due to the mode of deposition of these materials, sedimentation of thick and areally extensive clay layers has been precluded; as a result, confined artesian conditions have not been developed.

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Natural sources of recharge to the groundwater reservoir within the alluvium and terrace deposits include: deep percolation of direct precipitation; infiltration of stream runoff in the river valley and its tributaries; and subsurface inflow, depending on water levels from the adjoining hill and mountain areas. The relative magnitude of each of these recharge sources has not been quantified for this investigation, due principally to a lack of requisite data.

Man-made sources of recharge to the alluvium and terrace deposits systems include: deep percolation of irrigation returns and returns from private subsurface sewage disposal systems. No artificial recharge operations, either by direct surface spreading basins or by shallow well injection, have historically been utilized in the river valley to make use of excess surface runoff, or of imported water, for purposes of augmenting water levels in the alluvium or terrace deposits.

Outflow or discharge from the alluvium and terrace deposits occurs by water well extractions by LACWWD-Acton, by Acton Camp, and by the various private water companies, housing tracts and ranches in the region. Additional discharge is known to occur by: subsurface outflow to the downstream Eastern Groundwater Basin to the west; surface outflow from the area of rising water within the alluvium located downstream from the Acton Camp; subsurface outflow, depending on water levels, to the permeable or fractured portions of the Vasquez Formation and older crystalline or metamorphic rocks which underlie the alluvium and/or terrace deposits; and evapotranspiration in areas of phreatophytes that grow in the downstream reaches of the main river valley where rising water is known to occur.

The approximate zone(s) of rising water and roughly estimated amounts of rising water (as observed during a field reconnaissance on January 12, 1990) were discussed previously in the Drainage section of this report. Also, the only estimates of natural

recharge to the Acton area were provided by Geraghty & Miller, Inc. (in the Brockmeier report, dated Feb. 1990). In that report, they determined the annual recharge to the Acton area to be approximately 11,100 acre-feet per year (AF/yr), calculated as the difference, over the entire Acton region, between annual rainfall (10.42 inches for their period of record) and the average groundwater recharge threshold value (they used 8 inches of rainfall).

Their total watershed area was determined to be approximately 55,600 acres, defined as follows:

a. 45,000 acres of watershed which drains into Soledad Canyon from the watershed divides to the north in the Sierra Pelona and to the south in the San Gabriel Mountains, as measured from the narrows on the northeast at Soledad Pass, just southwest of Kentucky Springs Canyon, to the narrows on the southwest located between Arrastre Canyon and Bootleggers Canyon. (Plate 6 later in this report uses these same two narrows locations in Soledad Canyon for boundaries used herein for calculations of groundwater in storage.) Recharge from this watershed represents 9000 AF/yr of the 11,100 AF/yr total annual recharge.

b. An additional 10,600 acres in the northeast which consists of the watershed that drains into upper Soledad Canyon from the Soledad Pass area and Kentucky Springs Canyon. Recharge from this watershed represents the remaining 2100 AF/yr of the total 11,100 AF/yr of recharge described above.

For comparison, a typical "rule-of-thumb" estimate of annual recharge within a watershed is to multiply the total watershed size (55,600 acres), by the average annual rainfall on the entire watershed area (about 12 to 16 inches, or 1.0 to 1.3 ft), by a factor of about 10 percent (0.10). Such a calculation suggests a total annual recharge to the area of about 5600 to 7200 AF/yr.

Average annual basin outflow as measured at the narrows locations within Soledad Canyon just downstream from Arrastre Canyon were calculated by Geraghty & Miller, Inc. (Brockmeier report of Feb. 1990) to be approximately 11,100 AF/yr. That calculation included: 2100 AF/yr of subsurface outflow through the

alluvium in the canyon itself; and an additional 900 AF/yr of surface water runoff at that location.

For our assessment of subsurface groundwater outflow from the alluvium within the narrows of Soledad Canyon just downstream from Arrastre Canyon, we relied on the Darcy equation. Here, subsurface outflow, Q (gallons per day, gpd) is equal to the product of: the permeability P of the sediments (gpd per square foot, gpd/ft^2); the groundwater gradient I (feet per foot, ft/ft); and the cross sectional area of saturated flow A (square feet, ft^2).

Hence, the relationship used was Q = PIA. Our estimates of alluvium permeability are on the order of 1000 gpd/ft^2. The groundwater gradient, as discussed later in this text and as adapted for this downstream reach of Soledad Canyon, ranges between approximately 0.017 ft/ft for a relatively wet hydrologic period (November 1983 to May 1984) and 0.012 ft/ft for a relatively dry hydrologic period (November 1964 to December 1965).

Also, the cross sectional area of flow, as discussed later in this text and as taken at the location of this same narrows in the canyon, is determined by the product of: the width of the alluvium at the narrows, which is approximately 1500 ft; and the thickness of the zone of saturated alluvium, which ranges from 100 ft in a relatively wet period to about 60 ft in a relatively dry period (as adapted from data on storage units and subunits later in this text). The least well known of the variables is the value for sediment permeability.

Regardless, the requisite calculations for subsurface outflow within the alluvium at the downstream terminus of the Acton basin, as defined herein, show the following:

a. for a relatively wet period, an outflow of about 2800 AF/yr;

b. for a relatively dry period; an outflow of about 1200 AF/yr.

WATER LEVELS

To evaluate the status of groundwater levels and flow directions in the study area, the elevation of the water table at numerous points must be obtained. When lines connecting points of equal water table elevation are drawn, the lines represent contours of equal elevation of the water table. Construction of water level contour maps requires obtaining non-pumping water depth measurements for a specific time period from wells spaced throughout the study area. These water level depths are then corrected for elevation, plotted on a map, together with the well location and well identification, and then contoured.

Groundwater flows from high head to low head, and hence, flow directions are perpendicular to the contour lines themselves. However, it should be noted that because most wells in the region contain relatively long lengths of continuously perforated casing, groundwater enters the well bore from all strata encountered by the well. This precludes analysis of water movement in individual aquifers. Also, because there is not an even distribution of wells throughout the study area, there are numerous data gaps and contour lines must be interpolated in these areas. Lastly, it should be noted that some reported water levels are questionable and likely relate to some form of measuring error.

For this investigation, two time periods were selected to represent basin-wide groundwater conditions and the direction of groundwater flow. The period from November 1964 to December 1965 was selected because it represents that period of time for which water level data are available when water levels in the study area were at or near their all-time low (a hydrologically dry period). The period from November 1983 to May 1984 was selected because it represents the all-time high period (a hydrologically wet period) for which water level data are available in the project area.

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As shown on the rainfall cumulative departure curves (Figures 2.1 and 2.2), the all-time high for precipitation appears to have occurred from 1944 to 1947. However, no water level data for this period are available, therefore, the second period of high water levels which occurred in response to above-average precipitation during the period 1978 to 1983 was used to represent high water levels.

Data was obtained for the low and high groundwater level contour maps from basic water level readings for wells in the region that were on file at LACFCD. These readings were annotated for each water well monitored, and then contoured as illustrated on Plates 4 and 5 - Groundwater Contours - for the periods November 1964 to December and 1965 to November 1983 to May 1984, respectively.

As described in other sections of this report, the alluvium and terrace deposits in the study area are divided into numerous subunits, or storage units, the boundaries of which have been selected on the basis of geologic and topographic features. However, in describing groundwater movement, the alluvial and terrace deposits are considered to be a single entity across the study area from the Soledad Pass watershed divide on the east, to the narrows at the downstream end of the study area which lies approximately 3000 ft northeast of Ravenna on the southwest side of the study area. The location and areal extent of the alluvium and terrace deposits are shown on Plate 1 (and in further detail later in this text on Plate 6).

During the water level low period of November 1964 to December 1965, groundwater levels in the investigation area varied in elevation from 3050 ft above sea level at the easterly limits of the study area in Soledad Pass to 2450 ft at the westerly limits near Ravenna. Highest groundwater elevations were exhibited in terrace deposits in the upper portions of Kentucky Springs Canyon, where groundwater reached a maximum elevation of 3950 ft above sea

level. Groundwater movement was to the west in the main channel of the Santa Clara River in Soledad Canyon, generally to the south in tributary canyons lying north of the river, and to the north in the southern tributaries.

Depth to water in the terrace deposits during the water level low period of November 1964 to December 1965 period in the study area is considered to be moderately deep, with typical water levels being 150 to 200 ft below ground surface, except in Arrastre and Aliso Canyons, where typical water levels were on the order of 25 to 50 ft below ground surface. Depth to water in the alluvium during this low water level period ranged from 100 to 180 ft below ground surface except for the area of rising groundwater near Acton Camp, where depth to water ranged from 40 to 60 ft below ground surface.

During the water level high period of November 1983 to May 1984, groundwater levels in the study area varied in elevation from 3150 ft above sea level in Soledad Pass to 2450 ft near Ravenna. Highest groundwater elevations of 4000 ft above sea level occurred in terrace deposits in Kentucky Springs Canyon. Depth to water in the terrace deposits during this period ranged from 20 to 70 ft below ground surface, while depth to water in the alluvium was on the order of 10 to 40 ft below ground surface except in the river channel southwest of Acton Camp, where water levels were just below, or occurred at ground surface as rising waters.

Notable in an analysis of water level contour data for both the low period of November 1964 to December 1965 and the high period of November 1983 to May 1984 is the fact that water levels in the alluvial and terrace deposits fluctuated rapidly and to a large degree in response to wet and dry conditions; this occurred not only in individual areas or individual wells, but in general throughout the entire study area. Such a condition of rapid and/or large scale water level fluctuation results from a combination of

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sediments with high permeability, and aquifers of limited areal extent and/or of limited storage capacity.

Review of the groundwater contours for the hydrologically dry and wet periods (Plates 4 and 4) indicates that the gradients for any particular canyon are relatively similar regardless of the climatic period. The overall gradient, I, within the alluvium of the river from the northeast to the southwest limits of the Acton basin, as defined herein, are approximately: 0.014 ft/ft, about 73 ft/mi for the dry period (Plate 4); and 0.016 ft/ft, about 86 ft/mi for the wet period (Plate 5).

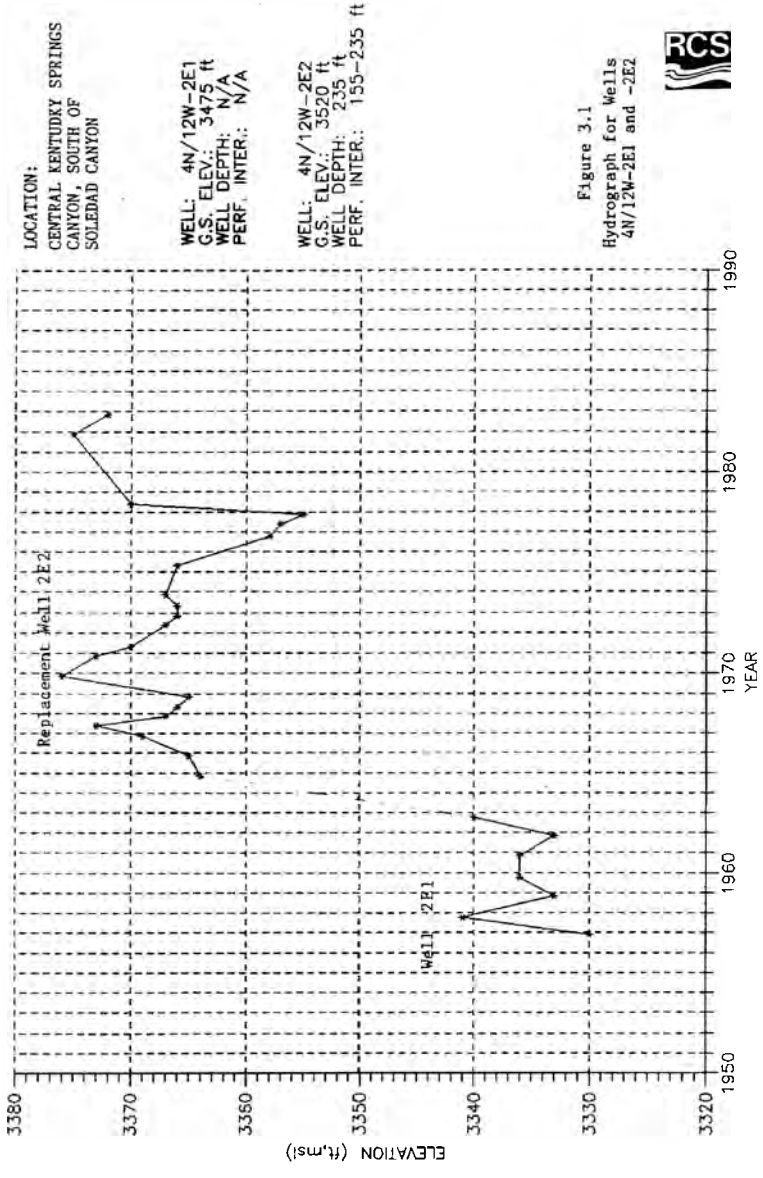
Similar calculations, but only for the reach of the river near Acton Camp, near the downstream end of the basin, reveal the following:

a. in the dry period, I = 0.012 ft/ft, or about 64 ft/mi;
b. in the wet period, I = 0.017 ft/ft, or about 91 ft/mi.

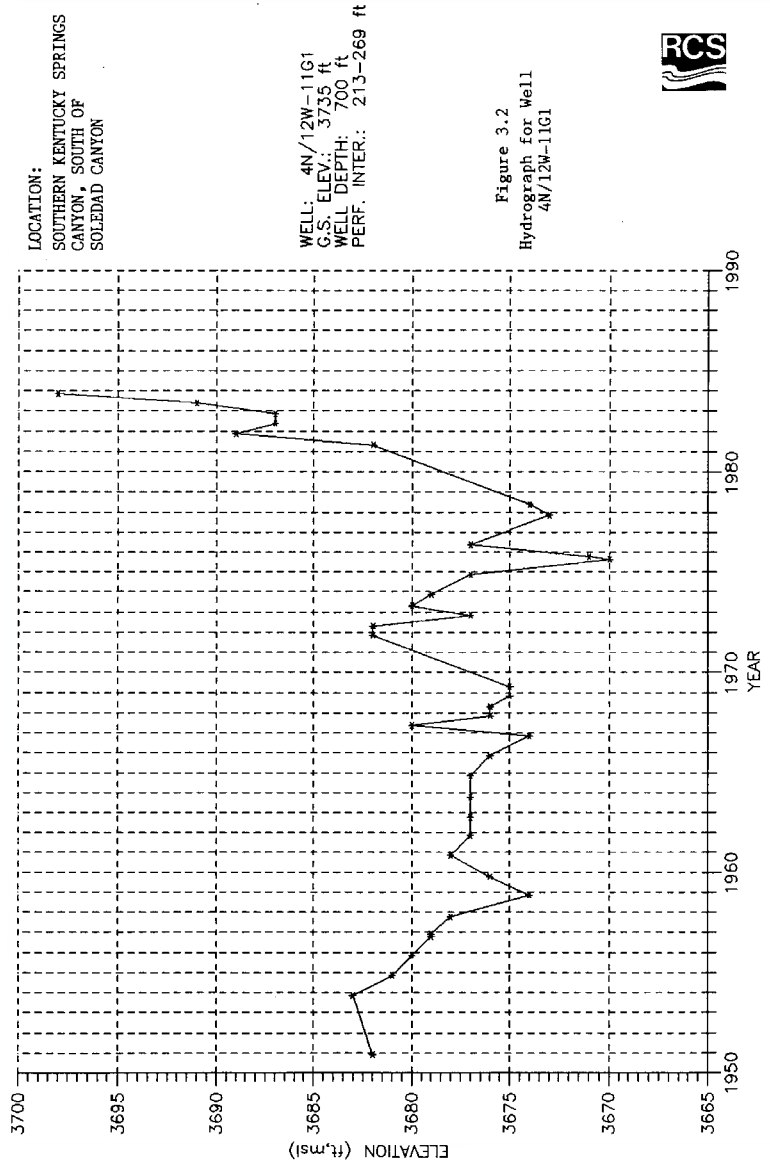
This indicates that the subsurface outflow from the basin below Acton Camp would be greater by the ratio of 91/64, or about 1.42 times larger in the wet period compared to the dry period, assuming that the other two variables in the Darcy equation were constant (specifically, the thickness of the saturated zone of the flow, and the permeability of the alluvial sediments). It should be noted that the thickness of the saturated zone does change depending on long-term climate (see discussion of storage subunits later in this report) and on sediment permeability. The least known and/or tested of these variables is sediment permeability.

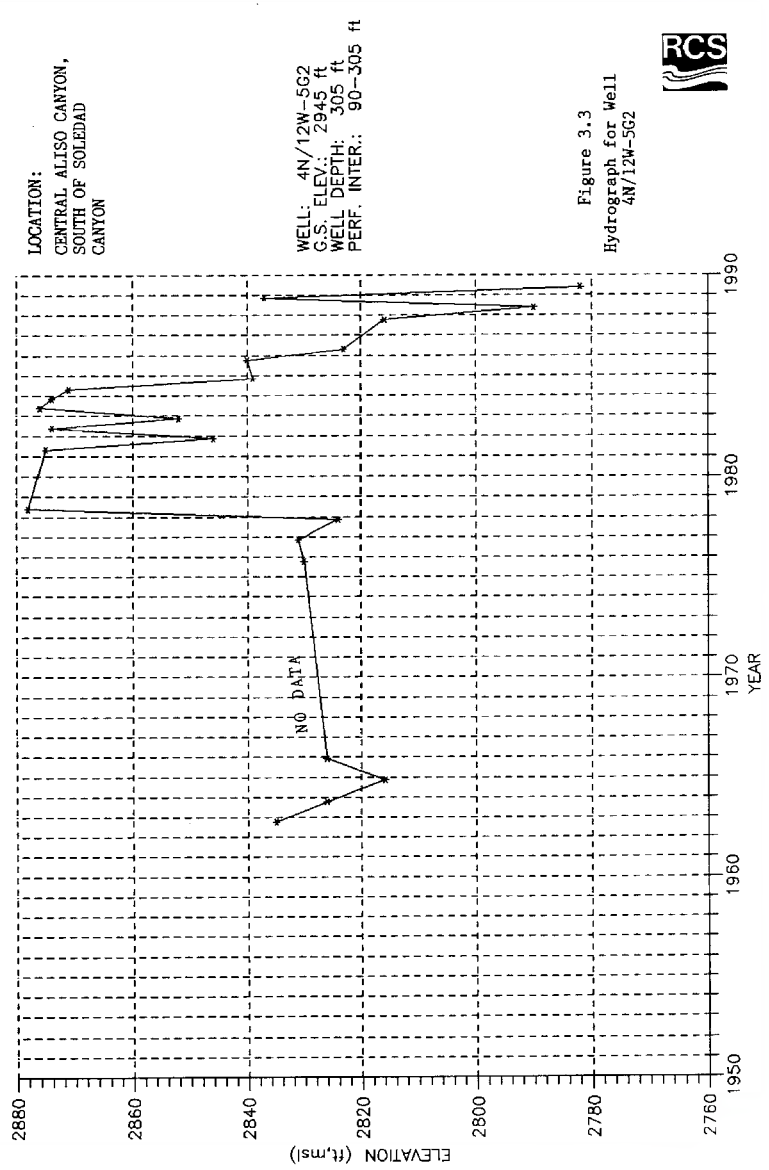
HYDROGRAPHS

Water level fluctuations in 12 wells in the study area were obtained from various data repositories and plotted versus time to construct water level hydrographs. The hydrographs, as presented in Figures 3.1 to 3.9, reveal the continuous adjustment of groundwater in storage to changes in basin-wide recharge and discharge. The hydrographs permit the assessment of both long-term and short-

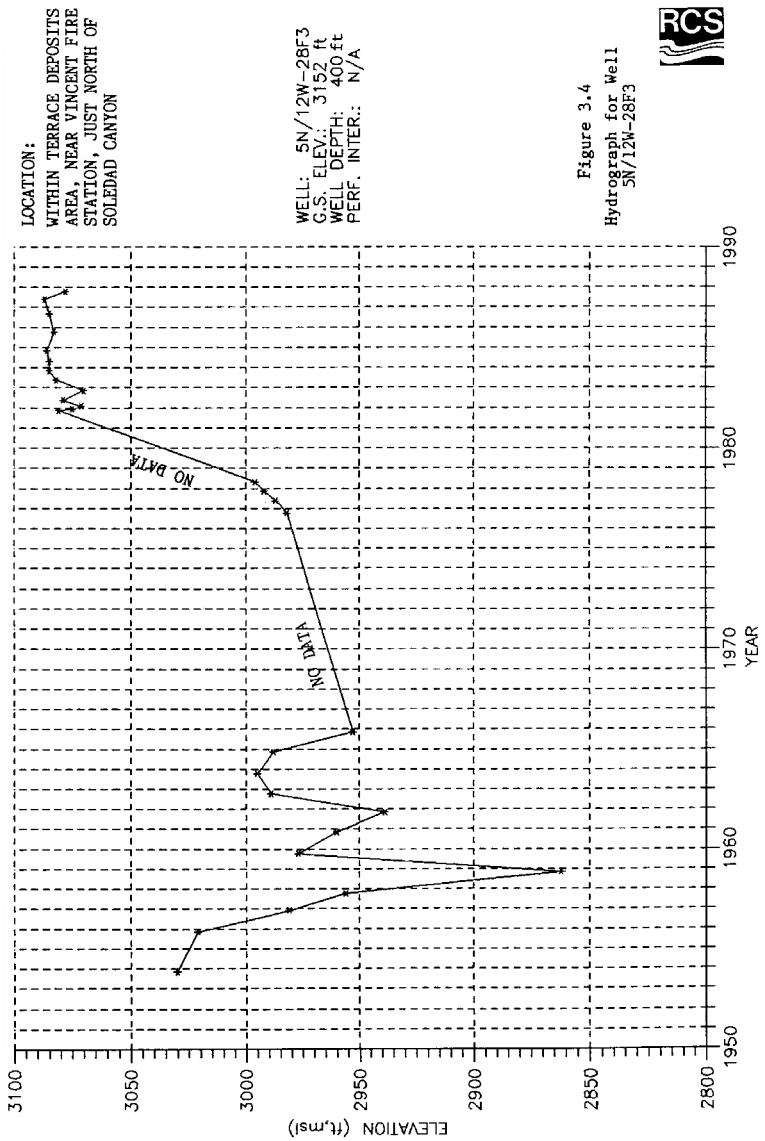


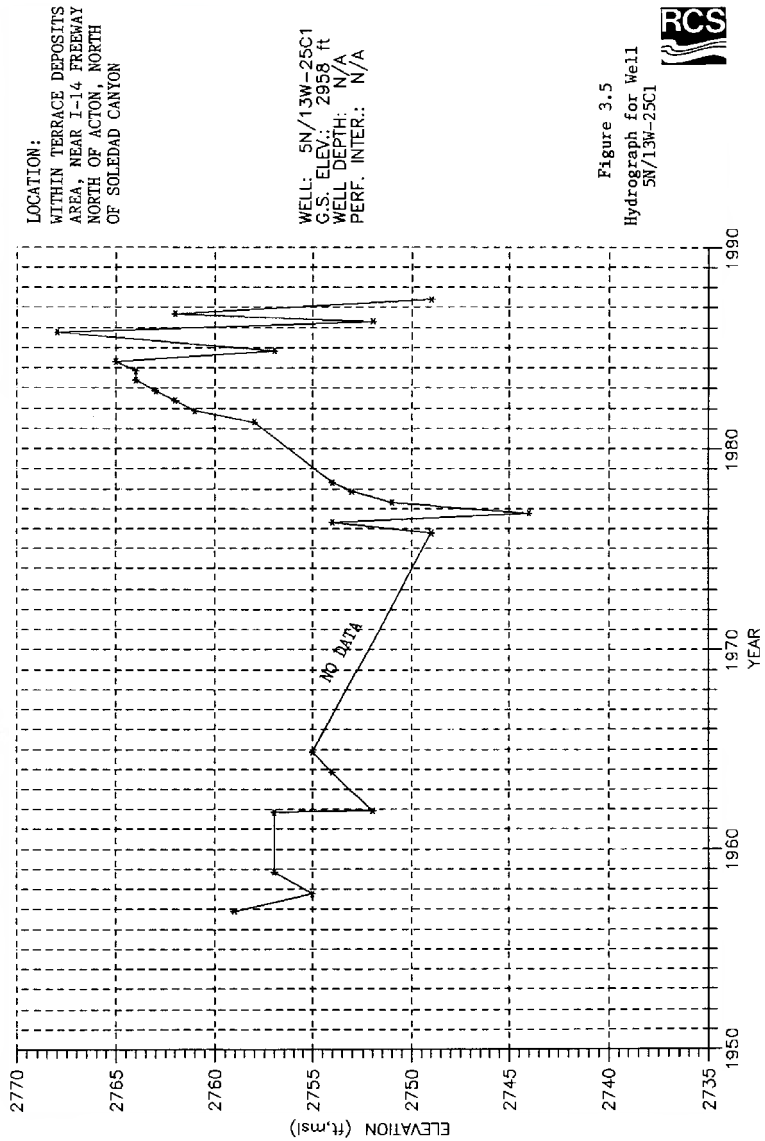
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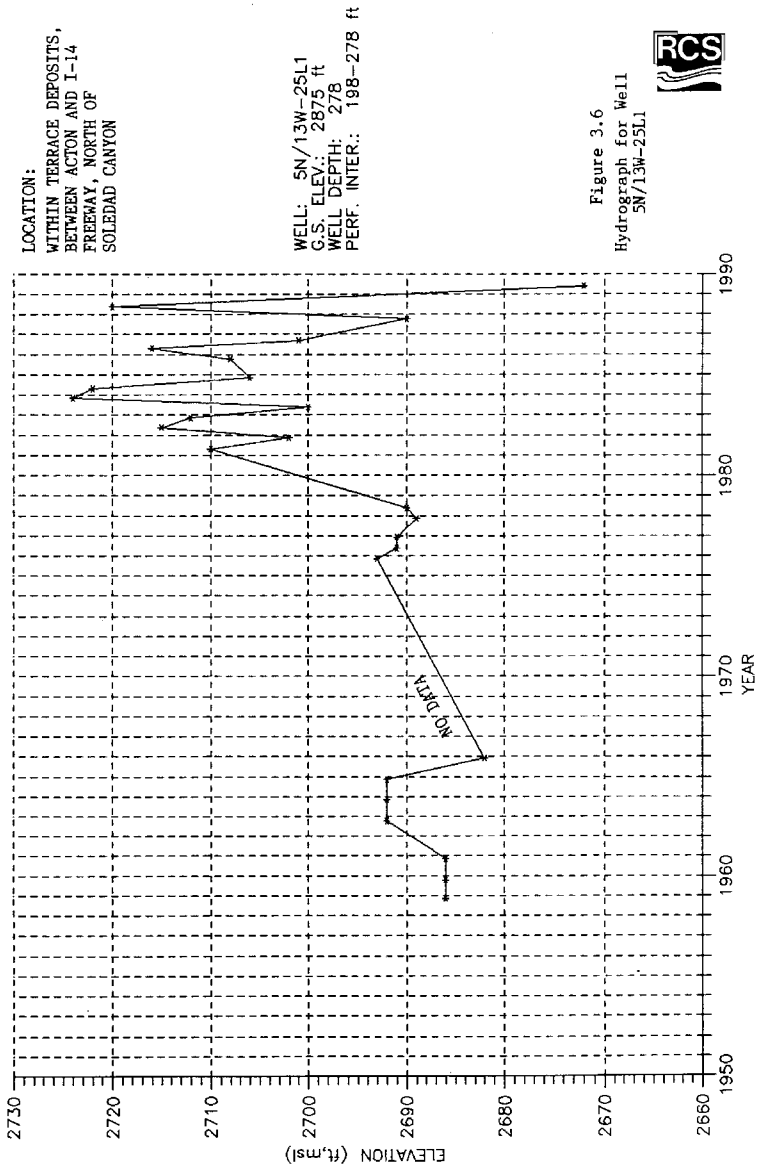


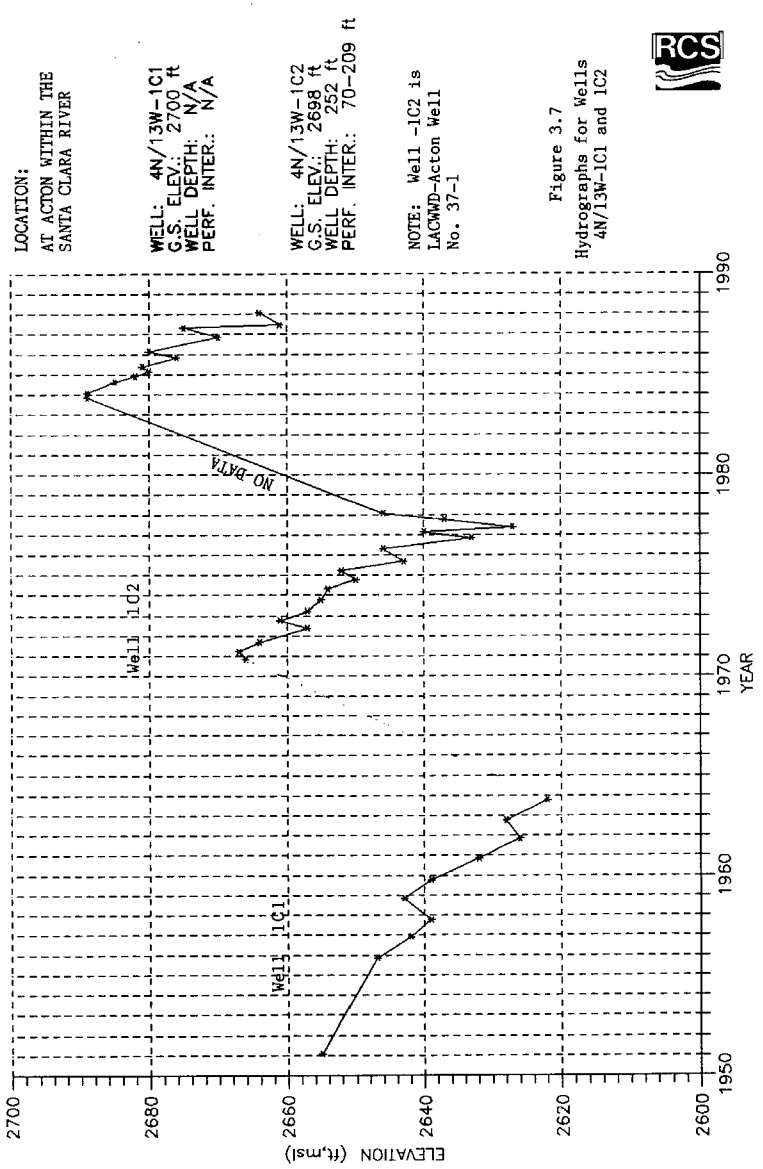
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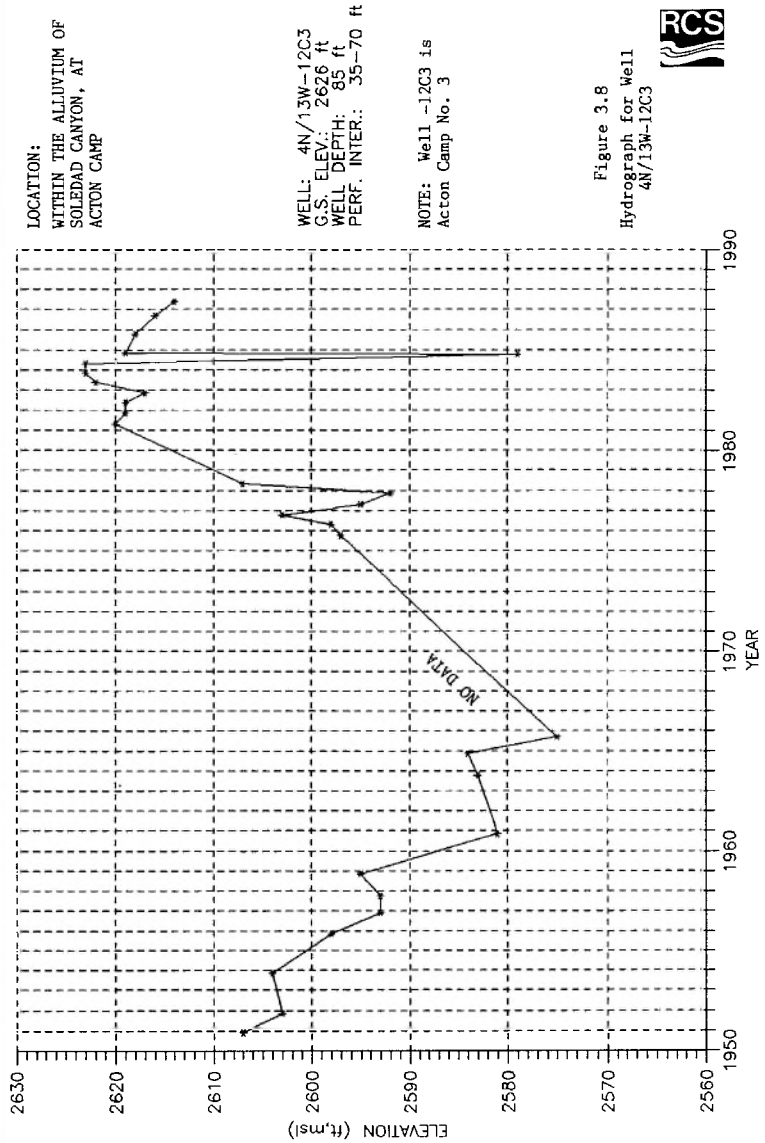


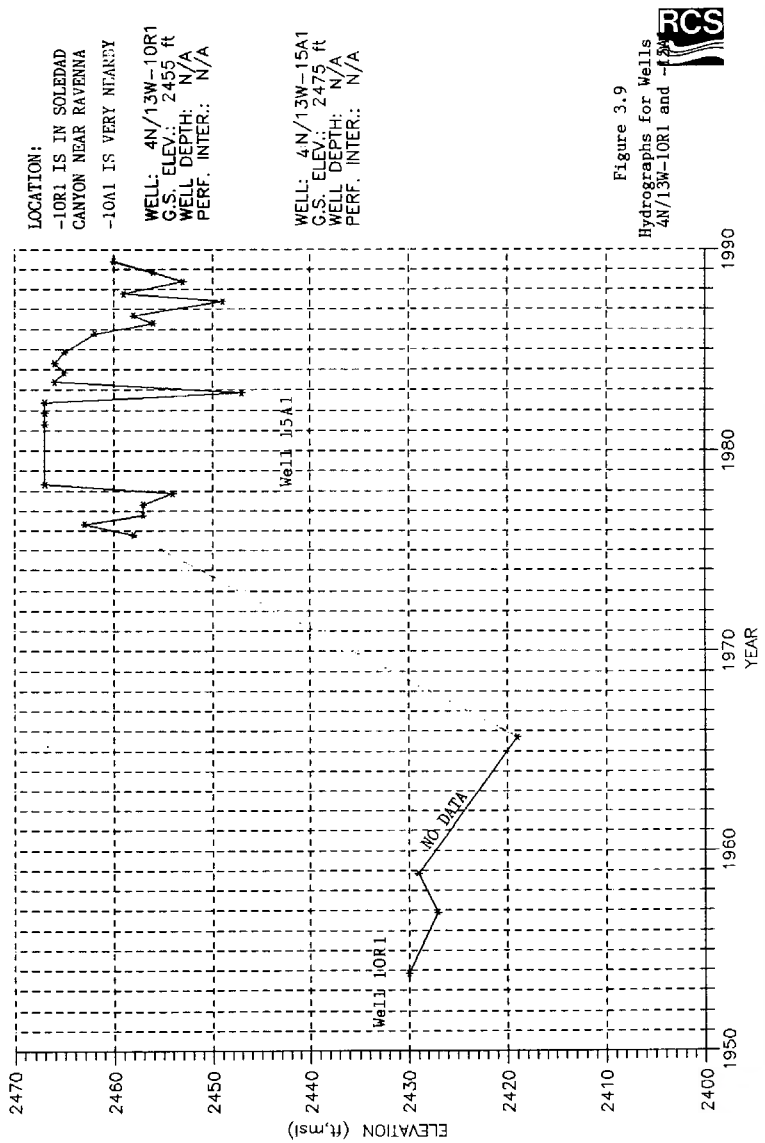
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term seasonal changes occurring within the aquifer systems comprised by the alluvium and by the terrace deposits.

Due to the sporadic nature of water level data collection in the Acton area, three of the hydrographs consist of pairs of nearby wells, the first well covering the period from the early 1950s to the mid-1960s, and the second well covering the period from the late 1960s or early 1970s to the present. Of the remaining six wells, five have data gaps from the mid-1960s to the mid-1970s.

Assessment of the hydrographs is supplemented with the use of precipitation data shown on Tables 1.1 and 1.2 and the cumulative rainfall departure curves on Figures 2.1 and 2.2, for Blum Ranch and Acton Camp, respectively.

The specific wells for which hydrographs have been prepared include (see well locations on Plate 1):

a. Wells 4N/12W-2E1 and -2E2 which are located in the central portion of Kentucky Springs Canyon, south of Soledad Canyon (Fig. 3.1).

b. Well 4N/12W-11G1 located in the southern portion of Kentucky Springs Canyon (Fig. 3.2).

c. Well 4N/12W-5G2 located in Aliso Canyon, south of Soledad Canyon (Fig. 3.3).

d. Well 5N/12W-28F3 located in the zone of terrace deposits which lies near the Vincent Fire Station, just north of Soledad Canyon (Fig. 3.4).

e. Well 5N/13W-25C1 located in the zone of terrace deposits near the freeway, north of Acton and Soledad Canyon (Fig. 3.5).

f. Well 5N/13W-25L1 located in the terrace deposits, between Acton and the freeway, north of Soledad Canyon (Fig. 3.6).

g. Wells 4N/13W-1C1 and -1C2 (also known as LACWWD Well No. 37-1), located at Acton, within the deposits of the Santa Clara River (Fig. 3.7).

h. Well 4N/13W-12C3 (also known as Acton Camp No. 3), located within the deposits of the Santa Clara River (Fig. 3.8).

i Wells 4N/13W-10R1 and -15A1, located in Soledad Canyon, near Ravenna (Fig. 3.9).

Inspection of the water level fluctuations on Figures 3.1 to 3.9 indicates that changes in groundwater in storage in the study area occur both in the short-term (seasonal) and in the long-term (period of several years).

Short-term, seasonal water level fluctuations are typically in the range of 2 to 10 ft, except for well 4N/12W-5G2 (Fig. 3.3) which displays several seasonal fluctuations in recent years of 20 to 30 ft. For the hydrographs, annual water level highs tend to occur in the spring months (following increased recharge and decreased groundwater pumpage), while the water level lows tend to occur in the fall months (following decreased recharge and increased groundwater pumpage). Rapid and large scale water level rises are commonly observed immediately following large rainfall and/or surface runoff water events and/or rainfall seasons (e.g., see the large rise in early 1978 for well 4N/12W-5G2 on Fig. 3.3 following very high winter-spring rains).

Longer term water level fluctuations reveal the results of basin-wide trends in long-term rainfall, runoff, and deep percolation (recharge). Typical long-term trends for the hydrographs include: a general water level declining period extending (data permitting) from the 1950s, through the 1960s and into the mid-1970s; this is followed by a relatively rapid period of rising water levels into the mid-1980s; and following that, a return to a period of water level declines. Figures 3.1, 3.2, or 3.7 depict these relationships effectively. It is notable that these water level "trends" are analogous to the trends in the cumulative rainfall departure curves (Fig. 2.1 and 2.2).

THEORETICAL AQUIFER PARAMETERS

To assess well yields and aquifer parameters, the water transmitting, or hydraulic properties of the aquifers must be

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evaluated. These aquifers represent the water-bearing zones in the groundwater reservoir; that is, those strata comprised of permeable sandy or gravelly materials, or both, which are mixed with lesser concentrations of silt and clay. The arrangement, sorting, shape, and size of the individual grains in the aquifers control the ability of water to move through the strata.

Characterizing the water transmitting properties of the aquifers are the aquifer coefficients of transmissivity (symbol T, in gallons per day per foot of aquifer, gpd/ft), and storativity (S, in cubic feet per square foot per foot, ft^3/ft^3). An additional parameter, permeability (P, in gallons per day per square foot, gpd/ft^2) can be calculated from T values, or is determined by field tests or by soils laboratory testing of aquifer samples.

Transmissivity and permeability will be discussed in this section of the report. Storativity, the amount of storage in the reservoir, will be discussed in the Geohydrology section.

Typically, T is calculated from aquifer tests conducted in the field on individual pumping wells (based on water level drawdown and recovery measurements versus time). Due to a virtual absence of requisite field data in the basin, such direct calculations of transmissivity were not possible.

Instead, an empirical method of assessing T values was used for this project in order to review the relative ability of the local aquifers in the basin to yield water to wells. This method determines the theoretical value of transmissivity by relating T to the specific capacity of the well.

For the assumed water table conditions in the study area, the empirical relationship is approximately:

Theoretical T = 1750 Q/s, where Q/s is the specific capacity of the well;
Q is the well yield in gpm;
s is the amount of drawdown, in feet, created in the well by that pumping rate;
1750 is an empirical constant.

Actual values of Q and s are generally obtainable from data on drillers' logs or from efficiency tests conducted on local wells by the Edison Company. Again, however, data are meager.

Using data from the well logs, and based on the empirical formula above, theoretical T values for a few wells were then calculated. Because aquifer T values are additive, it follows that if wells were drilled deeper into the alluvium and/or terrace deposits, then the overall T value would increase at that particular location.

It must be recognized that such calculations of theoretical T relate directly to the age, efficiency, condition, and design of the well and its perforations. This is because the key factor in the calculation is well drawdown (symbol, s). Drawdown, in turn, is a measure of the head loss for water entering the well perforations as a result of pumping. Wells that are old, have inefficient designs, that contain precipitates or encrustation on perforations, or that have limited open areas in their perforated intervals will have larger head losses (drawdown) than wells with the opposite of such conditions.

Using existing information for specific capacity, the following are derived:

a. A new well for Acton Camp (No. 4; 130 ft deep, perforations from 40 to 100 ft) was reportedly test pumped in late-1989 (information from Brockmeier Consulting Engineers, Inc.), and produced 800 gpm with a drawdown of 60 ft, and 1100 gpm with a drawdown of 104 ft (initial static level = 18 ft); the length of the tests is not known. Resulting specific capacities are 13.3 and 10.6 gpm per foot of drawdown, respectively. These data suggest T values in the range of 23,000 and 18,500 gpd/ft, respectively. The decrease in the T value at the higher pumping rate indicates that the 1100 gpm is excessive for this well. In addition, both pumping rates created pumping levels (78 ft and 122 ft, respectively) that are below the uppermost perforations in this well (40 ft).

b. Acton Camp Well No. 3, drilled in 1962, displayed an original pumping rate of 1000 gpm from a pumping level of

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95 ft, after 50 hours of pumping according to well log records (static level of 37 ft; top of perforations at 42 ft). These data indicate a specific capacity of 17.2 gpm per foot of drawdown, and a transmissivity of about 30,100 gpd/ft. At a pumping rate of 700 gpm, the well showed a specific capacity and transmissivity of 16.3 gpm per foot of drawdown and 28,500 gpd/ft, respectively.

A 1984 Southern California Edison Company efficiency test of this well showed a pumping rate of 249 gpm from a pumping level of 10 ft (water levels were high in the area in the early-1980s). This calculates to a specific capacity and transmissivity of approximately 65 gpm/ft of drawdown and 114,000 gpd/ft, respectively.

c. Several miles upstream near the intersection of Carson Mesa Road and Aliso Canyon Road, a 354-foot deep well drilled in September 1989 (perforations from 134 to 354 ft) reportedly revealed a specific capacity of 70 gpm per foot of drawdown, at a pumping rate of 350 gpm. If accurate, this would suggest a T value on the order of 120,000 gpd/ft.

d. A 260-foot deep well drilled in September 1989 for Acton I Builders Group revealed pumping rates of 400 to 500 gpm, specific capacities in the range of 10.2 to 10.5 gpm per foot of drawdown, and T values of 17,800 to 18,400 gpd/ft, respectively. This well also lies in the main portion of Soledad Canyon, relatively near the one discussed above.

e. LACWWD Well No. 37-1 (232 ft deep, perforations from 70 to 209 ft) is located in the river area near Acton, and showed a pumping rate of 1000 gpm from a depth of 90 ft when first drilled in 1967 (static level = 75 ft). These data show a Q/s = 66.6 gpm per foot of drawdown and a T = 116,700 gpd/ft.

To evaluate sediment permeability, it is necessary to utilize transmissivity (T) and the relationship T = Pm, where P = permeability (in units of gallons per day per square foot, gpd/ft^2), and m = aquifer thickness (in ft). This relationship must be used for Acton because no laboratory permeability test data are available in the literature. Also, when the full aquifer thickness is not known, it is possible to have m = total footage of perforations in the well.

Hence, for the wells discussed above, theoretical permeability values would be as follows:

a. For the 60 ft of perforations in the new Acton Camp well, P would be approximately 400 to 300 gpd/ft^2, respectively.

b For Acton Camp No. 3 (100 total feet of perforations) theoretical P would be approximately 300 gpd/ft^2 for the original 30,000 gpd/ft transmissivity. For the 1984 Edison test, theoretical P would be approximately 1140 gpd/ft^2.

c. For the new well near Carson Mesa and Aliso Canyon roads (220 ft of perforations), P would be approximately 550 gpd/ft^2.

d. For the Acton I Builders Group well (150 ft of perforations), theoretical P would be approximately 120 gpd/ft^2.

e. For LACWWD Well No. 37-1 (139 ft of perforations), the theoretical P value would be on the order of 840 gpd/ft^2.

GROUNDWATER QUALITY

Concentrations of dissolved mineral constituents in groundwater are influenced by the quantity and quality of groundwater which percolates into the groundwater reservoir. Once in the ground, the water quality is influenced by such factors as: the lithology and age of the sediments through which it flows; the rate of groundwater flow; the rates and locations of recharge; fluctuation in basin-wide water levels; well construction and abandonment techniques; methods of water sampling; the locations for and qualities of any artificially-recharged waters; and the proximity to sources of potential degradation such as irrigation-return waters, and industrial discharges, or deep percolation of sewage effluent from the multitude of leachfields in the Acton region.

Identification of the chemical character of groundwater in the Acton area has been determined by the construction of a Trilinear Analysis Diagram - Figure 4. Trilinear diagrams are prepared using the percent reactance values of the principal cations and anions

Figure 4
Trilinear Analysis Diagram

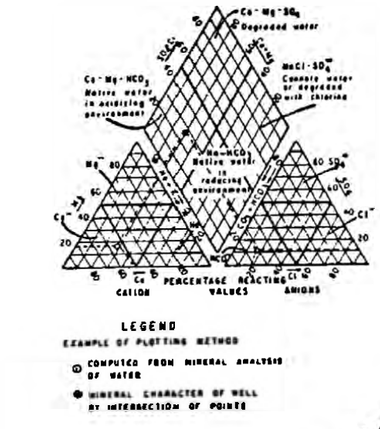
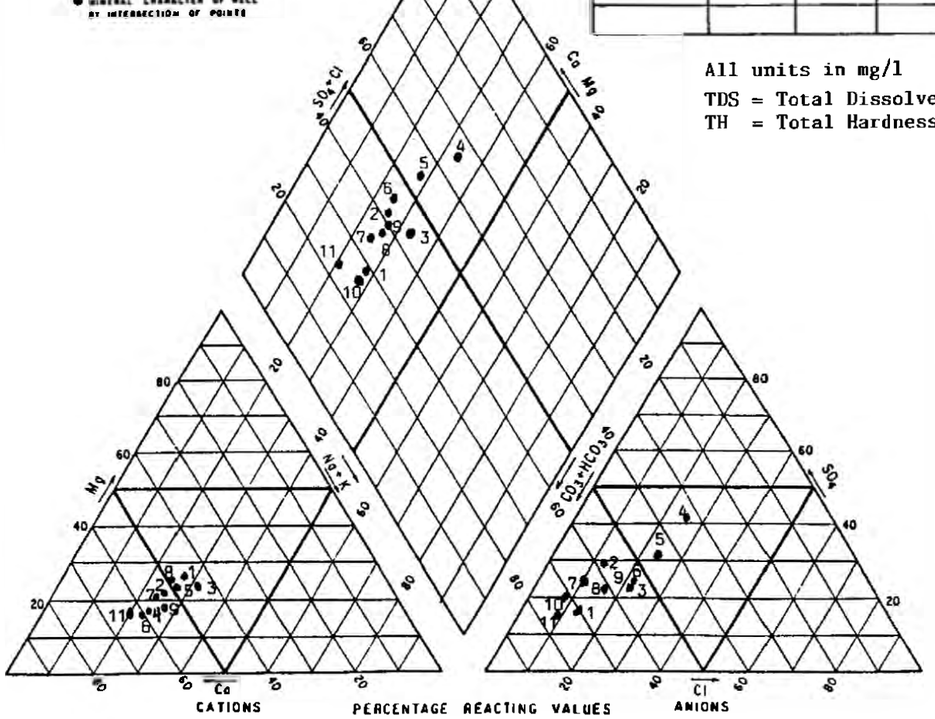


Diagram Symbol	Well	Sample Date	NO_3	TDS/TH
1	4N/12W-2E2	3/89	7.6	287/199
2	4N/12W-5G2	3/89	5.2	364/235
3	5N/12W-32F3	3/89	17.0	346/205
4	5N/13W-25C1	6/88	24.7	480/244
5	5N/13W-35A3	3/89	15.0	412/241
6	4N/13W-1C2	7/89	20.1	395/244
7	4N/13W-12C4	6/88	7.1	279/172
8	4N/13W-11L1	3/89	11.0	321/210
9	4N/13W-15A1	3/89	3.9	445/271
10	Lang/surface	1/20/69	4.4	369/207
11	Lang/surface	1/21/69	8.0	302/172

All units in mg/l
TDS = Total Dissolved Soli
TH = Total Hardness



listed in the original laboratory analysis of the well water. Total dissolved solids (TDS) values used in this study are for total filterable residues and not the higher values historically reported as the summation of constituents; this is consistent with TDS values currently reported by local laboratories.

Figure 4 presents the results of the required calculations for: two relatively deep wells drilled in the region of terrace deposits which may also contain perforations within and produce some water from fractured bedrock (diagram symbols 1 and 2); for two wells probably producing only from terrace deposits (diagram symbols 4 and 5); and for five wells probably producing only from alluvium (diagram symbols 3, 6, 7, 8 and 9). The well represented by symbol no. 9 is located at the western limits of the study area, near Ravenna. Well data is the most recent available and ranges from June, 1988 to July, 1989. The only surface water samples available date from January, 1969, and represent pre- and post-flood periods for a station at Lang, a few miles downstream (diagram symbols 10 and 11).

All the samples show similar calcium-magnesium-bicarbonate character except Nos. 4 and 5, which show calcium-magnesium sulfate character due to a higher sulfate ion concentration. These two wells are located in the broad valley north of Acton community and are part of a four-well group (diagram symbols 3, 4, 5 and 6) situated in the more developed parts of the Acton basin which also display elevated nitrate ion concentration (as NO_3) ranging from 17.0 to 24.7 mg/l. In contrast, the remaining wells on Figure 4 display nitrate levels ranging from 3.9 to 11.0 mg/l. An evaluation of the present nitrate situation in the Acton area, together with an assessment of possible future changes in this ion with time due to proposed developments in the Acton area, are provided in the Geraghty & Miller, Inc. report for Brockmeier Consulting Engineers, Inc. (Feb. 1990).

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Total dissolved solids concentrations for existing data range from 279 to 480 mg/l while total hardness (TH) ranges from 172 to 271 mg/l. There does not appear to be any obvious relationship between TDS or TH concentrations for wells producing from terrace deposits versus alluvial wells.

Comparison of historical quality data with hydrographs of water levels for nearby wells (Plate 2, Figures 3.1-3.9), suggests that TDS may have responded inversely to precipitation (recharge). That is, as water levels rose within the alluvium and terrace deposits in response to direct and rapid infiltration of precipitation and stream runoff, the TDS content in wells tended to decline because of large dilution effects of recharge. Similarly, the surface water samples at Lang (symbols 10 and 11, Figure 4) for January 20 and 21, 1969, show a decrease in TDS and TH with an increase in flow from 10 cubic feet per second (cfs) to an estimated 500 cfs, after heavy rainfall and flooding.

GEOHYDROLOGY

GENERAL STATEMENT

Within a groundwater basin, the available groundwater storage capacity represents the total volume of water that can be held in underground storage at a given period of time and that can become readily available for extraction by wells. For the water table environment in the Acton area, the groundwater storage capacity potentially available for extraction by wells depends on the total volume of the alluvial and terrace deposits that are, or can become, saturated in the groundwater reservoir, and on the specific yield of those sediments. Hence, groundwater in storage is a constantly changing value which fluctuates in response to both seasonal and long-term changes in recharge to, and discharge from, the groundwater reservoir. A rising water table increases the thickness of the saturated water-bearing section, which results in

a greater volume of groundwater in storage; the reverse is true for a declining water table (a decreasing saturated thickness).

To be usable, the void space or reservoir space for groundwater storage in a given volume of sediments must have at least two capabilities: it must be economically capable of being dewatered during periods of deficient surface supply; and it must be capable of being re-saturated either naturally or artificially during periods of excess surface supply. Thus, the groundwater reservoir must contain usable water, which may be defined as that having a satisfactory quality for prevailing beneficial uses and that occurring in sufficient quantity in the underground reservoir to be available without uneconomic yield or excessive drawdown.

Within the water table conditions in the study area, the amount of water available for use at the beginning of the pumping season is dependent entirely upon the amount of water which the formations will yield by gravity when the water levels are depressed by pumping.

For this investigation, it was necessary to assess the quantity of groundwater in storage during periods of average or above-average rainfall; from these calculations, it is then possible to determine the change in storage in response to the quantity of precipitation.

Also, the aquifer system within the study area is comprised of alluvial and terrace deposits derived from the surrounding highland areas and deposited as interfingering lenses of clay-, silt-, sand-, gravel- and boulder-sized sediments. The materials vary in composition and grain size vertically as well as horizontally, and tracing of individual beds or units was not possible. Because the aquifer system is both heterogeneous and non-isotropic, it was considered unreliable to merely select an average thickness for the alluvial and terrace deposits and to apply this value throughout the study area. Likewise, it was deemed inadvisable to select one value of specific yield for all of the alluvial and terrace

deposits and to utilize this single value for computational purposes.

GROUNDWATER STORAGE CAPACITY

To quantify the volume of groundwater in storage that is potentially available for extraction, it is necessary to multiply the total volume of water-bearing sediments by the specific yield of the various strata. In this assessment, specific yield represents the ratio of the volume of water which can be drained by gravity from a saturated stratum to the unit volume of that stratum. The procedure for calculating storage capacity involved the following steps:

1. Subdivision of the study area into individual groundwater storage units within the alluvium and also within the terrace deposits.
2. Assessment of the total thickness of potentially saturated sediments in each of the two storage units.
3. Grouping of earth materials described on drillers' logs into categories based on grain size.
4. Assignment of specific yield values to each category of earth materials.
5. Computation of groundwater storage capacity (SC) using $SC = AmS_y$, where A = surface area of the storage unit, m = thickness of potentially saturated deposits in that unit, and S_y = the assigned specific yield.

STORAGE UNITS AND SEDIMENT THICKNESSES

The first step in determining storage capacity is to subdivide the study area into individual groundwater storage units. To accomplish this, boundaries of the storage units were selected to coincide with either surface or subsurface geologic features or topographic features such as canyon "narrows," obvious surface "divides," or similar features. The purpose of using such subdivisions was twofold: first, our study area was too large and

had to be divided into smaller, more-easily-managed units; and second, hydrogeologic features varied markedly throughout the investigation area.

As a result, two separate storage units were selected: Unit No. 1, alluvium (map symbol Qal) and Unit No. 2, terrace deposits (map symbol Qt). Unit No. 1 was divided into nine separate subunits and Unit No. 2 was divided into 18 separate subunits. As illustrated on Plate 6 - Groundwater Storage Units, the two storage units are of different areas and geometry. Based on our field reconnaissance in January 1990, the alluvial and terrace deposits contacts on Plates 2 and 5 have been modified from the published geology (as shown on Plate 1) in order to more accurately represent the surface extent of the alluvial and terrace deposits that are being studied for this investigation. Our interpretation of the relationship between the alluvium and the terrace deposits, and the surrounding older nonwater-bearing rocks, is presented in cross-sections A-A' and B-B' (Plate 3). Locations of the cross-sections are shown on Plate 2.

To assess the quantity of groundwater in storage at any given time that is potentially available for extraction by wells, it was necessary to assign specific yield values to each subunit and to multiply this figure by the volume of saturated sediments in the subunit. The volume of saturated material is a product of the area of the individual subunit and the saturated thickness of the material underlying the particular subunit, multiplied by a correction factor to take into account the fact that: the sides of the subunits are not vertical; and the base of the subunit is not a horizontal plane. The total planimetered surface area in each subunit was reduced by a factor of 25 percent to account for the reduction in volume of the subunit caused by the sloping sides of the canyon walls which adjoin the channels and valleys.

To ascertain the thickness of the saturated material, it is necessary to determine the base of the fresh water-bearing

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sediments and the elevation of the water table at a specific time period within each of the subunits. Maps depicting the elevation of the water table for specific time periods (November 1964 to December 1965 and November 1983 to May 1984, as seen on Plates 4 and 5) were used for these purposes. The initial interval represents a water-level low period which had been preceded by a series of dry years while the second interval represents a water-level high period following several years of above-average precipitation.

Lastly, the following important assumptions were used:

1. All surface boundaries were considered to be sloping planes.

2. The depth to water in each storage subunit was averaged across the subunit to create a flat water table and a uniform thickness of saturated sediments across each particular subunit.

3. The base of fresh water for each storage subunit was averaged across that subunit to create a flat bottom for each particular subunit; however, the volume of saturated material was corrected, as described above.

SPECIFIC YIELD VALUES

Specific yield in water table environments represents the quantity of water that a unit volume of the material will release from storage when drained by gravity. The part of the water that is not removed by gravity during drainage is held against the force of gravity by such conditions as molecular attraction and capillarity; this water is not available to wells.

For this investigation, drillers' logs or other lithologic data were available for approximately 30 wells and test holes. Those locations completed as wells are shown on Plate 1. Specific yield values were obtained from studies of sediments similar to those at Acton where terms from drillers' logs had been empirically matched to specific yield for the wells in question.

Specific yield values were determined to range from 10 to 19 percent in the alluvium and from three to five percent in the older, more highly weathered terrace deposits. The higher values of specific yield were found to be restricted to only a few alluvial storage units. Once a determination was made of the specific yield values for selected wells, each storage subunit was assigned a single value which was considered to best represent that entire subunit.

ESTIMATED QUANTITY OF GROUNDWATER IN STORAGE

The estimated quantity of groundwater in storage that is potentially available for extraction within the investigation area was computed by multiplying the area of each storage subunit by the saturated thickness of that storage subunit (based on the water table elevation for that particular period), and by the specific yield value, in percent, assigned to the subunit. Tables 2.1 and 2.2 - Groundwater Storage Calculations - present the results of our calculations of groundwater in storage for Storage Unit Nos. 1 and 2 for the periods November 1964 to December 1965 and November 1983 to May 1984. To provide a detailed summary breakdown of the groundwater in storage in the alluvium and terrace deposits storage units, the reader is referred to Table 3 - Summary of Groundwater Storage Calculations.

Review of Table 2.1 for Storage Unit No. 1 (the alluvium aquifer system) reveals the following:

1. The alluvial aquifer system in the Santa Clara River and its tributaries in the Acton area (see exposure area on Plates 1 and 6) has a total area of 1587 acres, or 2.5 square miles.

2. Total groundwater in storage ranged from a low of approximately 9783 ac-ft during the low water level period November 1964 to December 1965 to a high of approximately 22,271 ac-ft during the high water level period November 1983 to May 1984.

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Table 2.1 - Groundwater Storage Calculations - Alluvial Deposits

Storage Subunit Designation	Total Planimetered Surface Area of Qal Aquifer (acres)	Effective Surface Area of Subunit (acres)	Average Surface Elevation (feet)	Average Specific Yield (percent)	Average Elevation of Base of Aquifers (feet)	Average Water Level Elevation 11/64-12/65 (feet)	Groundwater in Storage 11/64-12/65 (acre-feet)	Average Water Level Elevation 11/83-5/84 (feet)	Groundwater in Storage 11/83-5/84 (acre-feet)
1a	177	133	3140	16	3080	below Qal	0	3135	1170
1b	66	50	3035	14	2990	below Qal	0	3030	280
1c	209	157	2920	14	2770	2790	440	2910	3077
1d	374	281	2780	14	2570	2660	3541	2750	7081
1e	91	68	2830	10	2730	below Qal	0	2800	476
1f	51	38	2825	16	2725	2765	243	2820	578
1g	155	116	2710	10	2610	2640	348	2695	996
1h	265	199	2660	19	2485	2585	3781	2650	6239
1i	199	149	2560	16	2455	2515	1430	2555	2384
TOTAL	1587	1191					9789	22,271	

NOTES:
1) See Plate 6 for location of storage units and subunits.
2) Total planimetered surface area for each subunit has been reduced by 25% to account for reduction in volume of the subunit caused by sloping sides of the canyon while adjoining the alluvium.

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Table 2.2 - Groundwater Storage Calculations - Stream Terrace Deposits

Storage Unit Designation	Total Planimetered Surface Area of Qt Aquifer (acres)	Effective Surface Area of Subunit (acres)	Average Surface Elevation (feet)	Average Specific Yield (percent)	Average Elevation of Base of Aquifer (feet)	Average Water Level Elevation 11/64-12/65 (feet)	Groundwater in Storage 11/64-12/65 (acre-feet)	Average Water Level Elevation 11/83-5/84 (feet)	Groundwater in Storage 11/83-5/84 (acre-feet)
2a	386	290	3660	3	3635	below Qt	0	3650	131
2b	590	443	3230	3	3185	below Qt	0	3215	399
2c	257	193	3320	5	3290	below Qt	0	3300	97
2d	1003	752	3560	5	3485	3500	564	3525	1504
2e	268	201	3110	3	3035	below Qt	0	3075	241
2f	613	460	3115	5	3040	3065	575	3090	1150
2g	183	137	2840	3	2780	below Qt	0	2815	144
2h	96	72	2820	5	2780	below Qt	0	2800	72
2i	730	548	2780	4	2715	2750	767	2770	1206
2j	493	370	2900	5	2840	below Qt	0	2875	648
2k	1187	890	2820	5	2710	2770	2670	2795	2893
2l	621	466	2910	3	2825	2840	210	2875	699
2m	1461	1096	3240	3	3210	below Qt	0	3225	438
2n	400	300	3230	3	3205	below Qt	0	3215	90
2o	849	637	3880	3	3245	below Qt	0	3265	382
2p	323	242	3220	3	3180	below Qt	0	3200	145
2q	637	478	3160	4	3095	below Qt	0	3125	574
2r	1047	785	3030	4	2980	2990	314	3020	1256
TOTAL	11,144	8360					5100	12,124	

NOTES:
1) See Plate 6 for location of storage units and subunits.
2) Total planimetered surface area for each subunit has been reduced by 25% to account for reduction in volume of the subunit caused by sloping sides of the canyon walls adjoining the terrace deposits.

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3. During periods of low groundwater, the upper reaches of the alluvium (Storage Subunits 1a and 1b, Plate 6) and a shallow canyon on the north side of the area (Storage Subunit 1e) may be virtually dry, with water levels at or below the base of the alluvial aquifer.

Review of Table 2.2 for Storage Unit No. 2 (the stream terrace deposits aquifer system) indicates the following:

1. The terrace deposits aquifer system in the Acton area has a total area of 11,144 acres, or 17.4 square miles (refer to Plates 1 and 6).

2. Total groundwater in storage ranged from a low of approximately 5100 ac-ft during the water level low period of 1964 to 1965, to a high of 12,124 ac-ft during the water level high period of 1983 to 1984..

3. During periods of low groundwater, the water table may be at or below the base of the terrace deposits throughout most of the aquifer system. The exceptions are likely to be the large canyons in the foothills of the San Gabriel Mountains (Kentucky Springs, Aliso and Arrastre Canyons; Storage Units 2d, 2f, and 2i) and the wide valley north of Acton community (Storage Units 2k and 2l).

Summary Table 3 indicates that total surface area for both the alluvial and terrace deposits is 12,731 acres (19.9 mi^2) and that total groundwater in storage that is potentially available for extraction from the two aquifer systems ranges approximately between: 14,900 AF during the water level low period between November 1964 and December 1965; and 34,400 AF during the water level high period between November 1983 and May 1984. Cumulative departure data for Blum Ranch and Acton Camp (Figures 2.1 and 2.2, respectively) indicate that rainfall for the 1944-47 period was significantly more than for the 1983-84 period, and therefore, the November 1983 to May 1984 groundwater storage calculations likely represent above-average groundwater storage, but likely not the all-time high. The period of November 1964 to December 1965 appears to represent a period at or near the all-time low for water levels in the area.

Table 3 - Summary of Groundwater Storage Calculations

Storage Unit Name	Total Planimetered Surface Area of Aquifer (acres)	Effective Surface Area of Aquifer (acres)	Groundwater in Storage 11/64 - 12/65 (acre-feet)	Groundwater in Storage 11/83 - 5/84 (acre-feet)
Alluvial Aquifer System (No. 1)	1587	1191	9783	22,271
Stream Terrace Aquifer System (No. 2)	11,144	8360	5100	12,124
TOTAL	12,731	9551	14,883	34,395

NOTES: 1) See Plate 6 for locations of storage units and subunits.
2) Effective surface area taken at 75% of the planimetered surface of aquifer in each storage unit (see text).

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It should be noted here that groundwater levels in the terrace deposits lying along the foothills of the western San Gabriel Mountains, south of the Santa Clara River, are considerably higher during dry periods than are groundwater levels in the terrace deposits along the foothills of the Sierra Pelona, to the north of the Santa Clara River. Isohyetal contours prepared for the 1897 to 1947 period for the entire Santa Clara River drainage system (CRWQCB, 1975) show a maximum rainfall zone (32 inches per year) over the western San Gabriel Mountains, which decreases markedly to approximately 10-12 inches per year along the course of the river and to 8-10 inches per year in the northern part of the Acton area. This large rainfall decrease is considered to account for the relatively low groundwater levels during dry periods in the northern part of the Acton area.

In comparison to the groundwater storage volumes potentially available for withdrawal, as calculated for this investigation, we note that Geraghty & Miller, Inc. (in Brockmeier, 1990) also calculated the magnitude of total groundwater in storage. Their calculations were based on the following assumptions and/or criteria:

a. A 75-foot average thickness of saturated flow within the alluvium.

b. A porosity of 0.30 (30%) for the alluvium.

c. A 25-foot average thickness of saturated flow within the terrace deposits.

d. A porosity of 0.20 (20%) for the terrace deposits.

e. An area of alluvium of 2480 acres as identified from published geologic maps.

f. An area of terrace deposits of 10,400 acres as identified from published geologic maps.

g. The upgradient boundary (at Soledad Pass) and the downgradient boundary (about 3000 ft northeast of Ravenna) selected by Geraghty & Miller, Inc. for the alluvium within Soledad Canyon are the same as used by this investigator.

h. The use of porosity (instead of specific yield) allows them to calculate total water in storage, which is not the quantity of water available for withdrawal as has been calculated for our report.

As a result of the above, Geraghty & Miller, Inc. calculated a total volume of groundwater in storage in their alluvium area of 56,000 AF, and a total volume of groundwater in storage in their terrace deposits area of 52,000 AF. Hence, their total volume of groundwater in storage in the basin is approximately 108,000 AF. They also recognized that basement rocks contain little water, although some wells may produce some water from such rocks.

CONCLUSIONS AND RECOMMENDATIONS

Based upon review and analyses of existing data for the region, we submit the following conclusions and recommendations.

1.0 DATA BASE

Only a limited number of drillers' logs and/or electric logs are available for water wells in the Acton region. Only a very few wells are monitored for water levels and/or water quality. Data gaps in these water level records include information for a) prior to 1950; and b) for the period between 1965 to 1975.

2.0 HYDROGEOLOGY

2.1 Water-Bearing Sediments. The local groundwater reservoir in the Acton region is known as the Acton Valley Basin (or Acton Basin). Comprising this groundwater reservoir for the purposes of this study are all the potentially water-bearing alluvium and stream terrace deposits along and adjacent to Soledad Canyon (the Santa Clara River) and its major tribu-

taries. Plates 1 and 6 identify the surface exposures of these sediments as mapped for this project. These materials extend northeasterly along Soledad Canyon to the narrows at Soledad Pass, and southwesterly along the canyon to a narrows located about 3000 ft northeast of Ravenna.

Alluvium attains a maximum thickness of perhaps 175 to 225 ft in the Acton community area and is comprised of coarse-grained and permeable materials that are readily subject to scour and erosion by the river. Terrace deposits appear to attain a maximum thickness of about 210 ft in the wide valley north of Acton community and are comprised of porous, well-drained silt, sand and gravel. Because of their greater age and degree of weathering, the terrace deposits are likely more clay-rich than the alluvium.

2.2 Bedrock. Underlying the potentially water-bearing sediments, and exposed within the hills and mountains adjacent to Soledad Canyon, are a series of cemented sedimentary rocks, volcanic rocks, and/or crystalline or metamorphic rocks. The geologically older rocks are considered to be bedrock, and they may contain groundwater generally only along bedding planes, fractures, shears or joints. Their permeability is low and they are not considered capable of readily yielding water on a sustained basis to wells.

2.3 Geologic Structure. Several faults traverse the hills in the southwestern portion of the region. Based on water level data in the alluvium, these faults do not appear to create any groundwater barriers within Soledad Canyon.

Water, which was observed to be flowing in the lower reach of Soledad Canyon southwest of Acton Camp on January 12, 1990 (prior to any rainfall in the area), is considered to represent rising water. Such rising water is lost to the basin. This was the only reach of the Santa Clara River in the study area where surface flow was observed on that date.

It results from a change in the cross sectional area within the zone of saturation in the alluvium in this region. Bedrock highs created by faulting and/or lack of deep erosion exist in this reach of the canyon, thereby creating a reduced cross sectional flow area.

2.4 Groundwater Occurrence and Movement. Water table conditions exist in the alluvium and in the terrace deposits. Due to their mode of deposition, confined (artesian) conditions are not expected to occur in these sediments. Wells drilled by others deep into the underlying bedrock will likely encounter various degrees of confinement.

Historically, and at present, groundwater in these sediments within Soledad Canyon flows from northeast to southwest across the study area. In the Acton area, the November 1964 to December 1965 interval represents approximately the all-time water level low, while the interval November 1983 to May 1984 represents a realistic water level high.

In the wetter period, depth to water in the alluvium ranged from 10 to 40 below ground surface while depth to water in the terrace deposits ranged from 20 to 70 below ground surface. In the drier period (November 1964 to December 1965) depths to water in the alluvium and in the terrace deposits ranged between 100 to 180 ft and between 150 to 200 ft below ground surface, respectively. Even within the drier period it was probable that rising water still occurred in Soledad Canyon downstream from Acton Camp.

Water level fluctuations seen on hydrographs closely follow long-term hydrologic (climatic) conditions in the area. Water levels tend to fluctuate rapidly and to a large degree in response to wet conditions (recharge); response to drier periods are somewhat more subdued. Such responses result from a combination of sediments with high permeability and aquifers

of limited areal extent and/or of limited storage capacity. That water levels do not decline as rapidly as they do for recharge events indicates that discharge from the basin (by pumping and/or natural subsurface outflow) is of a lesser magnitude than recharge to the basin (by deep percolation of rainfall and of stream runoff).

As a result, the amount of groundwater in storage in the basin can be expected to fluctuate seasonally and year-to-year, depending mainly on rainfall and surface water runoff characteristics. Periods of excess rainfall and runoff will tend to rapidly fill the basin, while periods of deficient rainfall and reduced runoff will tend to gradually cause a reduction in basin-wide water levels.

Shallow wells and/or wells with a shallow depth to their uppermost perforations will notice such fluctuations more rapidly and to a larger degree than wells with the opposite conditions. Water quality problems, if any, would also tend to be noticed more rapidly and to a larger degree in shallow wells and/or in wells having shallow perforations. Furthermore, the rapid and large scale recharge induced by periods of rainfall will tend to flush out and/or induce dilution to certain kinds of water quality problems in the groundwater reservoir should they occur.

2.5 Groundwater Recharge and Discharge. Principal sources of natural recharge to the groundwater reservoir are deep percolation of direct precipitation and infiltration of stream runoff. Estimates of recharge from precipitation range from 5600 to 7200 AF/yr (using a factor of 10 percent of the rainfall volume as being available for deep percolation), to 11,100 AF/yr (using the Brockmeier report). No separate estimates of stream runoff infiltration have been made to date by any other investigators. Rising water of at least 200 gpm was observed in the river channel just downstream from Acton

Camp at a time (January 1990) that includes three prior years of deficient rainfall and runoff.

Man-made sources of recharge include deep percolation of irrigation returns and returns from private subsurface sewage disposal systems. There are no estimates of these quantities available due to a lack of requisite data. There are no artificial recharge spreading basins or injection wells in the region.

Discharge (subsurface outflow) from the basin occurs by water well pumpage, subsurface outflow to the next downstream groundwater basin, deep percolation into underlying bedrock, and evapotranspiration of shallow waters by phreatophytes.

Metered and/or estimated groundwater extractions for 1989 totaled approximately 1540 AF, as produced by: the County Waterworks District; the two privately-owned companies that supply bulk water to their customers; and the Acton school. The volume produced by all other privately-owned wells to meet all remaining domestic, irrigation, and stock-watering needs in the region is unknown, but is probably less than 1000 AF/yr.

Subsurface outflow from the alluvium at the downstream end of the Acton basin was calculated for this study to range approximately between 2800 AF/yr for a relatively wet period (November 1983 to May 1984) to about 1200 AF/yr for a relatively dry period (November 1964 to December 1965). Geraghty & Miller, Inc. (Brockmeier report) reported a subsurface outflow at the same location downstream from Acton Camp of approximately 2100 AF/yr.

The amounts of outflow by deep percolation into bedrock and by evapotranspiration are unknown.

2.6 Theoretical Aquifer Parameters. Using empirical relationships, due to meager requisite data, theoretical aquifer transmissivity for wells within the alluvial deposits ranges

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between 20,000 gpd/ft and 120,000 gpd/ft. The wide latitude of these values results from such factors as: the age of the well; the efficiency of the well; the type of well perforations; and the location of the well within the alluvium of Soledad Canyon.

Because alluvium thickness appears to be generally greater in the reach of the canyon easterly from the community of Acton, it can be assumed that aquifer transmissivity may be larger in this region also.

Transmissivity, together with pumping rates and specific capacity within alluvial wells, will tend to vary directly with changes in saturated thickness. That is, when water levels are high (during periods of excess recharge) T, Q, and Q/s will tend to increase. When water levels are low (during periods of deficient rainfall and recharge), these aquifer and water well parameters will tend to decline.

2.7 Water Quality: A calcium-magnesium-bicarbonate character and TDS values in the range of 280 to 480 mg/l are representative of groundwater within the alluvium and the terrace deposits, except in the area in the wide valley north of Acton community where the water appears to be degraded with an increase in sulfate ion concentration. Nitrate values are elevated in the more developed parts of the Acton area, and range from 17.0 to 24.7 mg/l while the rest of the basin displays nitrate values ranging from 3.9 to 11.0 mg/l. There do not appear to be any definitive long-term and/or continuous trends toward poorer groundwater quality (such as increasing nitrate concentrations) discernible from available data.

Surface water quality was found to be similar to groundwater quality, but with less tendency for increased sulfate ion concentration. Much of the recharge to the groundwater is by deep percolation of surface water runoff.

Shallow wells, wells with shallow perforations and/or wells with inadequate cement seals will be affected more rapidly and to a greater degree by surface spills and contamination than wells with the opposite conditions.

3.0 GEOHYDROLOGY

3.1 Groundwater Storage Capacity. Using a total surface area of alluvial and terrace deposits in the study area of 12,731 acres, a specific yield of 10 to 19 percent for alluvium and three to five percent for terrace deposits, and variable thicknesses based on basin location (maximum thickness of 225 ft), the following storage capacities were calculated in the alluvium: 9783 ac-ft for the period November 1964 to December 1965 (basin-low) and 22,271 ac-ft for the period November 1984 to May 1985 (basin-high); and in the terrace deposits: 5100 ac-ft (basin-low) and 12,124 ac-ft (basin-high).

Hence, the total groundwater in storage in the two aquifer systems in the Acton study area ranged from a low of approximately 14,900 AF in the basin-low period of November 1964 to December 1965, to a high of approximately 34,400 AF in the basin-high period of November 1983 to May 1984.

It is likely that problems will develop in the basin for groundwater levels higher than those measured during the November 1983 to May 1984 basin-high period. Such high groundwater levels probably occurred during the all-time higher period following the 1944-1947 interval of high rainfall, although there are no water-level records from that time period to confirm this probability.

4.0 FUTURE WATER DISTRICT WELLS

4.1 Feasibility. Additional groundwater development by Los Angeles County Waterworks District No. 37 appears feasible in the Acton area based on the difference between calculated

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volumes of groundwater in storage available to wells and presently estimated volumes of annual groundwater extraction.

4.2 General Locations. General locations for new Waterworks District-owned wells include those areas of alluvium along the Santa Clara River in the vicinity of and easterly from existing Well No. 37-1. In this reach of the river (groundwater storage units 1d and 1h), alluvial thicknesses and, hence, the potential for greater thicknesses of saturated sediments, are larger particularly in the center portion of the alluvial area, away from the valley walls. Such greater thicknesses would improve the opportunity for maximizing production rates, transmissivity, and specific capacity in future wells. In addition, such greater thicknesses of saturated sediments tend to: increase the amount of available drawdown in the wells; permit the wells to be deeper; and allow for a greater depth to the uppermost perforations.

New wells are not recommended in areas that contain stream terrace deposits at ground surface.

If more than one well is desired in a given area, construction should be conducted in phases, with the first well being drilled, completed, developed, and thoroughly tested prior to selecting the final sites and design criteria for additional wells in that given area. New wells should be spaced at least 1000 ft apart, based on limited evaluation of mutual drawdown interference criteria using existing data.

4.3 General Well Parameters. New alluvial wells in the recommended areas are likely to be capable of producing in the range of 500 to 800 gpm without inducing excessive amounts of drawdown during wetter hydrologic preiods. Production rates are likely to decline, and pumping levels are expected to drop during drier hydrologic times.

Typical completed well depths are expected to be on the order of 250 ft. Fourteen-inch diameter well casing (pump

house casing) and 12-inch diameter well screen (either well screen or louvers) are considered acceptable for the anticipated pumping rates. Such well screen (or louvers), utilized with an appropriate gravel pack, will preclude sanding conditions in new wells.

A minimum 50-foot deep cement sanitary seal is essential. If, based on evaluation of the drill cuttings and electric log, a deeper seal can be constructed without adversely impacting production rates, then such a seal could be useful in minimizing possible impacts of nitrates or other possible quality impairment.

4.4 Down-Hole Quality Testing. The opportunity does exist during pilot hole drilling to conduct limited down-hole water sampling of individual aquifers in the open borehole in an effort to determine whether or not contamination exists at the well site; however, collecting conclusive data by this procedure is difficult. That is, such select aquifer sampling is typically conducted by airlifting techniques and can cost on the order of $4,000 to $7,000 per aquifer test zone for mobilization and airlifting alone. Airlifting, however, is not considered appropriate for sampling of volatile organic compounds. Moreover, airlifting typically is conducted at low rates of discharge (less than 50 to 75 gpm) and for relatively short time periods (less than three to four hours). Long-term pumping (several hours to a day or more) is not possible in an open borehole under such circumstances due to the risks of collapsing the borehole and losing the sampling equipment.

A contamination plume, if it existed, would have to be virtually at the well site in order to be intercepted by such low capacity, short-term down-hole sampling. A more distant plume could require hours, days, weeks or even months of pumping at high rates to be intercepted, assuming such a plume exists at all. Naturally-occurring inorganic water quality

problems are capable of being identified by down-hole testing since these contaminants often occur throughout the entire aquifer.

4.5 Construction Operations. Future wells should be drilled using either direct rotary or reverse rotary drilling methods. Cable-tool drilling is not recommended.

Depending on the site(s) selected, a potential problem will be the availability of water for drilling purposes, especially for the reverse circulation method which may require 100 to 300 or more gallons per minute of continuous supply. If the direct rotary method is used, particular care must be given to control of drilling fluid properties so as to not induce permanent damage to the aquifers.

Detailed geologic mud logs should be prepared from drill-cuttings data as monitored by field geologists during the drilling. At the completion of the pilot bore, an electric log survey is essential in order to define available aquifers and potential locations for the well perforations.

Well screen slot widths and gravel pack grain sizes are to be selected based on analysis and grain size distribution of the drill cuttings from each pilot hole.

Important to well site selection and well site usage will be the wellhead protection utilized for the permanent well. This is because the optimum well sites for alluvial wells lie within the active course of the river and, hence, within the flood hazard zone. It is recommended that you work closely with your engineers in designing the wellhead and appurtenances (pipelines, electrical, etc.) for each well.

4.6 Construction Costs. Approximate costs at this time for a contractor to drill, install casing, develop, and test pump one new well on the order of 250 ft in depth will likely be on the order of $100,000 to $125,000. A more detailed and

refined breakdown of costs can be provided when the site(s) for eventual wells is(are) selected.

In addition to the drilling costs, there also will be costs for the final pumping equipment, chlorination facilities, electrical appurtenances and transmission lines, property and/or rights-of-way for the new wells, wellhead protection for flood hazard, and for required hydrogeologic services during construction.

5.0 GROUNDWATER MANAGEMENT

Existing extraction data are incomplete because not all water purveyors meter their production for their individual wells. In addition, the number, locations, and production from privately-owned wells in the basin are not known.

To better understand the hydrogeologic regime in the region, the following are recommended:

a. Accurately establish the locations of each well on U. S. Geological Survey quadrangle maps.

b. Install accurate flow meters (both instantaneous rate and totalizer volume meters) on each well.

c. Establish a permanent reference point on all wells from which future depth-to-water measurements can be taken; use a surveyor to obtain accurate elevations for these reference points.

d. Monitor water levels on a regular basis (at least twice per month); ensure that these are true static levels, not partial recovery levels.

e. When abandoning wells, make sure that accurate records are kept as to which well, its location, etc., and the methods used for abandonment. Methods for abandonment should comply with State of California requirements (DWR Bulletin 74-81). Wells which will not be used in the future for monitoring, pumping, etc. should be destroyed instead of abandoned (DWR Bulletin 74-81).

f. Verify that active wells have State-approved sanitary seals; remove from active service those domestically-used wells which do not meet minimum sealing standards;

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consider abandonment of those wells with very high perforations in the alluvium.

g. Conduct Edison efficiency tests on a regular basis in all wells (at least once or twice per year).

h. Plot water level hydrographs and graphs of specific capacity vs time for all wells; monitor water for inorganic and organic constituents on a regular basis.

i. Conduct a well canvass of the entire region to verify the existence, location, viability, and usage of all active and potentially active municipal and private wells.

j. Establish a key well monitoring program for wells in the region.

k. Perform operation and maintenance (O & M) on the wells on a regular basis. Such O & M is essential to maintain well efficiency and to return declining specific capacities to their original values. The wells should be periodically surged in order to prevent clogging of the gravel pack by silt or clay.

l. Because of the propensity of the alluvium to be easily contaminated, become cognizant of present and future land use in and along the alluvium; work with the RWQCB to recognize landfill problems, runoff from hazardous waste sites, migration of gasoline from leaky underground service station tanks, or even potential problems from wastewater effluents. Locate all industrial dischargers, if any, on a map and determine the types and amounts of such discharges.

m. Coordinate, with the appropriate regulatory agencies, current and future planned programs for any possible lining of the Santa Clara River or its tributaries for flood protection; maximize the potential for recharge in the river by allowing for percolation of low-flow runoff in any possible future lining operation plans.

The attachments which complete this report are listed in the Table of Contents.

Respectfully submitted,

Richard C. Slade
Registered Professional Hydrogeologist

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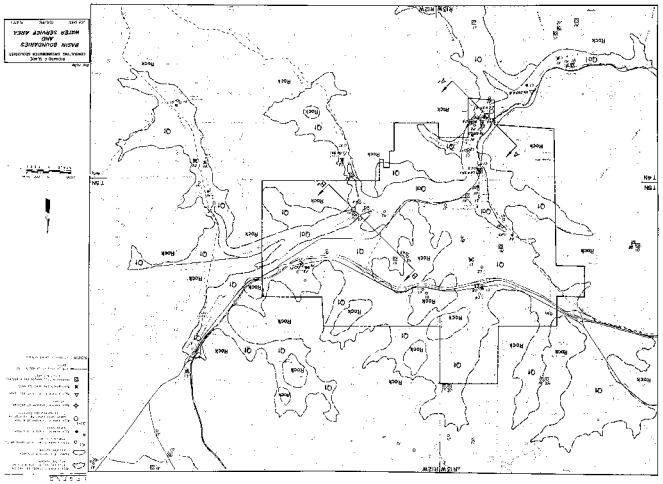
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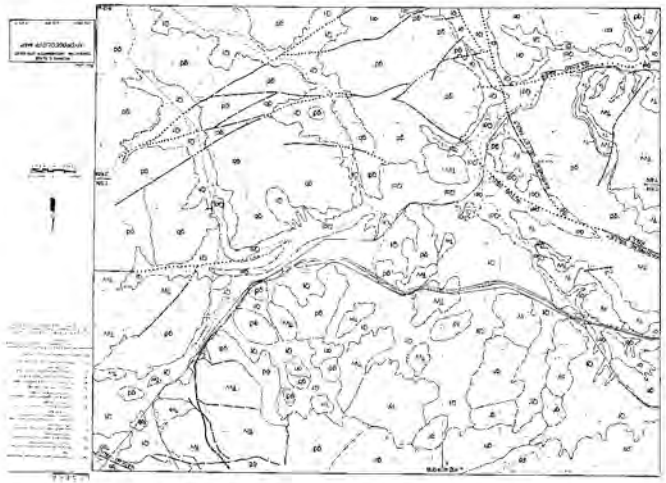
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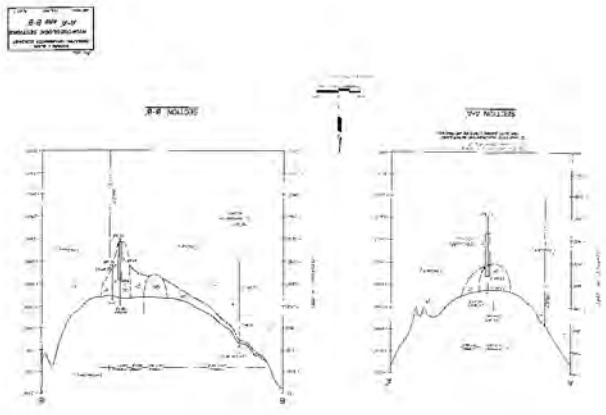
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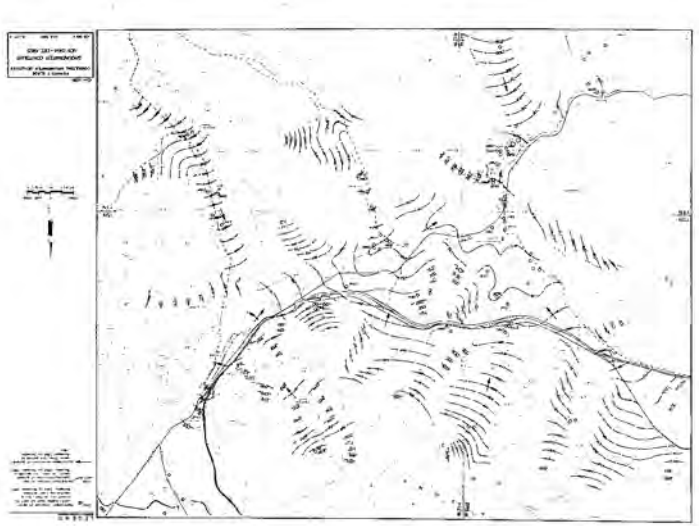
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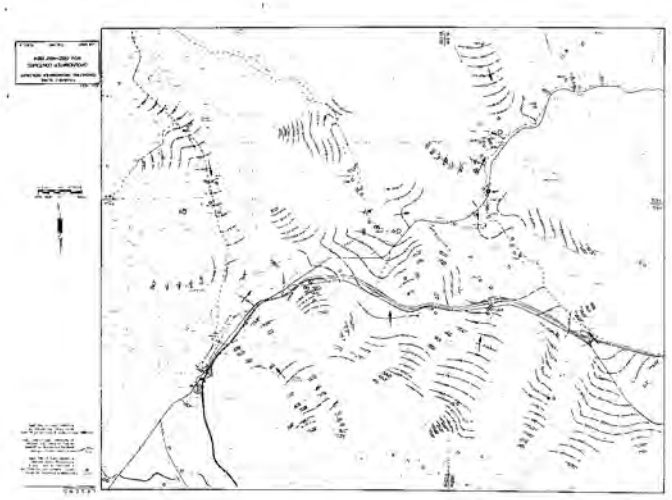


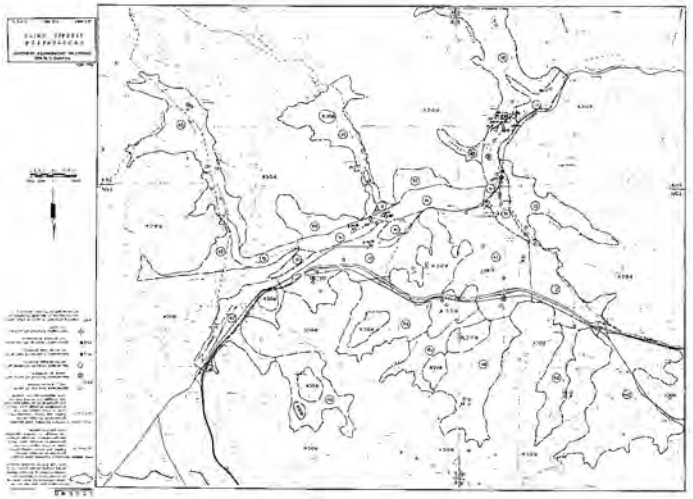
Submission 4414 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued





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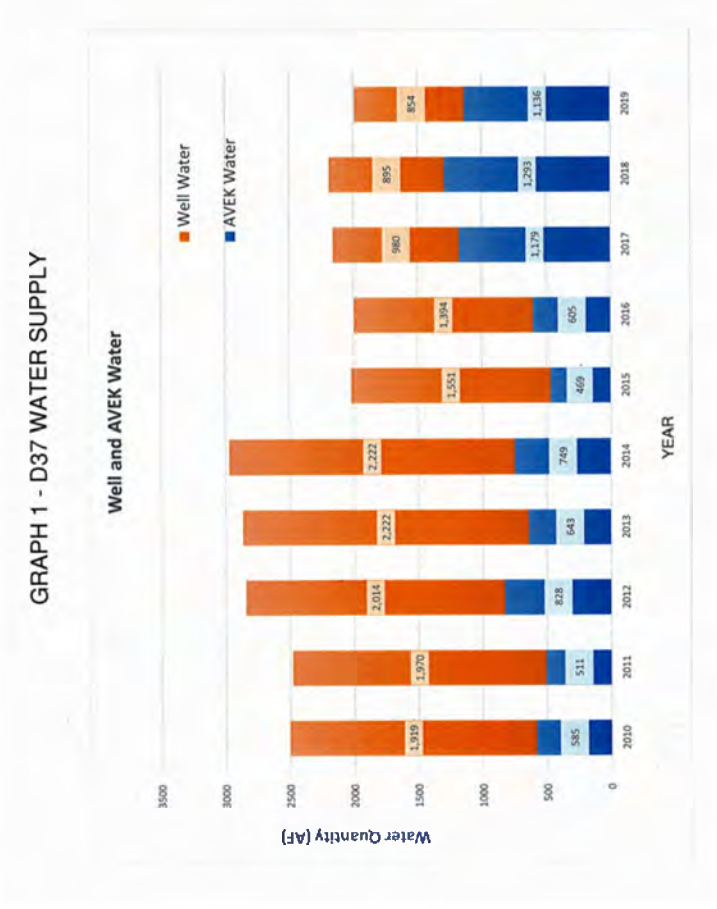




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ATTACHMENT 3

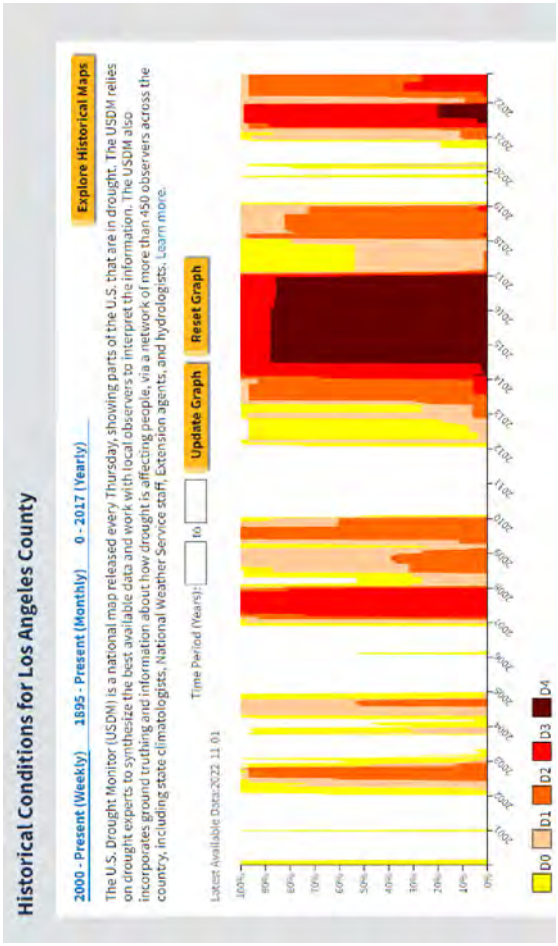
Waterworks District 37 Historical Groundwater Extraction Rates for the Municipal Wells Operated in Acton.
(Source: Waterworks District 37)



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ATTACHMENT 4

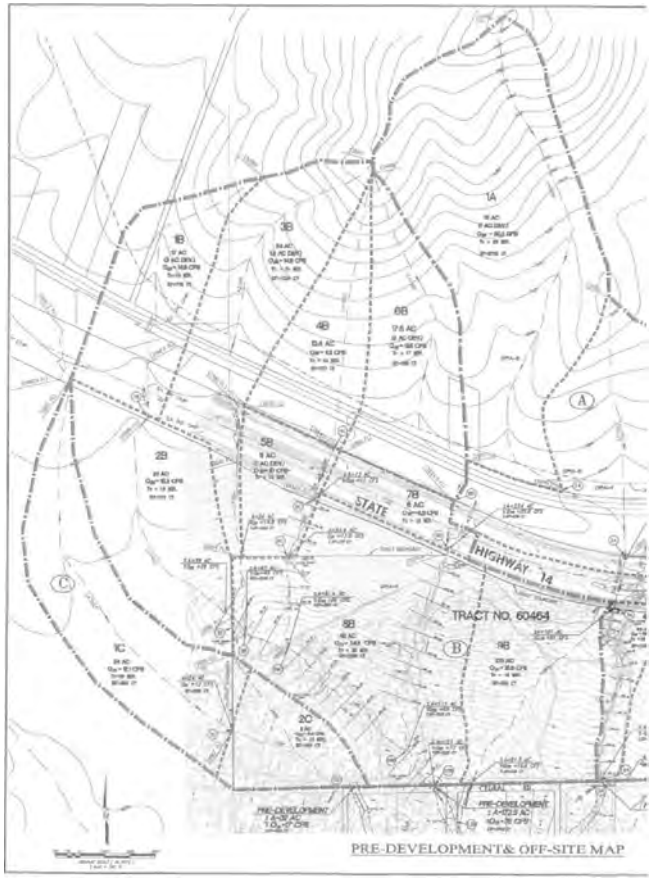
Historic Drought Monitor Data for Los Angeles County.
(Source: The U.S. Drought Monitor).



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ATTACHMENT 5

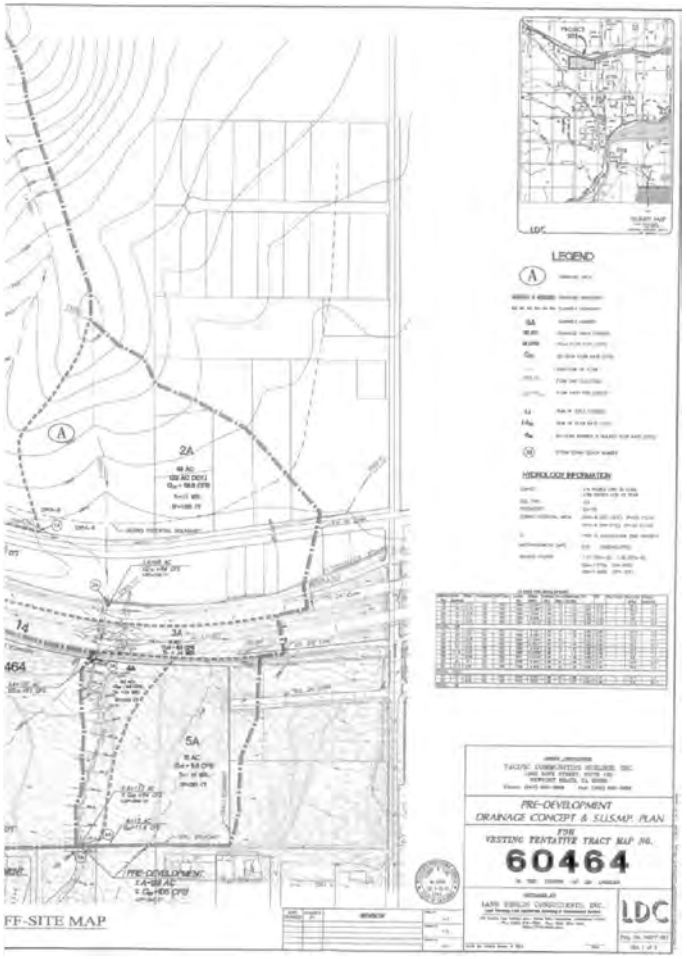
Drainage Map of the Area Where the "Acton Window" Will be Constructed Under the Environmentally Preferred SR14A Route Alternative.
(Source: Developer Submittal to Los Angeles County Department of Public Works).



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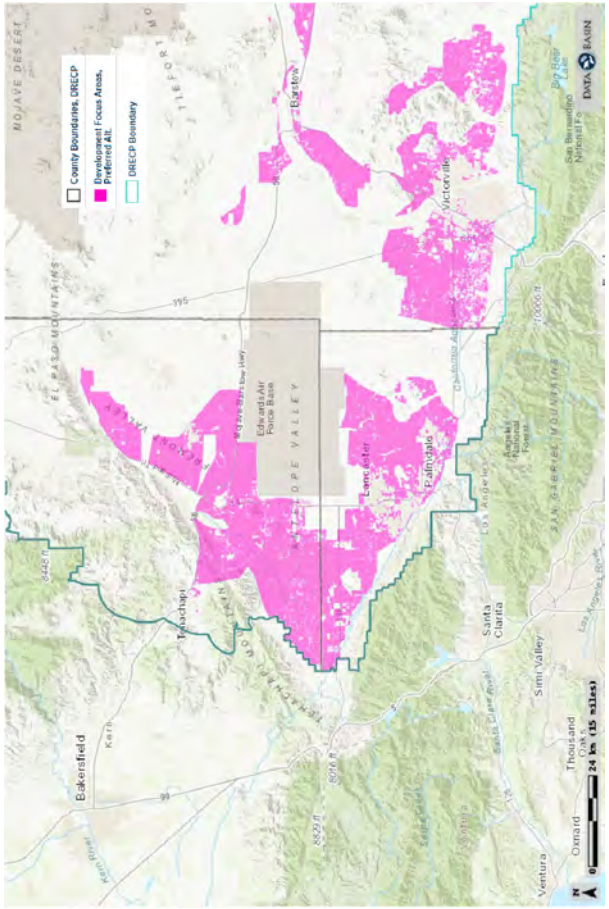
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ATTACHMENT 6

California Energy Commission "Energy Map".
(Source: Desert Renewable Energy Plan:
https://drecp.databasin.org/maps/e4df26ec71184f61b5aaf017fa0c78c9/)

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Response to Submission 4414 (Jacqueline Ayer, Acton Town Council, December 1, 2022)

4414-8402

The commenter indicates that Section 3.6, Public Utilities and Energy, of the Draft EIR/EIS has been evaluated by a "competent engineer with more than 35 years of environmental engineering experience" and asserts they have identified material deficiencies, factual errors, and substantial insufficiencies. The Authority has provided a specific response to each of the comments in Response to Comments #8403 through #8429. Please refer to each of these responses.

4414-8403

The commenter begins the comment indicating that construction at each tunnel portal will require two Tunnel Boring Machines ("TBMs") operating in parallel to produce the twin tunnels that are necessary to accommodate the 462 train trips per day that are projected to occur between Palmdale and Burbank. The number of train trips per day cited by the commenter is incorrect. To clarify, the text at the bottom of page 3.4-23 in the Draft EIR/EIS has been modified. It now reads that for the Palmdale to Burbank Project Section, a total of 217 trains (in both directions) would operate daily during a 24 hour period.

The commenter also expresses concern related to water use during construction of the project, including the availability of water supplies for the project; the feasibility of PUE-MM#1; concerns related to use of non-potable water, including impacts on groundwater quality; concerns related to the use of groundwater; and concerns related to growth inducement from development of new water infrastructure. Regarding the comments related to the availability of water supplies for the project, the feasibility of PUE-MM#1, and concerns related to the use of groundwater, please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage. Regarding the comments about groundwater quality, PUE-MM#1, discussed in Section 3.6 of the Draft EIR/EIS, will require the Authority to utilize non-potable water from regional water utility service providers for construction activities where feasible. Non-potable water will be required to meet the standards included in the Water Recycling Criteria, Title 22, Division 4, Chapter 3 of the California Code of Regulations, which specifies requirements for water used for various purposes. For example, water classified in this Code as Disinfected Secondary-23 can generally be used for soil compaction, mixing concrete, dust control, street cleaning and other industrial and construction activities where water will not come into contact with workers; whereas water classified as Disinfected Tertiary according to this Code may be used in processes where water may come into contact with workers. The commenter expresses concern specifically about the use of partially treated municipal wastewater or untreated local groundwater (which may be high in nitrate and arsenic) during tunnel construction in Acton and Agua Dulce, noting that either source may contaminate local groundwater. As noted in Section 3.6 of the Draft EIR/EIS, water is required for tunneling to increase the water content of soil, which optimizes tunnel boring. As such, activities involving tunnel boring machines (TBMs) would have significantly higher water demand than other construction activities. If recycled water is

Response to Submission 4414 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4414-8403

used during tunneling, it would be required to meet the standards listed above, which would prevent the pollution of aquifers, perched water zones, or other groundwater sources. These water quality standards have been noted in a new footnote to PUE-MM#1 in Section 3.6 of the Final EIR/EIS to indicate that non-potable water will meet the standards included in the Water Recycling Criteria, Title 22, Division 4, Chapter 3 of the California Code of Regulations. In addition, HWR-MM#1 in Section 3.8, Hydrology and Water Resources of the Draft EIR/EIS, would require that any groundwater contamination encountered during construction be isolated, monitored, and treated based on RWQCB permit conditions. As such, HWR-MM#1 would prevent the spread of existing contamination that may be encountered during tunneling. In addition to meeting water quality standards and preventing the spread of existing contamination, potential groundwater contamination from tunneling would be minimized through the nature of TBM operation. As noted under Impact PUE#4 in Section 3.6 of the Final EIR/EIS, water used for operation of TBMs would mix with the soil as it is extracted from the tunnel construction areas and would be treated as wastewater. Further, as noted in HWR-MM#1, water used for tunnel construction and water coming out of tunnel construction areas could be recycled/reused for construction purposes. As such, water used during tunneling would exit the tunnel and be treated or reused, and thus would not contaminate the aquifers, perched water, or other groundwater resources through which the tunnels pass, as purported by the commenter. Regarding the comment about growth inducement from the construction of new water distribution facilities and water infrastructure, the commenter does not provide details regarding where or when the Authority purportedly stated that facilities would be made available to the County Waterworks District. To clarify, the Authority does not intend to construct new water infrastructure that could be used by the local water districts to promote growth and development. The water conveyance facilities constructed by the project would convey water from domestic water sources (nearest domestic water service providers) to specific construction sites. As such, these water conveyance facilities would be for the sole use of the project during construction and operation as needed. As such, the project would not induce growth in this regard. The commenter also includes Attachment 1: Nitrate levels in local groundwater in Acton; Attachment 2: Hydrology Report of the Groundwater Basin under the Community of Action ("The Slade Report"); Attachment 3: Waterworks District 37 Historical Groundwater Extraction Rates for the Municipal Wells Operated in Acton; Attachment 4: Historic Drought Monitor Data for Los Angeles

4414-8403

County; Attachment 5: Drainage Map of the Area Where the "Acton Window" Will be Constructed Under the Environmentally Preferred SR14A Route Alternative; and Attachment 6: California Energy Commission "Energy Map". These attachments provide background information for the comments that the commenter has made. The Authority has considered these attachments in preparing the responses to the comments in this letter (Responses to Comments #8402 through #8429).

Response to Submission 4414 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4414-8404

Refer to Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the ANF, PB-Response-PUE-3: Water Demand and Usage.

The commenter states that the Draft EIR/EIS failed to adequately address impacts to private drinking water systems or residential wells due to (1) reduced groundwater levels if construction relies on local groundwater resources; (2) destruction of well shafts and infrastructure that can render a domestic well inoperable due to tunneling; and (3) effects on the configuration of groundwater and perched water resources that could result in causing wells to "dry up" due to tunneling. The commenter requests that edits be made to the Final EIR/EIS regarding impacts to domestic/private wells.

Section 3.8, Hydrology and Water Resources, of Final EIR/EIS has been revised to expressly clarify concerns related to private water supply wells. As stated in the Final EIR/EIS, because only limited information is available regarding the location of private wells, there is the potential that tunnel construction could result in the destruction of private water supply wells, including wells that have not been identified, if any wells are located directly in the path of the tunnels. HYD-IAMF#8: Private Well Monitoring and Minimizing Access Disruptions for Private Water Supply Wells Outside of the ANF has been added to the Final EIR/EIS to describe in detail the options that the Authority would consider to address impacts to private water supply wells outside the ANF, including relocating the wells and ensuring similar pumping capacity and water quality in replacement wells. Please refer to Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the Angeles National Forest regarding impacts to wells and corresponding measures to address any such impacts.

Regarding the comment about the Authority relying on groundwater, the Authority does not anticipate using groundwater for the project. Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which provides additional information about water supplies for the project.

4414-8405

The commenter is concerned about the treatment of project water discharges and erosion caused by water runoff from construction activities.HYD-IAMF#3 requires preparation and implementation of a Construction Stormwater Pollution Prevention Plan (SWPPP) in compliance with the statewide General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities to insure that adequate sediment and erosion control measures will be taken during and after construction. HYD-IAMF#3 also requires the contractor to comply with the State Water Resources Control Board Construction General Permit to avoid or minimize temporary hydraulic impacts associated with construction activities at all construction sites and in adjacent areas during construction. These project features would reduce impacts from stormwater during construction activities through the preparation and implementation of the construction SWPPP, including best management practices (BMP) to provide hydromodification controls to maintain pre- Palmdale to Burbank Project Section hydrology and to manage the amount of stormwater runoff emanating from the construction sites. Section 3.6 of Final EIR/EIS indicates that any water generated from the tunnel construction would be treated and reused or hauled off-site. Management of any water generated from construction activities would be in accordance with federal and state regulations and would prevent any discharge from impacting water quality standards. The construction contractor would recycle and reuse water on-site to reduce water consumption for construction of the tunnels. Some of this wastewater would also be collected in water retention ponds or treated in the same capacity, and like the tunnel spoils, would be hauled off-site. None of the water discharged from the tunneling activities would be directly piped back into local wastewater treatment facilities, collection systems, or treatment plants.

Response to Submission 4414 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4414-8406

The commenter indicates that there is an error in the in-state electric generation capacity values provided in Section 3.6 of the Draft EIR/EIS. Page 3.6-65 of the Draft EIR/EIS reads the following: "According to the CEC, California had an installed in-state electric generation capacity of 292,039 GWh in 2017". The paragraph above this, indicates "[i]n-state generation capacity in 2016 equaled 70,857 GWh from governmental and utility-owned in-state facilities and 124,170 GWh from commercial in-state generation facilities (CEC 2020a)." The sum of 70,857 GWh and 124,170 GWh is 195,027. The commenter correctly identifies an error in the numbers provided on page 3.6-65 of the Draft EIR/EIS. In 2017, the total system electric generation, including imports was 292,039 GWh; however, the in-state electric generation capacity was 206,411 in 2017 (CEC 2020a). This number has been corrected in Section 3.6 of the Final EIR/EIS. This correction does not result in any changes to the impact conclusions in the Final EIR/EIS. As explained below, the Authority has identified that there is sufficient renewable energy capacity to meet the system demand.

The commenter also raises a concern about renewable generation capacity required for operating 462 trips per day between Palmdale and Burbank. The number of train trips per day cited by the commenter is incorrect. To clarify, the text at the bottom of page 3.4-23 in the Draft EIR/EIS has been modified. It now reads that for the Palmdale to Burbank Project Section, a total of 217 trains (in both directions) would operate daily during a 24-hour period.

it should be noted that In September 2008, the Authority adopted a policy goal of utilizing renewable energy for all traction power. An industry survey in April 2013 indicated that there is sufficient renewable energy capacity to meet the system demand (Authority 2014b). Under the 2013 Policy Directive POLI-PLAN-03, the Authority has adopted a goal to purchase 100 percent of the HSR system's power from renewable energy sources (Authority 2016b). The Authority's policy goal is to use 100 percent clean, renewable electricity for the operation of the HSR. This goal can be achieved through purchase agreements with power suppliers, and through the design of project buildings and facilities to meet Leadership in Energy and Environmental Design (LEED) Silver Level certification. California utilities are required to achieve a state-mandated 33% renewable portfolio within the time frame of projected operation of the HSR. This will offer new opportunities for obtaining clean, renewable energy from those sources.

4414-8406

Furthermore, the Authority has entered into a Memorandum of Understanding (MOU) with FRA, EPA, and the U.S. Department of Energy to support common sustainability goals. These include minimizing air and water pollution, energy usage, and other environmental impacts. This MOU is located on the Authority's website. The signatory agencies recognize that construction and operation of the HSR System would require a large amount of energy, and that ample opportunities exist to promote energy efficiency and renewable energy.

As indicated in Section 3.6 of the Draft EIR/EIS in Impact PUE#11, the Authority has designated staff working to collaborate with utilities and renewable energy developers (who may construct facilities that contribute wind, solar, or other renewable sources to the power grid). The utilities coordination staff have a strong understanding of HSR system electricity demands and of how these demands impact negotiations with utilities and renewable energy developers. Furthermore, the Authority is developing a strategic renewable energy procurement plan that requires extensive collaboration and can be supported through stakeholder engagement, internal and external working groups, and the creation and selection of efficient and effective instruments for power procurement. The Authority will continue to gather and synthesize information to develop this plan for the California HSR System (Authority 2011). As described in PUE-IAMF#1, the California HSR System design incorporates utilities and design elements that minimize electricity consumption (e.g., regenerative braking, energy-saving equipment on rolling stock and at station facilities, implementation of energy-saving measures during construction, and automatic train operations to maximize energy efficiency during operations). With the implementation of PUE-IAMF#1, the project would not place substantial demand on regional energy supply, require significant additional capacity, or significantly increase peak- and base-period electricity demand, nor would it conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Response to Submission 4414 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4414-8407

Refer to Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the ANF, PB-Response-PUE-3: Water Demand and Usage.

The commenter raises concerns about the project's consistency with elements of the Los Angeles County General Plan that pertain to utility issues, particularly in regard to water use. The commenter's statement that "CHSRA has evinced a clear intent to substantially rely on local groundwater resources" is incorrect. Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which describes that the project would not directly use groundwater and that any indirect use of groundwater (from local water supply purveyors that include groundwater as one of their sources) would not affect sustainable groundwater management or the ability of residents that receive water from these suppliers to receive water that includes groundwater.

The commenter raises concerns about TBM operations using groundwater containing excessive nitrates or arsenic, and potential impacts to public and private drinking water sources that could result. Potential groundwater contamination from tunneling would be minimized through the nature of TBM operation. As noted under Impact PUE#4 in Section 3.6 of the Draft EIR/EIS, water used for operation of TBMs would mix with the soil as it is extracted from the tunnel construction areas and would be treated as wastewater. Further, as noted in PUE-MM#1, water used for tunnel construction and water coming out of tunnel construction areas could be recycled/reused for construction purposes. As such, water used during tunneling would exit the tunnel and be treated or reused, and thus would not contaminate the aquifers, perched water, or other groundwater resources through which the tunnels pass, as purported by the commenter. In addition, HWR-MM#1 in Section 3.8, Hydrology and Water Resources of the Draft EIR/EIS, would require that any groundwater contamination encountered during construction be isolated, monitored, and treated based on RWQCB permit conditions. As such, HWR-MM#1 would prevent the spread of existing contamination that may be encountered during tunneling.

Regarding potential impacts to private drinking water wells, Pursuant to the Authority's 2019 Preliminary Geotechnical Data Report for Tunnel Feasibility, Angeles National Forest and 2019 Geotechnical Tunnel Feasibility Evaluation for High-Speed Rail Tunnels Beneath the Angeles National Forest (referenced in Section 3.8 of the EIR/EIS),

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based on observed impacts on groundwater from past tunnel projects, no impacts to wells are expected to occur outside the tunnel construction RSA (more than 1 mile from the centerline of each Build Alternative). Section 3.8, Hydrology and Water Resources, of Final EIR/EIS has been revised to expressly clarify concerns related to private water supply wells. As stated in the Final EIR/EIS, because only limited information is available regarding the location of private wells, there is the potential that tunnel construction could result in the destruction of private water supply wells, including wells that have not been identified, if any wells are located directly in the path of the tunnels. HYD-IAMF#8: Private Well Monitoring and Minimizing Access Disruptions for Private Water Supply Wells Outside of the ANF has been added to the Final EIR/EIS to describe in detail the options that the Authority would consider to address impacts to private water supply wells outside the ANF, including relocating the wells and ensuring similar pumping capacity and water quality in replacement wells. Please refer to Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the Angeles National Forest.

In addition, the commenter states that the Authority should consider goals and policies in the Los Angeles County General Plan, including Goal C/NR 6 and Policy C/NR 5.6, and policies in the Los Angeles County Antelope Valley Area Plan, including Policy COS 2.7 and Policy COS 3.5. Please refer to Appendix 2-H of the Final EIR/EIS, which includes a consistency analysis with Policy C/NR 5.6, as well as pertinent policies under Goal C/NR 6, including Policy C/NR 6.1, C/NR 6.2, and C/NR 6.5. Appendix 2-H focuses on consistency with applicable policies, not overarching goals. As such, Goal C/NR 6 has not been added to the appendix in the Final EIR/EIS. Appendix 2-H of the Final EIR/EIS also includes a consistency analysis of pertinent policies in the Conservation and Open Space Element (COS) in the Los Angeles County Antelope Valley Area Plan 2035. As discussed above, the Authority would not substantially rely on groundwater resources; therefore, Policy COS 2.7 would not apply and is therefore not included in Appendix 2-H. Policy COS 3.5, regarding protecting underground water supplies by enforcing controls on sources of pollutants, is similar to Policy C/NR 5.6, which is included in Appendix 2-H. As described in Appendix 2-H , the Authority would limit water pollution through implementation of IAMFs requiring a stormwater management and treatment plan (HYD-IAMF#1) and implementation of a Stormwater Pollution Prevention Plan (HYD-IAMF#3). Therefore, the project would be consistent with Policy COS 3.5,

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which has been added to Table 2.0-H-1, Regional and Local Policy Consistency Analysis, in Appendix 2-H of the Final EIR/EIS as requested by the commenter.

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The commenter states that the Draft EIR/EIS fails to consider consistency with Los Angeles County General Plan Policy PS/F 6.6 pertaining to the undergrounding of new utilities, which the commenter frames as a substantial deficiency. The commenter further expresses concern about electrical facilities to be constructed in the communities of Acton and Agua Dulce, specifically the new 230 kV line, due to increased fire risk in the area. The commenter requests that a mitigation measure be added to the Final EIR/EIS requiring utilities in the Communities of Acton and Agua Dulce be underground. The Draft EIR/EIS does address consistency with Policy PS/F 6.6, specifically on page 2.0-H-12 of Appendix 2-H, Regional and Local Policy Consistency Analysis. Policy PS/F 6.6 states: "Encourage the construction of utilities underground, where feasible." This policy includes non-mandatory, flexible language by encouraging undergrounding utility lines only where feasible, but not requiring it. Under state law, a proposed project is only inconsistent with a general plan if it "conflicts with a general plan policy that is fundamental, mandatory, and clear." (see, e.g., Families Unafraid to Uphold Rural El Dorado County v. El Dorado County Bd. of Supervisors (1998) 62 Cal.App.4th 1332,1341-1342; see also Endangered Habitats League, Inc. v. County of Orange (2005) 131 Cal.App.4th 777, 782). As noted in Appendix 2-H, the Authority would relocate utilities in unincorporated Los Angeles County underground where feasible. Thus, the Project is consistent with this policy.

The 230kV overhead line mentioned by the commenter is proposed for the SR14A alignment, running from the Southern California Edison's (SCE)-Vincent substation to Portal 1A north of the Pearblossom interchange. This permanent power line would provide power to the substation located on Portal 1A from Vincent Substation for the SR14A Build Alternative. This new power line will be designed in accordance with California Code of Regulations (CCR) Title 14, Section 1250, "Fire Prevention Standards for Electric Utilities," which specifies utility-related measures for fire prevention, including firebreak clearance standards. According to the California Public Utilities Commission (CPUC) Regulations (Rule 20 Undergrounding Programs Current Proceedings, Electric Tariff Rule 15 for SCE), undergrounding for power lines is not required. Additionally, the CCR does not include any requirements to underground power lines. Note also that construction of underground electrical lines is challenging due to more complicated repairs in case of failure and the much higher construction cost. It is estimate that the cost of a buried electrical line is at least 5 times more expensive than an overhead line,

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which can make undergrounding cost prohibitive in some circumstances.This, undergrounding is not required by rules and regulations and presents many more challenges than above-ground utility lines.

The commenter's concern regarding fire risk in Acton and Agua Dulce is noted. Wildfire impacts from project operation are addressed in Draft EIR/EIS Impact S&S#19: Fire and Wildfire Hazards from Operations and Maintenance in Section 3.11, Safety and Security. On page 3.11-59 of the Draft EIR/EIS, the text describes that "High-risk facilities, including pipelines and other utilities within the project footprint, will be removed, relocated, or protected in place during construction. The Safety and Security Management Plan (SSMP) developed under SS-IAMF#2 will include procedures for removal, relocation, or protection of high-risk facilities within the footprint. Pursuant to utility agreements negotiated between the Authority and the utility service providers, the Authority will work with utility owners during final engineering design and construction of the Build Alternatives to remove or relocate utilities within the right-of-way or protect them in place within the right-of-way. The contractor will establish a construction safety management plan and SSMP (SS-IAMF#3) that will establish safety guidelines to be implemented during construction, including procedures for construction activities near the identified overhead or underground utility lines. The Authority will conduct a Preliminary Hazard Analysis (PHA) (SS-IAMF#3) that will evaluate the impacts of high-risk facilities on the project. The Authority will incorporate project features into the design and construction of the project. The Security and Emergency Preparedness Plan (SEPP) developed under SS-IAMF#2 will identify potential hazards from high-risk facilities within the vicinity of the Build Alternatives that will be removed, relocated, or protected in place during construction, and will identify methods to mitigate or eliminate hazards associated with high-risk facilities. Further, inclusion of PUE-IAMF#2 through PUE-IAMF#4 will ensure that project construction will be coordinated or phased to minimize or fully eliminate utility service disruptions." Ultimately, wildfire impacts were found to be less than significant, with the presumption of above-ground lines.

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Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the ANF, PB-Response-PUE-3: Water Demand and Usage.

The commenter expresses that the Draft EIR/EIS consistency analysis is deficient because it does not include a discussion of Goal C/NR 6 and C/NR 5.6 from the Los Angeles County General Plan, and Policy COS 2.7 and COS 3.5 from the Antelope Valley Area Plan. Additionally, the commenter is concerned about use of local groundwater resources and non-potable water for TBM operation.

Goal C/NR 6, Protected and usable local groundwater resources, is addressed in Appendix 2.0-H of the Draft EIR/EIS by its supporting policies, specifically Policy C/NR 6.2, Protect natural groundwater recharge areas and regional spreading grounds. Appendix 2.0-H indicates that the project would be consistent with this policy, as the Authority would create new detention facilities to maintain existing levels of groundwater recharge. In addition, the Authority has addressed overall how it would minimize impacts on local groundwater resources. Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which identifies the sources of water for the project; that the project would not directly use groundwater; and that any indirect use of groundwater (from AVEK, which includes groundwater as one of its sources) would not affect sustainable groundwater management or the ability of residents that receive water from AVEK to receive water that includes groundwater. Please also refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, which identifies the potential impacts on groundwater resources within the ANF and how those impacts would be minimized and mitigated to a less than significant level. Please also refer to Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the Angeles National Forest, which identifies the IAMFs that would minimize groundwater seepage. The project is consistent with Goal C/NR 6 because it is consistent with its supporting policies.

Regarding Policy C/NR 5.6, this policy is included in Appendix 2.0-H (see page 2.0-H-27) of the Draft EIR/EIS. HYD-IAMF#3 requires the contractor to comply with the State

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Water Resources Control Board Construction General Permit to avoid or minimize temporary hydraulic impacts associated with construction activities at all construction sites and in adjacent areas during construction. These project features would reduce impacts from stormwater during construction activities through the preparation and implementation of the construction SWPPP, including best management practices (BMPs) to provide hydromodification controls to maintain pre-project hydrology and to manage the amount of stormwater runoff emanating from the construction sites.

Section 3.6, Public Utilities and Energy, of the Draft EIR/EIS indicates that any water generated from the tunnel construction would be treated and reused or hauled off-site. This would include non-potable water, which can be used for tunneling purposes. Management of any water generated from construction activities would be in accordance with federal and state regulations and would prevent any discharge from impacting water quality standards. The construction contractor would recycle and reuse water on-site to reduce water consumption for construction of the tunnels. Some of this wastewater would also be collected in water retention ponds or treated in the same capacity, and like the tunnel spoils, would be hauled off-site. None of the water discharged from the tunneling activities would be directly piped back into local wastewater treatment facilities, collection systems, or treatment plants. For these reasons, the Build Alternatives would be consistent with Policy C/NR 5.6 (Minimize point and nonpoint-source water pollution).

The commenter also indicates that Appendix 2.0-H fails to identify the Antelope Valley Area Plan (AV Plan) or discuss its relevance to the Project. The Draft EIR/EIS includes an assessment of the project's consistency with the Los Angeles County Antelope Valley Area Plan 2035 (2015) (see page 2.0-H-17 in the Draft EIR/EIS). As described in Standard Response PB-Response-PUE-3: Water Demand and Usage, the project would not directly use groundwater and any indirect use of groundwater (from AVEK, which includes groundwater as one of its sources) would not affect sustainable groundwater management. As such, the Authority would be consistent with Policy COS 2.7 to limit use of groundwater sources to their safe yield limits. In addition, as described above, the Authority has identified measures to minimize pollution and for the same reasons for the project's consistency with Policy C/NR 5.6, the project would be consistent with Policy COS 3.5.

4414-8410

The commenter identifies that there are a number of goals and policies that have been adopted for unincorporated Los Angeles County, which address protection of drinking water sources, groundwater supplies, fire hazards, and electrical reliability. The commenter requested that these goals and policies be addressed. Page 3.6-14 of the Draft EIR/EIS provides a summary of the Authority's evaluation of consistency with policies and plans, which is contained in Appendix 2-H. For a discussion of the consistency analysis for goals and policies related to protection of drinking water source and groundwater supplies, please refer to Response to Comment #8409. For a discussion of the consistency analysis for goals and policies related to wildfire, please refer to Response to Comment #8408. Regarding electric reliability, the commenter does not identify a specific policy that should have been addressed in the Draft EIR/EIS. Regardless, the Draft EIR/EIS did include a consistency analysis for policies related to energy (see page 2.0-H-12, policy 9.29.3). In addition, consistent with CEQA and NEPA, the Authority evaluated the project's impact on energy demand in Impact PUE#11: Permanent Operations Energy Demand in Section 3.6.6.3 of the Draft EIR/EIS.

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4414-8411

The commenter indicates that if the project either uses local groundwater supplies in Acton and Agua Dulce to supply water for TBM operation or if the project does not underground all new and relocated utilities, the project will not meet the overall objectives of the local policies, therefore, making the statement on Page 3.6-14 in the Draft EIR/EIS regarding the project's consistency with local policies and plans, incorrect. The use of local groundwater to supply water for TBM operation is not anticipated. As indicated in Impact PUE#3 in Section 3.6 of the Draft EIR/EIS, water used during construction activities would be obtained from existing permitted commercial sources in the cities of Palmdale, Santa Clarita, Burbank, and Los Angeles, as well as unincorporated Los Angeles County. Regarding new and relocated utilities, the Authority's preferred alternative, the SR14A Build Alternative would require tunneling in Acton and Agua Dulce (see Section 2.3.4.5 and Figure 2-2 in Chapter 2 of the Draft EIR/EIS), which would avoid the relocation of utilities due to the depth of the tunnel. In addition, Impact PUE#7 in Section 3.6 of the Draft EIR/EIS clarifies that the HSR right-of-way would be fenced and secured after construction. Underground utilities that conflict with the HSR right-of-way would be relocated or reinforced underneath the HSR right-of-way inside a casing pipe strong enough to carry the California HSR System utilities, and that would allow for utility maintenance access from outside the HSR right-of-way. Underground wet utilities such as water, sewer, storm drains, gas, and petroleum lines are conveyed inside pipeline material with a service life that is typically 50 years or more. Dry utilities such as electrical, fiber optics, and telephone lines are encased in a durable pipeline—for example, one made of steel—that protects the dry utilities from deterioration and has a service life of 50 years or more. If the utility conveyance pipeline needs repair or replacement, the casing pipe would stay in place so that HSR operations would continue while the utility agency maintained the line. Before field visits, it is common practice for utility agencies to coordinate with the owner of the property in which their facilities lie. Additionally, Appendix 2-D (Section 14.6) in the Draft EIR/EIS clarifies that for Los Angeles Department of Water and Power (LADWP) electrical lines to be proposed or relocated crossing the CHSR Alignment, it is the Agency's policy to underground the electrical facility to benefit transportation services by eliminating track or busway closures when LADWP facilities need to be accessed and provides a safe working environment for LADWP working crews. Whenever existing overhead lines are crossing a new railroad, or a transit project located in a dedicated right-of-way, the overhead lines should be replaced with an

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underground system. Furthermore, Appendix 2-H of the Draft EIR/EIS included a consistency analysis with local plans. Appendix 2-H includes a consistency analysis of the Los Angeles County General Plan 2035 (Acton and Agua Dulce are in unincorporated Los Angeles County). As indicated on page 2.0-H-12, the Project would be consistent with Policy PS/F 6.6 in the Los Angeles County General Plan 2035, which encourages the construction of utilities underground, where feasible. Page 2.0-H-12 notes that the Authority would relocate utilities in unincorporated Los Angeles County underground where feasible.

4414-8412

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter states that no Urban Water Management Plan (UWMP) has been prepared for the communities of Acton and Agua Dulce and that the Draft EIR/EIS lacks the information required to assess water supply alternatives.

The communities of Acton and Agua Dulce obtain water from private domestic wells. In addition, portions of the communities of Acton and Agua Dulce are in the Antelope Valley-East Kern (AVEK) Water Agency service area, and some residents receive water from AVEK. AVEK's Service Area can be accessed here: https://avekwa.maps.arcgis.com/apps/instant/interactivelegend/index.html?appid=56629432a7cf437ba95696dd1510e08f).

Table 3.6-2 in Section 3.6, Public Utilities and Energy of the Draft EIR/EIS lists the UWMPs that would be relevant to the analysis. Table 3.6-2 includes the AVEK UWMP; as such, the analysis in the Draft EIR/EIS did consider the UWMP that would be relevant for the areas in Acton and Agua Dulce that receive water from AVEK.

For the areas in Acton and Agua Dulce that are not served by AVEK (i.e., those areas that rely on private domestic wells), the Authority considered the potential impact that the Project could have from its water demand. Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which identifies the potential sources of water for the Project.

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4414-8413

The comment identifies a discrepancy in the data provided for the TBM water requirements. Values included on Table 3.6-4 are correct. Values in Impact PUE#4 in Section 3.6, Public Utilities and Energy, of the Final EIR/EIS have been corrected to be consistent with values presented on Table 3.6-4. The Authority has estimated that each TBM operating from each twin tunnel portal would require between 55,000 to 105,000 gallons/day. Incorrect values originally provided on page 3.6-78 were much larger than correct values presented on Table 3.6-4. Therefore, this correction does not change the analysis and the conclusion remains valid. Changes to the EIR/EIS are not considered significant new information as it just corrects an inconsistency in the text.

4414-8414

The commenter indicates that the EIR/EIS does not assert what the Project's construction energy usage will be. The commenter also expresses concern regarding Acton's local infrastructure capacity to serve the Project's energy demand during construction. Lastly, the commenter indicates that the EIR/EIS fails to assess whether electrical service to Acton residents will be interrupted to maintain Project construction activities. Construction energy is discussed in Impact PUE#6 and Section 3.6.8.3, in Section 3.6, Public Utilities and Energy, of the Draft EIR/EIS. Construction of the Project would not require additional electricity capacity nor significantly increase peak- or base-period demands for electricity. Construction period energy use is calculated and provided in Table 3.6-23 in Section 3.6. The Draft EIR/EIS concludes that construction of the Palmdale to Burbank Project Section would temporarily increase energy consumption. The Authority has adopted a sustainability policy under PUE-IAMF#1 in Section 3.6 as part of the Build Alternatives that establishes design elements and policies intended to reduce energy consumption, including but not limited to, energy-saving equipment and energy-saving measures during construction. With adherence to the Authority's policy on sustainability under PUE-IAMF#1, construction of the Build Alternatives would not result in a substantial demand on regional energy supplies, require additional energy capacity, or substantially increase peak or base period electricity demand. Additional Traction-Power Electrical Lines, as shown in the Draft EIR/EIS Volume 3 PEPD Record Set Utility Relocation Plans, are proposed to supply energy to the HSR project. Draft EIR/EIS Appendix 2-D (Section 2.2.2.3) clarifies that the Palmdale to Burbank Project Section would not include the construction of a separate power source, but it would require the extension of underground or overhead power transmission lines to a series of power substations positioned along the HSR corridor. These power substations would be needed to even out the power feed to the train system. Working in coordination with power supply companies and per design requirements, the Authority has identified frequency and right-of-way requirements for these facilities. Regarding the assessment of whether electrical service to Acton residents will be interrupted to maintain Project construction activities, the Authority will implement PUE-IAMF#3 and PUE-IAMF#4, described in Section 3.6 of the Draft EIR/EIS, which would require notifications to the public for any planned outages, as well as the preparation of a technical memorandum documenting how construction activities would be coordinated with service providers to minimize or avoid interruptions.

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4414-8415

The commenter indicates that the EIR/EIS fails to identify the amount of energy required to support high speed train operation. The commenter also indicates that the EIR/EIS fails to address whether the capacities of existing local and regional electrical facilities are sufficient to maintain Project Operations.

The commenter asserts that the Authority intends to operate 462 trips per day between Palmdale and Burbank. The number of train trips per day cited by the commenter is incorrect. To clarify, the text at the bottom of page 3.4-23 in the Draft EIR/EIS has been modified. It now reads that for the Palmdale to Burbank Project Section, a total of 217 trains (in both directions) would operate daily during a 24-hour period.

Section 3.6.5.10 in the Draft EIR/EIS also presents existing and projected statewide energy demand for the State of California, including the implementation of the Build Alternative. The electrical demands due to propulsion of the trains, stations, and Maintenance Facility were calculated for the Build Alternatives. Peak-period electricity demand was calculated in terms of kilowatt-hours and compared to current estimates of peak demand and supply capacity within the grid controlled by the California Independent System Operator. As described in Impact PUE#11 in the Draft EIR/EIS, the proposed California HSR System would obtain electricity from the statewide grid. None of the Build Alternatives would involve construction of a separate power source, but instead, would require the extension of existing power lines to traction power substations positioned along the HSR corridor. Impacts that might result from the proposed California HSR System would not affect statewide electricity reserves or transmission capacity. In September 2008, the Authority adopted a policy goal of utilizing renewable energy for all traction power. An industry survey in April 2013 indicated that there is sufficient renewable energy capacity to meet the system demand (Authority 2014b). Under the 2013 Policy Directive POLI-PLAN-03, the Authority has adopted a goal to purchase 100 percent of the HSR system's power from renewable energy sources (Authority 2016b). The Authority has designated staff working to collaborate with utilities and renewable energy developers (who may construct facilities that contribute wind, solar, or other renewable sources to the power grid). The utility coordination staff have a strong understanding of HSR system electricity demands and of how these demands impact negotiations with utilities and renewable energy developers. Furthermore, the Authority is developing a strategic renewable energy procurement plan that requires

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extensive collaboration and can be supported through stakeholder engagement, internal and external working groups, and creation and selection of efficient and effective instruments for power procurement. The Authority will continue to gather and synthesize information to develop this plan for the California HSR System (Authority 2011). As described in PUE-IAMF#1, the California HSR System design incorporates utilities and design elements that minimize electricity consumption (e.g., regenerative braking, energy-saving equipment on rolling stock and at station facilities, implementation of energy-saving measures during construction, and automatic train operations to maximize energy efficiency during operations). The net change in energy use (i.e., after the energy savings from reduction in roadway vehicle miles travelled (VMT) and in air trips are factored in, inclusive of the Palmdale Subsection and the Maintenance Facility) would result in statewide energy savings of 15,427,699 MMBtu per year under the medium ridership scenario and 23,641,108 MMBtu per year under the high ridership forecast compared to the 2040 No Project Alternative (Table 3.6-26 in Section 3.6 of the Draft EIR/EIS).

4414-8416

The commenter indicates possible errors in Table 3.6-10 in Section 3.6 of the Draft EIR/EIS. Table 3.6-10: Los Angeles County Waterworks District 37, Acton: For Water Treatment and Recycled Water, has replaced "X" with "N/A." For Service Area, the Authority has replaced 473 with 23. For Average Annual Demand, the Authority has replaced 659,000 with 2,200. Los Angeles County Waterworks District 40, Lancaster: For Service Area, the Authority has replaced 660 with 88. For Average Annual Demand, the Authority has replaced 2,402 with 46,000.These corrections were clarified in Comment #9141 by the Los Angeles County Public Works Office. These corrections do not change the Draft EIR/EIS analysis, as the revisions relate to the service area and current average annual demand of water distributors and suppliers within the utility resource area. Under PUE-MM#1 in Section 3.6, the Authority is to prepare an updated water supply analysis for the selected project alternative. Revised water distributors' service area and average demand do not change document conclusions and are not considered significant new information as they clarify errors in the text.

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4414-8417

The commenter indicates that natural gas pipelines extend further than what is currently shown in Figure 3.6-1 of the Draft EIR/EIS.

While the commenter indicates that areas in North, East, Central, and South Acton are served by natural gas pipelines, the commenter does not provide any specific locations or specific areas where they believe there could be a conflict with a natural gas pipeline. At this time, the Authority does not have additional information to indicate that there would be additional conflicts with natural gas pipelines, beyond those already identified in Figure 3.6-1 of the Draft EIR/EIS. Figure 3.6-1 is based on information provided by the utility providers. As indicated in the figure note "The mapping data available at this time shows an approximation of utility alignments and no information on the size of the utility line. Where available in other formats (i.e., hard-copy maps, as-builts, etc.), details on the size of the utility lines are summarized in the High Risk and Major Utility Impact Report."

Although no information has been presented to the Authority to indicate that there would be additional natural gas pipelines that could be affected by the project, the Draft EIR/EIS identifies that the Authority is required to comply with California Government Code 4216 (see Impact PUE#2 in Section 3.6, Public Utilities and Energy). Government Code 4216 would require the Authority to contact a regional notification center prior to excavation, which will then result in the regional notification center to mark the specific location of facilities. Compliance with this Government Code would ensure that any unknown utilities, including natural gas lines are marked before construction begins. In addition, the Authority would continue coordinating with utility providers, as required by PUE-IAMF#4. Through compliance with these requirements, the Authority would ensure that any conflicts with any currently unknown utilities are addressed.

4414-8418

The commenter states that the Draft EIR/EIS indicates that much of Central and North Acton is not served by a water pipeline. Figures 3.6-10 and 3.6-11 in Section 3.6 the Draft EIR/EIS show water transmission and distribution lines based on data obtained from Utility providers. These maps are not intended to show all water service lines serving individual residences, or neighborhoods, but larger transmission and distribution lines within the study area. As indicated in the Figure note: "The mapping data available at this time shows an approximation of utility alignments and no information on the size of the utility line. Where available in other formats (i.e., hard-copy maps, as-builts, etc.), details on the size of the utility lines are summarized in the High Risk and Major Utility Impact Report". The mapped waterlines in Figures 3.6-10 and 3.6-11 are understood to be pressurized waterlines which are considered high risk or major utilities. The figures do map some of these facilities in North Acton and north of the SR14 freeway. The Authority will continue to coordinate with utility providers during subsequent project stages to ensure accurate information is reflected, as required by PUE-IAMF#4. Please also refer to Impact PUE#1 in Section 3.6 of the Draft EIR/EIS, which identifies how the Authority would address any potential conflicts with water pipelines.

4414-8419

The commenter asserts that operational rates of the Acton Water Treatment Plant are inaccurately represented in Section 3.6.5.5, Water Supply Infrastructure and Facilities, of the Draft EIR/EIS. Specifically, they state that while the capacity of the Acton Water Treatment Plant is 4 million gallons per day, it does not operate at this rate. In response to this comment and based on additional review of available information regarding the Acton Water Treatment Plant on AVEK's website (https://www.avek.org/acton-water-treatment-plant-pwd-intertie), the discussion of the Acton Water Treatment Plant has been revised in the Final EIR/EIS to clarify that the facility's capacity (not the average daily operational rate) is 4 million gallons per day. This clarification did not result in any changes to the impact analysis or conclusions in the Final EIR/EIS.

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4414-8420

The commenter notes that Figure 3.6-18 and 3.6-19 do not show the existing culverts in Acton. The commenter additionally requests that the Project not alter any runoff flow patterns or flow rates or flow characteristics at any location in Acton. Please note that these figures show existing underground stormwater pipelines. Surface drains and culverts are not reflected in these figures as these are above ground facilities. The Authority will comply with Section 13260(a) of the California Water Code for any water discharge within any region, other than to a community sewer system, and which could affect the quality of the Waters of the United States. All General WDRs must implement RWQCB Water Quality Control Plan (Basin Plan) for the Region affected by the discharge. More detailed plans will be developed during the detailed design phase in coordination with the utility providers. For a discussion of impacts related to runoff flow patterns, rates, and characteristics, please refer to EIR/EIS Section 3.8: Hydrology and Water Resources. As discussed in Impact HWR#1 (Section 3.8.6.3), HYD-IAMF#1 and HYD-IAMF#2 will require that preconstruction hydraulic capacity be maintained after construction of surface water crossings through the implementation of on-site stormwater management BMPs that provide for runoff dispersion, infiltration, detention, and evaporation. Implementation of these IAMFs during Build Alternatives' construction would reduce impacts on hydraulic capacity by minimizing alterations to watercourses, implementing erosion control BMPs, and maintaining existing stormwater patterns. HYD-IAMF#3, which involves the preparation and implementation of a SWPPP, would ensure that changes to drainage, stormwater, and erosion patterns during construction would be avoided and minimized. Hydromodification management procedures would emphasize site retention of stormwater runoff during preconstruction and verify maintenance, using measures such as flow dispersion, infiltration, and evaporation (supplemented by detention where required). In addition, BMPs would retain stormwater runoff on-site per the stormwater management and treatment plan, as outlined in HYD-IAMF#1.

4414-8421

The commenter notes that the figures on pages 3.6-58 and 3.6-59 of the Draft EIR/EIS do not show the 66 kV sub-transmission and 12 kV distribution lines in Acton and suggests that the Authority add these electrical facilities to the Final EIR/EIS. Both Figures 3.6-22 and 3.6-23 in the Draft EIR/EIS illustrate the approximate location of electrical lines that are classified as High Risk. Please see the asterisk (*) note on each figure, which states the following: "The mapping data available at this time shows an approximation of utility alignments and no information on the size of the utility line. Where available in other formats (i.e., hard-copy maps, as-builts, etc.), details on the size of the utility lines are summarized in the High Risk and Major Utility Impact Report." The Draft EIR/EIS focuses on High Risk and Major utilities, rather than voltage, because these facilities may have unique requirements for relocation, including environmental impacts associated with the relocation, if necessary. Low-voltage distribution lines, less than 69kV, are considered low-risk utilities. These low-risk electrical facilities do not typically require substantial relocation efforts nor affect broad areas that High Risk facilities would. Effects to these low-risk facilities would typically be brief and only during any potential relocation period. Any conflict with low-risk electrical facilities would be conducted in coordination with the utility provider and with prior public notification, and utility service levels would remain unchanged after construction work is completed.

4414-8422

The commenter questioned data in Section 3.6.5.10, Energy. The source of the electrical usage and demand information presented in the Draft EIR/EIS are the 2018 Integrated Energy Policy Report Update (CEC 2018a), the updated energy consumption and peak demand values from the California Energy Demand 2014-2024 Final Forecast (CEC 2013), and the California Energy Demand 2018-2030 Revised Forecast (CEC 2018b). While the commenter cites other sources for similar data, the data is not substantially different between sources and does not affect the Authority's assessment of impacts of the project. Further, the use of earlier data is appropriate. The baseline year for the analysis of project impacts was established after the Notice of Preparation was filed on July 24, 2014, just after the public scoping period for the project was completed and at the onset of environmental analysis (see Draft EIR/EIS, pp. S-7, 3.3-23 to 3.3-24). CEQA Guidelines section 15125(a)(1) explicitly supports establishing baseline physical conditions in this manner.

Response to Submission 4414 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4414-8423

The commenter indicates that Page 3.6-64 in Section 3.6 of the Draft EIR/EIS provides a section titled "Existing Electricity Generation Capacity" but that the associated paragraph does not address electrical generation capacity. The subsection "Existing Electricity Generation Capacity" presents information regarding the sources and quantities of energy consumed to generate electricity in California in Table 3.6-17 and summarizes the electrical generation capacity in California in Figure 3.6-28. Both types of information are relevant to characterizing the existing electricity generating capacity in California.

4414-8424

The commenter expresses concern regarding project energy consumption and suggests the Draft EIR/EIS does not adequately identify impacts. As indicated in Draft EIR/EIS Appendix 2-D, Design Baseline Report, the Authority has coordinated with Pacific Gas and Electric Company and SCE and determined that network upgrades would be required to meet the projected power demands of the 345-mile portion of the California HSR System within the two utilities' respective service territories. Detailed engineering of electrical interconnections and network upgrade components has not been undertaken and would not be completed until closer to the time of construction. Network upgrades could include modifications to existing infrastructure such as expansion of existing substations and reconductoring of existing electrical lines (i.e., replacement of power structures [poles and lattice steel towers] and electrical conductors with taller structures and more efficient electrical wires or new electrical lines). Anticipated network upgrades are included in the Build Alternative footprint and would be implemented pursuant to California Public Utilities Commission General Order 131-D.

The Authority's methodology for analyzing operational energy effects is appropriate. The Project's operational effects on energy consumption are a function of reducing long-distance, city-to-city travel along freeways and highways throughout the state, as well as long-distance, city-to-city aircraft takeoffs and landings. The project would also affect electricity demand throughout the state and within the Palmdale to Burbank Project Section expanded utility RSA. The Authority's methodology appropriately compares the energy consumption for the Project to the No Project condition. The analysis calculates the corresponding energy reductions from reduced vehicle miles traveled (VMT) and airplane travel, against the electrical energy demand of operating the HSR project system. The resulting calculations show a substantial energy reduction when comparing the with Project scenario to the No Project condition (See Table 3.6-26 in Section 3.6 of the Draft EIR/EIS).

Regarding Project Energy Consumption, please refer to Standard Response PUE-1. Additionally, the Authority, under Impact PUE#11 in Section 3.6, Public Utilities and Energy, has designated staff working to collaborate with utilities and renewable energy developers (who may construct facilities that contribute wind, solar, or other renewable sources to the power grid). The utilities coordination staff have a strong understanding of HSR system electricity demands and of how these demands impact negotiations with

Response to Submission 4414 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4414-8424

utilities and renewable energy developers. Furthermore, the Authority is developing a strategic renewable energy procurement plan that requires extensive collaboration and stakeholder engagement, internal and external working groups, and creation and selection of efficient and effective instruments for power procurement. The Authority will continue to gather and synthesize information to develop this plan for the California HSR System (Authority 2011). As described in PUE-IAMF#1 (see Section 3.6, Public Utilities and Energy), the California HSR System incorporates utilities and design elements that minimize electricity consumption (e.g., regenerative braking, energy-saving equipment on rolling stock and at station facilities, implementation of energy-saving measures during construction, and automatic train operations to maximize energy efficiency during operations).

In summary, the Authority's methodology for analyzing operational energy effects is consistent with CEQA Guidelines, Appendix F, and provides the information CEQA requires regarding project energy demand versus supply. No revisions to the EIR/EIS are required.

4414-8425

Refer to Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the ANF, PB-Response-PUE-3: Water Demand and Usage.

The commenter states that the impact conclusions in Section 3.6, Public Utilities and Energy, of the Draft EIR/EIS are incorrect, stating that they believe it is highly likely that sufficient water supplies will be unavailable from AVEK; that the project will severely impact groundwater levels, groundwater quality, and municipal and residential well yields; that there are inconsistencies in the statement that AVEK water resources will be used for project construction; that the Draft EIR/EIS does not address scoping comments expressing concerns regarding project impacts on local well facilities; that the Draft EIR/EIS does not assess project operational impacts on electrical grids and new electrical utility generation projects required for the project; that the Draft EIR/EIS improperly relies on stormwater treatment facilities to treat construction wastewater; and that the Draft EIR/EIS adopts best management practices (BMPs) and Stormwater Pollution Prevention Plan (SWPPP) measures that are inappropriate for rural areas and will result in significant erosion.

Please refer to responses to comments #8402 through #8424, which respond to these assertions.

Regarding the comment about water supplies and sources, please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which provides additional information about water supplies for the project.

Regarding concerns about use of groundwater and potential impacts on groundwater levels, groundwater quality, and municipal and residential well yields, please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which explains that the project would not directly use groundwater and that any indirect use of groundwater (from a supplier, such as AVEK, that obtains parts of its supply from groundwater) would not affect sustainable groundwater management or the ability of residents to receive water from AVEK that includes groundwater.

Regarding concerns about impacts to residential water supply wells, Section 3.8, Hydrology and Water Resources, of Final EIR/EIS has been revised to expressly clarify

Response to Submission 4414 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4414-8425

concerns related to private water supply wells. As stated in the Final EIR/EIS, because only limited information is available regarding the location of private wells, there is the potential that tunnel construction could result in the destruction of private water supply wells, including wells that have not been identified, if any wells are located directly in the path of the tunnels. HYD-IAMF#8: Private Well Monitoring and Minimizing Access Disruptions for Private Water Supply Wells Outside of the ANF has been added to the Final EIR/EIS to describe in detail the options that the Authority would consider to address impacts to private water supply wells outside the ANF, including relocating the wells and ensuring similar pumping capacity and water quality in replacement wells. Please refer to Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the Angeles National Forest for additional information regarding impacts to wells and correlating IAMFs.

Regarding the comment on project operational impacts on electrical grids and new electrical utility generation projects required for the project, such impacts are addressed in Impact PUE#11 in Section 3.6, Public Utilities and Energy, of the Draft EIR/EIS. As noted therein, with implementation of PUE-IAMF#1, the project would not place a substantial demand on regional energy supply, require significant additional capacity, or significantly increase peak- and base-period electricity demand. Further, during operation, the HSR Build Alternative as part of the Phase 1 system would contribute to a net savings in energy expended for transportation, which is a project benefit. As discussed in response to comment #8424, the Authority's methodology for analyzing operational energy effects is consistent with CEQA Guidelines, Appendix F, and provides the information CEQA requires regarding project energy demand versus supply.

Regarding the comment about reliance on stormwater treatment facilities, Impact PUE#4: Effects from Wastewater Generated during Construction in Section 3.6, Public Utilities and Energy, of the Draft EIR/EIS explains that construction wastewater would not be piped back into local wastewater treatment facilities, collection systems, or treatment plants. IAMFs incorporated into the Build Alternatives include effective measures to minimize potential impacts on water quality during construction. HYD-IAMF#1 requires on-site stormwater management facilities to capture runoff from pollutant-generating surfaces. Potentially contaminated runoff will be captured and

4414-8425

treated within these stormwater management facilities prior to discharge. HYD-IAMF#3 requires the contractor to comply with the State Water Resources Control Board Construction General Permit to avoid or minimize temporary hydraulic impacts associated with construction activities at all construction sites and in adjacent areas during construction. These project features would reduce impacts from stormwater during construction activities through the preparation and implementation of a construction SWPPP, including BMPs to provide hydromodification controls to maintain pre-project hydrology and to manage the amount of stormwater runoff emanating from the construction sites.

Regarding the comment that BMPs and the SWPPP (required by HYD-IAMF #3, Prepare and Implement a Construction Stormwater Pollution Prevention Plan) would result in erosion of downhill properties in rural areas, the intent of the BMPs is to minimize potential short-term increases in sediment transport caused by construction, including erosion control requirements and stormwater management. Measures will address practices to reduce erosion of exposed soil, including soil stabilization, regular watering for dust control, perimeter siltation fences, and sediment catchment basins; and avoiding areas that may have substantial erosion risk, including areas with erosive soils and steep slopes, where feasible. The commenter does not provide evidence to indicate why these measures would not be appropriate or effective, nor explain how they would result in erosion of downhill properties.

The Authority considers the Palmdale to Burbank Project Section project description to be stable. The project is clearly defined and described in detail in Chapter 2, Alternatives and the engineering documents provided in Volume 3 of the Draft EIR/EIS. The environmental analysis is extensive and detailed, as noted in this response and other responses to this commenter's concerns, and addresses the items identified in the scoping process.

Response to Submission 4414 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4414-8426

The commenter indicates that a water pipeline for construction shown on sheet UT-C4537-E1 has not been proposed insofar as the Community of Acton is aware. The water pipeline shown on PEPD Record Set REV02 Utility Relocation Plans Volume II of II Sheet UT-C4537-E1 is a pipeline proposed by the Authority to provide water to the tunnel portal. This plan will be revised to show the Authority as the owner of this proposed water line, instead of LADWP that was mistakenly labeled as owner. This water line is proposed for Build Alternative E1 and included in EIR/EIS Appendix 3.6 Page 3.6-A-39. This proposed pipeline is not part of the Preferred Alternative SR14A.

4414-8427

The commenter indicates that sheet UT-C4028-S14 shows a pipeline that has not been proposed insofar as the Community of Acton is aware. Please note that the comment incorrectly correlates Drawing number and Alternative Route. For SR14A utility drawings please refer to the EIR/EIS Volume 3 PEPD Record Set Addendum SR14A/E1A/E2A Utility Relocation Plans. The water pipeline shown on sheet UT-C4028-S14 is a pipeline proposed by the Authority to provide water to the tunnel portal. This plan will be revised to show the Authority as the owner of this proposed water line, instead of LADWP that was mistakenly labeled as owner. This water line is proposed for Build Alternative Refined SR14 (see EIR/EIS Appendix 3.6-A Page 3.6-A-36 Item No. 212) and therefore is not part of the Preferred Alternative SR14A. The preferred alternative SR14A would be tunneled south of Refined SR14 alignment with no water-main adjacent to Hypotenuse Road (See PEPD Record Set Addendum SR14A/E1A/E2A Sheet TT-D1017-14A).

4414-8428

The commenter identifies a road as mislabeled on Sheet UT-C4026-14A in EIR/EIS Volume 3 PEPD Record Set Addendum SR14A/E1A/E2A Utility Relocation Plans.

After further review it is confirmed that Drawing UT-C4026-14A is correct, Hisey Ranch Road is located north of indicated property.

4414-8429

The commenter questions the adequacy of the Draft EIR/EIS due to reasons stated in Comments #8402 through #8428 and requests that the issues raised in those comments are addressed and mitigated in the Final EIR/EIS. Please refer to Response to Comment #8402 through #8428, which addresses the specific issues raised by the commenter.

Submission 4415 (Jacqueline Ayer, Acton Town Council, December 1, 2022)

Palmdale - Burbank - RECORD #4415 DETAIL

Status :	Action Pending
Record Date :	12/1/2022
Interest As :	Business and/or Organization
First Name :	Jacqueline
Last Name :	Ayer
Attachments :	ATC, ADTC Joint Comment Letter on CHSRA DEIR-DEIS Hydro Section - signed.pdf (197 kb) FINAL hydrology and water resources analysis section.pdf (2 mb)

Stakeholder Comments/Issues :

PLEASE CONFIRM RECEIPT

To the California High Speed Rail Authority;
Attached please find comments submitted jointly by the Acton Town Council and the Agua Dulce Town Council pertaining to the "Hydrology and Water Resources" impact analysis (Section 3.8) of the Draft Environmental Impact Report/Environmental Impact Statement issued by the California High Speed Rail Authority for the Palmdale-Burbank Section of the High Speed Rail Project.
Please contact the Acton Town Council at atc@actontowncouncil.org if you have difficulties opening the attached or require additional information.
Hard copies of the attached comments have also been submitted via USPS.

Sincerely,
Jacqueline Ayer
Correspondence Secretary

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December 1, 2022

California High Speed Rail Authority
Southern California Regional Office
355 S. Grand Avenue, Suite 2050
Los Angeles, CA 90071
Electronic Transmission of 21 pages to
Palmdale_Burbank@hsr.ca.gov

Subject: Acton Town Council and Agua Dulce Town Council Joint Comments on Section 3.8 of the Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement.

Reference: Notice of Notice of Availability/Notice of Public Hearing for the California High-Speed Rail – Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement Issued September 2, 2022.

To the California High Speed Rail Authority;

Attached please find comments submitted jointly by the Acton Town Council and the Agua Dulce Town Council on Section 3.8 of the Draft Environmental Impact Report/Environmental Impact Statement prepared for the Palmdale to Burbank Project Section of the California High Speed Rail Project. If you have any questions or require further information, please contact the Acton Town Council at atc@actontowncouncil.org.

Sincerely,

Jeremiah Owen, President
The Acton Town Council

Don Henry
Don Henry, President
Agua Dulce Town Council – 2022

Hardcopy sent via USPS

cc: Rick Simon, Engineering Manager, Palmdale-Burbank Section [Rick.Simon@hsr.ca.gov]
Genoveva Arellano, Principal; Arellano & Associates [GArellano@arellanoassociates.com]

"Our lives begin to end the day we become silent about things that matter" Martin Luther King, Jr.

4415-8719

4415-8720

ANALYSIS OF THE "HYDROLOGY AND WATER RESOURCES" SECTION PRESENTED IN THE PALMDALE-BURBANK DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT.

1.0 INTRODUCTION

The "Hydrology and Water Resources" impact assessment presented in Chapter 3.8 of the Draft Environmental Impact Report/Environmental Impact Statement (hereafter referred to as "the Draft") that was prepared by the California High Speed Rail Authority for the Palmdale-Burbank Segment of the High Speed Rail Project ("Project") has been evaluated and numerous factual errors and material deficiencies have been identified. These errors and deficiencies are set forth in the comments presented below; they demonstrate that the Draft does not comply with either the California Environmental Quality Act ("CEQA") or the National Environmental Protection Act ("NEPA"). Please note: These comments were prepared by a competent engineer with more than 35 years of environmental engineering experience and they present expert opinion supported by facts pertaining to the significant environmental effects that will be caused by the Project and which must be mitigated. Accordingly, the comments provided herein constitute "substantial evidence" as that term is defined by the CEQA Statute [California Public Resources Code §21080(e)(1)] and Guidelines [California Code of Regulations Section 15064(f)(5)]. These comments also demonstrate that CHSRA/FRA have failed to conduct a substantive 'hard look' review of the Project's environmental impacts as required by NEPA.

2.0 MAJOR DEFICIENCIES NOTED IN THE DRAFT.

4415-8720

2.1 The "Best Management Practices" That Will be Used for Project Construction Will Result in Significant Erosion and Alter Flow Characteristics Downstream of Project Construction Sites.

Section 3.8 of the Draft concludes that the Project will have a "less than significant impact" on hydrology because it will employ "Impact Avoidance and Minimization Features" ("IAMFs") and utilize standard "Best Management Practices" ("BMP") and implement "Stormwater Pollution Prevention Plans" to control and direct stormwater runoff from project construction sites and thereby not alter surface drainage patterns [Page 3.8-39]. The Draft is very much mistaken. The BMPs and SWPPP elements that are enumerated in the Draft were developed for urban areas where the land surface is almost entirely impervious and where extensive infrastructure (concrete drainage infrastructure, culverts, impervious ditches, channelized facilities, etc.) capture and divert stormwater to either the ocean or detention (dam) facilities or large "spreading grounds"; these BMPs and SWPPS are entirely inappropriate in rural areas that have dirt roads, few impervious areas and no drainage infrastructure and where natural drainage patterns have been maintained and preserved for hundreds of years. For example, a primary purpose of the BMPs and SWPPPs is to control sediment flows and eliminate sediment from stormwater discharges (see pages 3.8-76 and 3.6-78[1]); this is important in urban areas because sediment impairs the operation of stormwater capture and conveyance infrastructure by accumulating in conveyance channels and detention basins reducing system capacity. However, rural areas like Acton and Agua Dulce have no stormwater capture or conveyance infrastructure; so, sedimentation is not a problem. In fact, if the Project does remove sediment from stormwater flows in Acton and Agua Dulce, it will cause tremendous erosion problems on all downstream areas because the "sediment free" stormwater discharged from the construction site into natural drainage courses will pick up sediment as it gains speed on its path toward the Santa Clara River[2]. And, where it picks up sediment as it flows across downstream properties, it causes significant erosion. This is not conjecture; it is fact. The Forecast subdivision between McEnnery Canyon Road and Desert Road in Acton installed stormwater capture and sediment removal facilities (including debris basins and detention basins) that discharged sediment-free water to the natural drainage courses downhill from the subdivision, and when it rained, the "sediment free" water picked up significant amounts of sediment as it flowed across downhill properties the resulted in significant erosion; some downhill properties lost large areas of their back yards. Therefore, IAMFs, BMPs and SWPPs that result in "sediment free" stormwater discharges will cause significantly adverse erosion impacts in Acton and Agua Dulce.

The problem with employing standard IAMFs, BMPs and SWPPP measures at construction sites in Acton and Agua Dulce can perhaps best be illustrated by analyzing a statement found on page 3.8-37 which asserts "Drainage facilities would be specifically designed to convey stormwater runoff, which would result in minimal direct drainage impacts related to these facilities". According to this statement, the Project will not cause drainage impacts because the Project will be designed to "convey stormwater runoff"; the problem is, neither Acton nor Agua Dulce have stormwater infrastructure to accept the "storm water runoff" that the Project "conveys". Neither Acton nor Agua Dulce have stormwater culverts or concrete drainage facilities or stormwater capture infrastructure or channelized flow areas, so the "stormwater runoff" that is "conveyed" by the Project *has nowhere to go*. And, if it is just dumped into the natural drainage courses in these communities, it will cause extensive erosion (as discussed above). To be clear, stormwater runoff is ***never*** "conveyed" in Acton or Agua Dulce; instead, stormwater merely flows to the Santa Clara River along natural drainage courses that have remained unchanged for millennia. The fundamental premise which underlies the Draft's conclusions that hydrologic impacts will be less than significant because the Project includes BMPs and SWPPs to ensure "drainage facilities would be specifically designed to convey stormwater runoff" is only reasonable in urban/suburban areas where there is channelized drainage infrastructure to accept the conveyed stormwater; it is entirely unreasonable and inapplicable to Acton and Agua Dulce. Accordingly, the Draft is patently incorrect to conclude that the Project will have "less than significant" hydrologic impacts in Acton and Agua Dulce.

It is important for CHSRA to understand that natural drainage patterns have generally dictated the location and configuration of all development in Acton and Agua Dulce over the last 150 years; thus, it is critical that drainage patterns and characteristics in these communities remain preserved and unchanged to protect existing developments. Other than an earthquake, the only activity that can alter drainage patterns in Acton and Agua Dulce is development involving stormwater capture, sediment removal, and stormwater control; this is why such developments are precluded in Acton and why all the IAMPFs, BMPs, and SWPPS that are identified in the

[1] According to pages 3.8-76 and 3.6-78, the Project will employ IAMFs to control sediment and BMPs will minimize discharges of sediment in stormwater released from construction sites.

[2] This is the principal characteristic of "two phase flow" conditions: clean water flowing over a natural surface will pick up sediment from the surface until an equilibrium is reached; the equilibrium is a measure of the sediment transport capacity of the flow.

1

2

Submission 4415 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4415-8720

Draft are completely inappropriate for Acton. To better understand how the natural drainage patterns are preserved in Acton and Agua Dulce, the following description is offered:

- Most roads in Acton are dirt and have no stormwater capture or diversion infrastructure; they are maintained by the residents. This does make the roads occasionally impassable during inclement weather, but residents quickly repair the roads and restore access.

- There are culverts under a few paved roads in Acton (the 14 Freeway, Escondido Canyon Road, Sierra Highway, and Soledad Canyon Road) but these culverts are located where natural flows occurred before the roads were built *and they do not have sediment removal facilities*; they simply carry sediment laden flows from one side of the road to the other and do not alter flow patterns or cause erosion on downstream properties.

- Every new residential development complies with applicable stormwater regulations by constructing a natural bioswale on site which is appropriately sized to capture and retain sufficient water to offset the impervious surface area that the development creates; no impervious stormwater capture facilities or sediment removal basins are constructed.

Concerns regarding the use of standard IAMFs, BMPs, and SWPPP measures are particularly acute at the "Acton Window" location which lies immediately adjacent to, and uphill from, an entire residential neighborhood. As indicated in the drainage map that is provided in Attachment 1, there are several natural drainage courses across the "Acton Window" parcel; some of these drainage courses are very near homes that are south of, and just downhill from, the "Acton Window" site. As shown in the figures below, sediment-laden stormwater flows off the "Acton Window" parcel via the natural drainages and passed the homes without eroding or flooding the homes. If the Project employs the BMPs and SWPPPs that are described in the Draft at this location, then significant downhill erosion will occur and the homes will be substantially damaged. It should be noted that, at one time, a residential subdivision was proposed for the large parcel that will be used for the "Acton Window"; the subdivision was configured to connect to Antelope Woods Road at the same location and in the same manner as what is now proposed for the SR14A Alternative. The developer had proposed the use of "Conspan" arch bridges to traverse the unique onsite drainage courses that emanate from under the 14 Freeway in a manner that would not alter any characteristics of runoff from the property. A copy of the subdivider's "post-development" plan is provided in Attachment 2. The efficacy of the developer's proposal to utilize arch bridges to prevent alterations to existing drainage characteristics and patterns was never fully vetted because the subdivision map was withdrawn; however, the information provided in Attachment 2 demonstrates just how essential it is for CHSRA to ensure that Project construction and operation at the "Acton Window" does not modify drainage characteristics or drainage locations at the Acton Widow site.

Taken together, the abovementioned facts demonstrate that implementation of the BMPs and SWPPP measures that are identified in the Draft within the Communities of Acton and Agua Dulce will not reduce impacts from alterations of surface drainage patterns to a level that is less than significant; to the contrary, they will amplify and exacerbate such impacts. Thus, it is particularly important that the Final EIR clearly assert that the Project ***will not*** adopt standard BMPs and SWPP measures in rural communities like Acton and Agua Dulce because they are only applicable to urban/suburban areas where there are extensive impervious surfaces and

4415-8720



Photos of sediment laden stormwater flowing off the "Acton Window" property.

sufficient stormwater conveyance facilities to accommodate them. It is also critical that the Final EIR identify and describe the rural-appropriate IAMFs, BMPs, and SWPPP measures that will be utilized to ensure that the Project does not modify existing stormwater runoff patterns or alter the location of, or the flowrate in, or the sediment characteristics of, any natural watercourses in Acton and Agua Dulce.

4415-8721

2.2 The Draft Improperly Conflates Stormwater Treatment with Wastewater Treatment and Fails to Address the Impacts of Wastewater Pollutants on Water Resources.

Section 3.8 of the Draft provides extensive discussions regarding the stormwater treatment infrastructure will be employed to protect water resources at all the Project's tunnel portal sites; however, it fails to discuss the wastewater treatment infrastructure that will be employed to address the significant volumes of wastewater that will be generated every day during tunnel construction. It also does not identify any measures that will be used to protect groundwater resources from wastewater contamination. In fact, the word "wastewater" appears only three times in Section 3.8! Wastewater concerns are mentioned briefly in Section 3.6 of the Draft, but the wastewater treatment approach it describes is lacking because it relies on the Project's stormwater treatment facilities to clean up process wastewater resulting from tunnel construction[3]. In other words, the Draft improperly conflates *wastewater treatment* with *stormwater treatment*. The Project's stormwater facilities will operate only during rare rain events, and in rural communities like Acton and Agua Dulce, stormwater facilities are not particularly complex because stormwater runoff is generally clean with few contaminants (though stormwater does contain sediment which, as discussed above, is naturally occurring and

[3] Pages 3.6-78 – 3.6-79 concludes that wastewater impacts will be less than significant because of the BMPs and SWPPP measures that will be implemented for the Project's stormwater treatment program.

4415-8721

not a "contaminant"). In contrast, the Project's wastewater treatment facilities will have to be substantially more robust than stormwater treatment facilities because every day, the Project will generate more than one hundred thirty thousand[4] gallons of process wastewater contaminated with the constituents that are released by operations of the tunnel boring machines ("TBM")[5]. None of this is discussed in the Draft. It is essential that the Final EIR/EIS correct this deficiency and include language which ensures that the Project's wastewater treatment program will be properly configured to clean the wastewater and maintain existing drainage patterns, characteristics, and sediment discharge profiles in Acton and Agua Dulce and thus avoid downstream erosion and the other runoff problems described above.

4415-8722

2.3 The Draft Fails to Address the Project's Significant Adverse Impacts on Local Water Resources and Drinking Wells in Acton and Agua Dulce.

Section 3.8 of the Draft is supposed to analyze the Project's impacts on water resources; however, it does not properly address impacts to local water resources and well systems that will result from tunnel construction. In fact, the Project threatens local water resources and drinking water wells in Acton and Agua Dulce in several ways; yet, the Draft fails to address any of them. For instance, tunneling (whether done with TBMs or "traditional methods") will destroy all well facilities that lie in the tunnel path; residences that rely on these well facilities will have their water source immediately curtailed. According to the tunnel route maps, all the routes travel under homes in rural areas that rely on domestic residential wells; yet the Draft does not address the impacts to these homes that would result if a TBM bored through a resident's well. This impact must be addressed and a mitigation measure must be offered in which CHSRA drills a new well that meets all local health department standards or connects the property to municipal water.

Another water resource impact that is not addressed in the Draft pertains to groundwater levels and how they will be affected by tunnel construction. Specifically, Section 3.6 asserts that tunnel construction will rely on water resources provided by the "Antelope Valley-East Kern" Water Agency ("AVEK"), but it also states that non-potable water (i.e., groundwater or partially treated sewage) will also be used to the extent feasible; this means that, in Acton and Agua Dulce, both AVEK resources and local groundwater will be used for tunnel construction (because there are no municipal sewage treatment facilities in Acton or Agua Dulce). However, the Draft fails to address or even mention the significant impacts that will result from extracting more groundwater from the already scant local groundwater supplies in Acton and Agua Dulce. Recently, these concerns were substantially elevated when CHSRA announced at a public meeting on November 4, 2022, that AVEK resources ***will not*** be used for tunnel construction and that the Project will instead rely entirely on local groundwater resources in Acton and Agua Dulce; this news was shocking. If groundwater resources for tunnel construction are used instead of AVEK resources, then each tunnel portal site will require the extraction of more than

[4] Two TBMs will be operating from each portal and, according to page 3.6-78, each TBM will require 366 acre-feet per year; this will result in 653,500 gallons per day used at each portal. According to page 12 of Appendix 3.8-D, at least 20 percent of this water (or 130,700 gallons per day) will flow back and require treatment as contaminated wastewater.

[5] According to Page 3.8-41, the water in the tunnels could be contaminated with drilling muds, sediments, and lubricants.

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650,000 gallons *per day*[6]. The Project will also require the construction of new and extensive groundwater extraction facilities. It will also substantially increase groundwater extraction rates in Acton and Agua Dulce which will introduce new and significant stresses on local groundwater supplies that are already stretched thin due to recent drought conditions. This in turn will directly affect local well yields, cause residential wells to "dry up", and drive people from their homes. Because the Draft fails to analyze or even mention these impacts, it substantially violates both CEQA and NEPA deficiencies. More extensive remarks regarding the significantly adverse environmental impact that will result from using local groundwater resources rather than AVEK resources for tunnel construction are provided in the comments that have been submitted pursuant to Section 3.6; those comments are incorporated herein by reference. The only way to avoid these significant environmental impacts is to preclude the use of groundwater resources for tunnel construction in Acton and Agua Dulce and mandate that AVEK resources be utilized instead.

Another impact that is not properly addressed by the Draft is the significant environmental effects on residential wells in Acton and Agua Dulce that will result from subterranean alterations caused by tunnel construction. Specifically, and as expressed in comments submitted by hundreds of residents of Acton and Agua Dulce before, during, and after Project Scoping, tunnel construction can impact groundwater and perched water resources and thus permanently interrupt domestic water supplies. These concerns are supposed to be addressed as part of "Impact HWR#4", but the analysis of "Impact HWR #4" is superficial, incoherent, and internally inconsistent. For instance, pages 8.6-47-8.6-49 assert: 1) "when tunnel depths are above the known groundwater table, effects on groundwater and groundwater dependent resources would be minimal to none"; 2) "Where tunnel depths may coincide with the groundwater table, there could be impacts"; 3) "tunneling activities required for each of the six Build Alternatives could encounter shallow groundwater south of the California Aqueduct and north of the ANF" [referring to Acton and Agua Dulce] 4) "Not enough groundwater information is available at this time to identify the extent to which the tunnels may be below the water table. There may be perched groundwater or seasonal springs in the vicinity of these tunnels (Figure 3.8-A-21); therefore, local water inflows during portal and tunnel excavations are anticipated in this area"; 5) "Private wells occur within 1 mile of each of the six Build Alternatives outside of the ANF (Figure 3.8-A-21, Figure 3.8-A-22, and Figure 3.8-A-23). Changes in groundwater during tunnel construction could affect water supply to these private supply wells"; 6) "Because of the presence of groundwater, perched groundwater, and seasonal springs, tunneling could provide a conduit for groundwater to drain into the excavation as the advancing tunnel intersects fractures and faults within bedrock or saturated alluvium in groundwater basins"; 7) "For all excavation methods, excessive groundwater pressures might generate some seepage into the tunnel during construction, but additional measures implemented during construction, such as pre-grouting, would help to reduce the flow to manageable values"; 8) "The tunnel lining system would also be important in controlling water flows both during and after construction and would consist of either a single-pass or two-pass lining system, depending on mining methods and groundwater pressure encountered"; 9) "The circumstances under which these approaches would be employed would be guided by site-specific geotechnical and hydrogeological characterizations that would be developed during the preconstruction phase of

[6] Each TBM requires 366 acre-feet of water per year [Page 3.6-78], and each portal site supports two TBMS; this means that each tunnel portal will require more than two acre-feet (or 653,487 gallons) of water per day.

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the selected Preferred Alternative". Coupling this confusing and arguably contradictory accumulation of declarative statements with the assertion offered on Page 3.8-41 that the analysis assumes "all tunnels are below the water table" in the area South of the Aqueduct and north of the ANF (which is where Acton and Agua Dulce are) reveals that CHSRA has no clear picture of where the water table is in Acton and Agua Dulce or where the tunnels are located in relation to the water table. Worse yet, the Draft fails to grasp that the salient issue is not where the tunnels are located in relation to the "water table", rather it is where the tunnels are located in relation to the groundwater sources that residents pull from to extract their drinking water; the distinction is critical because many domestic wells in Acton and Agua Dulce actually extend well below the "water table" to ensure a reliable water supply despite drought conditions. For example, the domestic wells that serve the residents on Salty Dog Road and Hisey Ranch Road under which the SR14A tunnels run have depths ranging from 500 feet to 900 feet (which means that some wells extract water from zones above the tunnel and others extract water from zones below the tunnel). Inadequacies in the "analysis" of "Impact HWR#4" are substantially magnified by the fact that the Draft mistakenly presumes that there are very few wells in Acton and Agua Dulce[7] when, in reality, these communities have more than a thousand wells.

The Draft fails to provide a coherent analysis of "Impact HWR#4" and instead presents a muddled, incoherent, and uninformed mishmash of words which reveals that CHSRA knows nothing about local groundwater or perched water resources in Acton and Agua Dulce; it knows nothing about local well facilities in Acton and Agua Dulce or where they are or how they are configured; and it knows nothing about how tunneling will impact these water resources and well facilities. Yet, and despite these inadequacies, the Draft concludes on page 3.8-49 that impacts on groundwater outside the ANF will be "less than significant". This conclusion is not supported by any evidence (let alone "substantial evidence") and it constitutes the type of speculation that is prohibited by CEQA.

This deficiency must be addressed by revising the Draft to 1) clearly assert that there is insufficient evidence to conclude that the impacts of tunnel construction on groundwater resources in Acton and Agua Dulce will be less than significant; and 2) add a mitigate measure to address the impacts of tunnel construction on private water systems, residential wells, and groundwater resources in Acton and Agua Dulce which includes an "Adaptive Management and Monitoring Plan" ("AMMP") that establishes protocols to determine baseline conditions of ground water levels at all wells in Acton and Agua Dulce that are located within ½ mile of any tunnel and detects changes in groundwater conditions at these locations which are related to tunnel construction to ensure timely implementation of remedial measures; these remedial measures must include supplying supplemental water to all affected well owners until baseline levels are restored or drilling a new well that complies with all applicable local and state requirements. The Draft already proposes a similar AMMP (identified in Mitigation Measure "HWR-MM#4") for ANF lands [Pages 3.8-67 to 3.8-69], so incrementally extending this AMMP to protect the rural residents of Acton and Agua Dulce will not be burdensome. Moreover, CEQA requires that CHSRA mitigate all potentially significant impacts to the extent feasible. Given that this AMMP is clearly feasible (since it will be implemented in the ANF) and given that the Draft clearly affirms that tunnel construction will affect groundwater in Acton and Agua

[7] Table 3.8-3 identifies few wells in the area of the Project in Acton and Agua Dulce; additionally, the Draft appendices indicate that Acton has only 5 active wells and Agua Dulce has no active wells (as discussed in more detail below).

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Dulce (i.e., "South of the California aqueduct and north of the ANF") and given that CHSRA does not know how many wells it will affect or where they are located, CEQA requires that this AMMP be included in a mitigation measure developed for Acton and Agua Dulce.

4415-8723

2.4 The Draft Fails to Address the Impacts on Water Resources That Will Result From Using Non Potable Water for Tunnel Construction.

Section 3.8 of the Draft ostensibly pertains to water resource impacts that will result from Project construction and operation, yet it fails to address the potential contamination of groundwater resources that will result from the use of non-potable water to construct the tunnels on all 6 route alternatives. Specifically, and though the Draft asserts in Tables 3.6-11 and 3.6-21 that tunnel construction will be conducted using AVEK resources (which are potable), page 3.6-90 contradicts this assertion by stating that the Project will require the use of non-potable water for tunnel construction to the extent feasible. The Draft fails to identify the sources of non-potable water that will be used, but non-potable water is typically comprised of either partially treated sewage or untreated groundwater. And, given the substantial likelihood that the TBMs will pierce water channels and aquifers that either overlie, or serve as, public and private drinking water sources in Acton and Agua Dulce (as discussed above), tunnel construction with non-potable water will result in the direct injection of potentially unclean water into groundwaters that directly serve as drinking water sources.

As indicated above, CHSRA staff recently announced that only groundwater resources will be used for tunnel construction in Acton and Agua Dulce. This, coupled with the fact that local groundwater in Acton and Agua Dulce is often contaminated with nitrates and arsenic at levels exceeding federal drinking water standards[8], necessarily implies that tunneling will result in the direct injection of these and other pollutants into all the aquifers, perched water, and other groundwater sources through which the tunnels pass. Yet, the potential contamination of groundwater that is posed by the use of non-potable water for tunnel construction is not addressed anywhere in the Draft. Instead, the Draft simply asserts that "the tunnels are below the water table" [Page 3.8-41] and thus will not contaminate groundwater in Acton and Agua Dulce (a.k.a. "the area south of the California Aqueduct and north of the ANF". This assertion has no evidentiary support; in fact (as discussed above), CHSRA has insufficient information to draw any specific conclusions regarding where tunnels will be located in relation to either the "water table" or the groundwater sources that Acton and Agua Dulce residents rely on.

The lack of analysis of potential groundwater contamination resulting from the use of non-potable water in Acton and Agua Dulce and the attendant lack of mitigation measures to address this impact renders the Draft materially deficient. Accordingly, the Draft must be revised to address this deficiency and offer mitigation; the revisions must include a clear statement that the principal means to avoid these impacts is to preclude the use of groundwater resources for tunnel construction in Acton and Agua Dulce and instead require the use of AVEK resources.

[8] Nitrate concentrations in groundwater extracted from local municipal wells in Acton are reported in Attachment 3. Additionally, arsenic is found in the groundwater within Agua Dulce; in fact, "Agua Dulce" (or "sweet water" in Spanish) is an historic term for water contaminated with arsenic. A study conducted 10 years ago by the Los Angeles County Health Department indicates that many wells in Agua Dulce have detectible levels of arsenic and in some areas, arsenic exceeds the MCL of 10 ppb [http://file.lacounty.gov/SDSInter/bos/supdocs/65110.pdf].

3.0 ADDITIONAL DEFICIENCIES NOTED IN THE DRAFT

For simplicity and to facilitate review, additional deficiencies and factual errors noted in the Draft are presented sequentially by page number below.

4415-8724

Page 3.8-10 states "The Authority is a state agency and therefore is not required to comply with local land use and zoning regulations"; while it is true that CHSRA is not required to comply with local land use and zoning regulations, CEQA does require CHSRA to identify Project elements that conflict with local land use plans and policies; it also requires CHSRA to mitigate conflicts with any plan or policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect if such conflicts will result in a significant environmental impact. So, while the Project is not required to *conform* with local land use and zoning policies, it must nevertheless mitigate the significant environmental impacts that arise from non-conformance with local land use and zoning policies.

4415-8725

Page 3.8-10 addresses the consistencies of the Project's hydrology and water resource characteristics with applicable planning documents adopted by local agencies and it defers to an analysis presented in Appendix 2-H. It also states "Each of the six Build Alternatives are consistent with the majority of policies reviewed but are potentially inconsistent with 2 policies. These are Policy S 2.2 of the Los Angeles County General Plan, which discourages development from locating downslope from aqueducts, and Policy LU 3.3 of the Los Angeles County Ordinances, which limits the amount of development in Flood Zones designated by FEMA." This consistency analysis does not comply with CEQA. Specifically, CEQA requires that CHSRA ascertain whether the Project is inconsistent with any policies that were adopted for the purpose of avoiding or mitigating an environmental effect and whether these inconsistencies will result in significant environmental impacts; if so, mitigation must be offered[9]. Unfortunately, the Draft does not meet this standard because it offers no mitigation measures to address the inconsistencies that are identified. Equally important, the consistency analysis presented in Appendix 2-H is incomplete and arguably erroneous. For example, Appendix H-2 states on page 2.0-H-27 that the Project is consistent with Los Angeles County General Plan Policy C/NR 5.6 (Minimize point and nonpoint-source water pollution) because CHSRA will prepare a stormwater management and treatment plan and a Stormwater Pollution Prevention Plan (SWPPP) to manage stormwater runoff for all six Build Alternatives; however, stormwater management plans and SWPPs configured to address stormwater runoff are not appropriate for addressing the wastewater generated at each portal location (as discussed above). Moreover, using stormwater facilities or SWPPP measures to treat wastewater will not "minimize water pollution" as required by Policy C/NR 5.6 because "stormwater" and "wastewater" are two very different streams that require different treatment methodologies (as discussed above); this is particularly true in Acton and Agua Dulce where stormwater runoff requires little (if any) treatment. The consistency analysis presented for Policy C/NR 5.6 in Appendix H-2 is inadequate and must be revised to recognize these facts. Another concern is that Appendix H-2 fails to address the water pollution that will result from CHSRA's plan to use non-potable water to operate the TBMs (as discussed above). Furthermore, Appendix H-2 does not address Goal C/NR 6 to achieve "Protected and usable local groundwater resources". Goal C/NR 6 was clearly adopted "for the purpose of avoiding or mitigating an environmental effect"; therefore, CEQA

[9] California Code of Regulation, Title 14, Chapter 3, Appendix G.

4415-8725

requires that the Final EIR 1) address the manner in which the Project substantially conflicts with this Goal by requiring groundwater resources to be used for tunnel construction in Acton and Agua Dulce; and 2) provide mitigation for the significant impacts to local groundwater levels that will arise from this conflict. The only feasible mitigation measure that will ensure the Project does not conflict with ether Goal C/NR 6 or Policy C/NR 5.6 is to preclude the use of local groundwater for tunnel construction in Acton and Agua Dulce and mandate that only AVEK resources will be used. Finally, Appendix H-2 fails to identify the Antelope Valley Area Plan (AV Plan) or discuss its relevance to the Project. Policy COS 2.7 from the AV Plan pertains to protected and usable local groundwater resources and it is particularly relevant given that the Project may substantially impact local groundwater resources. Additionally, AV Plan Policy COS 3.5 pertaining to the protection of water supplies from pollution is also relevant given that CHSRA proposes to use non-potable water for TBM operation. In summary: Page 3.8-10 and Appendix H-2 must be revised to 1) address the Project's conflicts with Goal C/NR 6, Policy C/NR 5.6, Policy COS 2.7 and Policy COS 3 (all of which were adopted "for the purpose of avoiding or mitigating an environmental effect"); 2) establish the significant environmental impacts resulting from these conflicts; and 3) and provide appropriate mitigation measures to reduce these environmental impacts. Recommended mitigation measures include the development of properly robust wastewater treatment facilities and a commitment to use only potable water supplied by the Antelope Valley-East Kern (AVEK") Water Agency for constructing the tunnels in Acton and Agua Dulce.

4415-8726

Pages 3.8-21 through 3.8-22 pertain to surface water conditions and according to Table 3.8-3, these pages are supposed to address well issues, but they do not. Worse yet, Table 3.8-3 asserts (wrongly) that there are almost no active wells present throughout any of the route alternatives! Table 3.8-3 was ostensibly compiled based on data provided in Appendix 3.8-A, but Appendix 3.8-A fails to identify nearly every single well in Acton and Agua Dulce (for instance, page 3.8-A-21 reports that the entire Community of Acton only has 5 active wells and page 3.8-A-22 reports that there are no active wells in Agua Dulce). For the record, most Acton and Agua Dulce residents are *not* served by Waterworks District #37 so they rely on small domestic wells and local groundwater for their water supply; this means that there are at least a thousand active wells in Acton and Agua Dulce, yet none of them are reflected anywhere in Section 3.8 or in Appendix 3.8-A. For more than 10 years, the residents of Acton and Agua Dulce have expressed concerns that the Project would adversely impact their domestic residential wells; yet, and as discussed above, these concerns have not been properly addressed. Instead, the Draft reports (incorrectly) that there are virtually no active wells in any areas affected by the Project. These appalling material deficiencies must be rectified. CHSRA can easily identify the general area of residential wells in Acton by simply assuming that every house which is not served by Waterworks District 37 has a nearby well. Such an analysis must be conducted and incorporated in the Final EIR/EIS along with the AMMP discussed above to mitigate Project impacts on residential wells in Acton and Agua Dulce; an adverse impact to a single well should be established as the CEQA "threshold of significance" for this analysis.

4415-8727

Pages 3.8-25 through 3.8-26 address affected groundwater basins and Table 3.8-5 asserts that all route alternatives other than E1A and E2A are located within the "Acton Valley" groundwater basin. This is incorrect. In fact, according to Figures 3.8-A-21 and 3.8-A-22 of Appendix 3.8-A, the only Project element lying within the "Acton Valley" Basin is a utility line serving the SR14A route; no tracks or tunnels will be located in the "Acton Valley" water basin. It is a common

4415-8727

misconception that the "Acton Valley" groundwater basin is located in Acton; however, it is not[10].

4415-8728

Page 3.8-27 States that Figure 3.8-A-21 through Figure 3.8-A-23 depict the groundwater wells within the groundwater "Resource Study Area". This is incorrect. Figure 3.8-A-21 through Figure 3.8-A-23 fail to identify the thousand+ existing wells in Acton and Agua Dulce. Page 3.8-27 also states that there are only 30 active wells in the Refined SR14 and SR4A RSAs and only 24 or fewer active wells in the E1/E1A/E2/E2A RSAs; this statement is also incorrect. The route maps provided with the Draft indicate that the routes traverse many areas where there are hundreds of wells, including Peaceful Valley, Kentucky Springs, Aliso Canyon, Arrastre Canyon, Red Rover Mine, Escondido, Hisey Ranch, Hubbard, etc. These errors must be corrected by revising the Draft to include a complete and thorough survey of all the wells located in the vicinity of the preferred Alternative Route and provide mitigation measures to reduce impacts on these wells to a level that is less than significant.

4415-8729

Page 3.8-28 asserts that CHSRA mapped the "water wells within 1 mile" of all the route alignment alternatives, however it does not clarify where these maps are or how the public can view them to confirm whether they do indeed capture all "water wells within 1 mile" of the alignments. This is a substantial deficiency, particularly given that the residents of Acton and Agua Dulce have a right pursuant to CEQA to know whether CHSRA's impact assessment has properly accounted for their residential well facilities. Moreover, given the mapping errors in Figure 3.8-A-21 through Figure 3.8-A-23 (described above), the public can be relatively confident that CHSRA *did not* map all the "water wells within 1 mile" of all the alignments, and thus the impact analysis presented in the Draft does not account for their well facilities. These errors are compounded by the fact that the Draft offers no measures to mitigate the Project's significant impacts on private domestic wells (including, but not limited to, well destruction by TBM operation). The Draft must be substantially revised to property identify the significant environmental impacts that the Project poses to domestic residential wells and provide appropriate mitigation measures which include well replacement services and municipal water line connection services.

4415-8730

Page 3.8-36 concludes that ancillary features such as power and utility lines will be "strung from utility poles that could be located outside of surface water features and utility lines would be collocated within existing roadway rights-of-way". This conclusion is problematic for several reasons. First, CHSRA has committed to constructing utilities underground in Los Angeles County to the extent feasible[11], and since the only locations where undergrounding utilities may be infeasible are either steep hillsides or across seismic faults, most of the Project's electric

[10] In 2016, the Department of Water Resources (DWR) revised "Bulletin 118" to and improperly combine the groundwater basin that underlies Acton with the groundwater basin that underlies the Antelope Valley. Then, DWR compounded the confusion by renaming the groundwater basin that underlies Agua Dulce to "Acton Valley Basin" even though it is not in the Acton Valley. Under the 2016 version of "Bulletin 118", the basin in Acton and the basin in Antelope Valley are considered to be a single basin called "Antelope Valley Basin", and the basin in Agua Dulce is called the "Acton Valley" Basin. This is of course a mistake; the basin under Acton is in the Santa Clara River watershed and drains to the ocean, whereas the basin under Antelope Valley is in the Antelope Valley watershed portion of the "Great Basin" which does not drain to the ocean. The two basins are separated by the San Andreas fault which prevents communication and groundwater transfer between them.

[11] Appendix H-2 Page 12.

4415-8730

utilities in Los Angeles County will be underground and not strung on utility poles. Second, the Communities of Acton and Agua Dulce are located in Very High Fire Hazard Severity Zones (VHFHSZs) where above ground electrical utilities pose a very real and significant fire risk[12]; accordingly, electrical infrastructure in Acton and Agua Dulce must be installed underground for fire-safety reasons. Third, the electrical service provided by above-ground facilities is highly unreliable in Acton and Agua Dulce because such facilities are susceptible to frequent power shutoffs (referred to as "Public Safety Power Shutoffs") that can last for days and which will cause extensive service interruptions during Project construction and operation. Fourth, according to the "Utility Relocation Plans" prepared for the Project, utility lines are not always "collocated within existing roadway rights of way"; in fact, CHSRA is proposing to construct an entirely new 230 kV transmission line in a completely new right of way corridor that is not within or near an existing road right of way. Taken together, these factors demonstrate that ancillary features such as power lines and utility infrastructure must be placed underground in Acton and Agua Dulce and not "strung from utility poles"; the Draft must be corrected to reflect that all utility installations (including the 230 kV line) will be underground in Acton and Agua Dulce.

4415-8731

Page 3.8-46 states "Each of the Build Alternative footprints in the Antelope Valley Groundwater Basin are within developed suburban land uses and infrastructure. Because these areas are developed, the net increase in impervious surfaces would be relatively low." These statements are only valid for the portion of the Antelope Valley Groundwater basin that is located in Palmdale, they are not valid for the portion of the Antelope Valley Groundwater basin that is located in Acton. This is because Acton is a rural community with very little impervious surface area; it is not developed with suburban land uses and infrastructure. Accordingly, and contrary to what the Draft asserts, any net increase in impervious surfaces in Acton will be relatively high. Page 3.8-46 also states that, within the Antelope Valley Groundwater Basin, "Each of the build alternatives Stormwater retention and detention BMPs would be implemented to control stormwater runoff while also increasing groundwater recharge"; however (and as discussed above), the use of standard retention and detention BMPs to control stormwater runoff in Acton and Agua Dulce will result in significant erosion problems and therefore cannot be utilized.

4415-8732

Page 3.8-47 states "The E1/E2 Build Alternatives would require footprint in the Acton Valley Groundwater Basin". This statement is incorrect. As explained above, the "Acton Valley Groundwater Basin" boundaries are located entirely in Agua Dulce and, as shown in Figures 3.8-A-21 and 3.8-A-22, no portion of any of the "E" route alternative comes close to it.

4415-8733

Page 3.8-83 through 3.8-85 present CEQA significance conclusions indicating that the Project will avoid all significant impacts on hydrology and water resources. These conclusions are insupportable because:

- The BMPs and SWPPP measures that the Draft relies upon to conclude that the Project will not impact drainage patterns or runoff characteristics cannot be implemented in rural areas like Acton because they will result in significant erosion and other significantly adverse hydrologic impacts.

[12] Most of the deadly and extensive wildfires that have been sparked since 2017 were caused by "above-ground" electrical lines in VHFHSZs

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- The Draft fails to provide a proper analysis of the impacts of tunneling on groundwater resources and residential wells in Acton and Agua Dulce (which is referred to as the area "south of the Aqueduct and north of the ANF") and instead presents a jumble of disjointed and arguably contradictory statements which reveal that CHSRA has no idea of where groundwater resources are in relation to tunnel locations or well infrastructure and that tunnel construction can indeed impact groundwater levels. Then, the Draft simply declares (without evidentiary support) that the Project will not impact groundwater resources or residential wells. All of this substantially violates CEQA and NEPA.

- The Draft conflates stormwater treatment with wastewater treatment and fails to property articulate the measures that will be used to treat the hundred thousand+ gallons of contaminated wastewater that will be generated daily at each tunnel portal in Acton and Agua Dulce.

- The Draft fails to address or even mention the impacts of using local groundwater resources for tunnel construction rather than AVEK resources; these impacts include depletion of the already scant groundwater resources that Acton and Agua Dulce residents depend on as well as contamination of aquifer, groundwater, and perched water sources.

- The Draft does not comply with CEQA because it does not offer any strategies for minimizing the significant environmental impacts that will occur as a result of inconsistencies between the Project and local plans, policies, and ordinances that were adopted for the purpose of avoiding environmental effects (particularly those policies pertaining to the protection of groundwater resources and groundwater quality).

4415-8734

3.0 CONCLUSION

For the reasons set forth above, the Draft Environmental Impact Report prepared for the Palmdale to Burbank section is deficient and does not comply with CEQA or NEPA; these deficiencies must be corrected in the Final EIR which must specifically address the residential well impacts and groundwater impacts of the Project and include appropriate BMPs and SWPPPs for rural areas that guarantee there will be no change in any runoff characteristics (including, but not limited to, volume, location, sediment loading, discharge rate, etc.). Without these corrections, the Final EIR will not comply with CEQA or NEPA.

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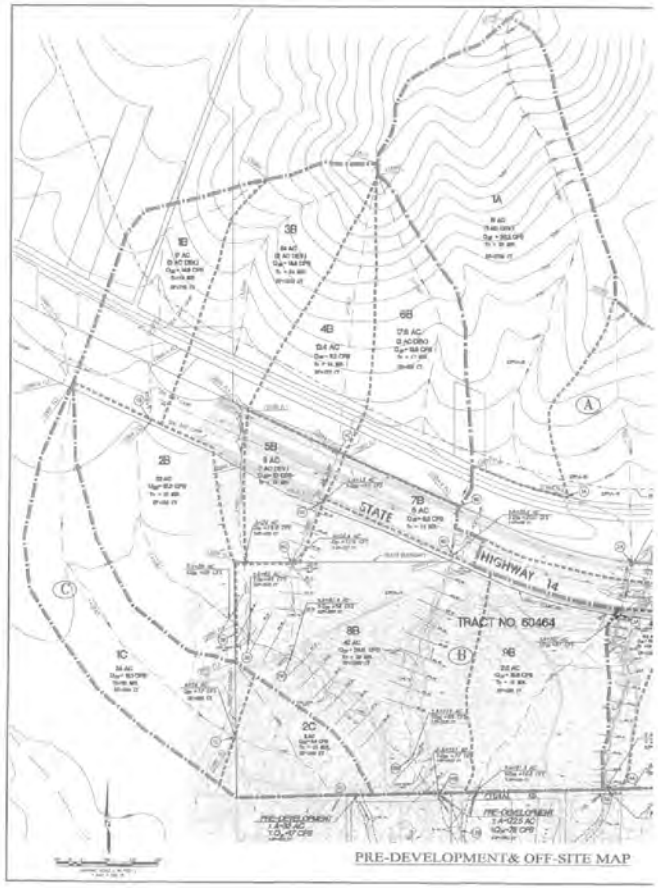
4415-8735

ATTACHMENT 1

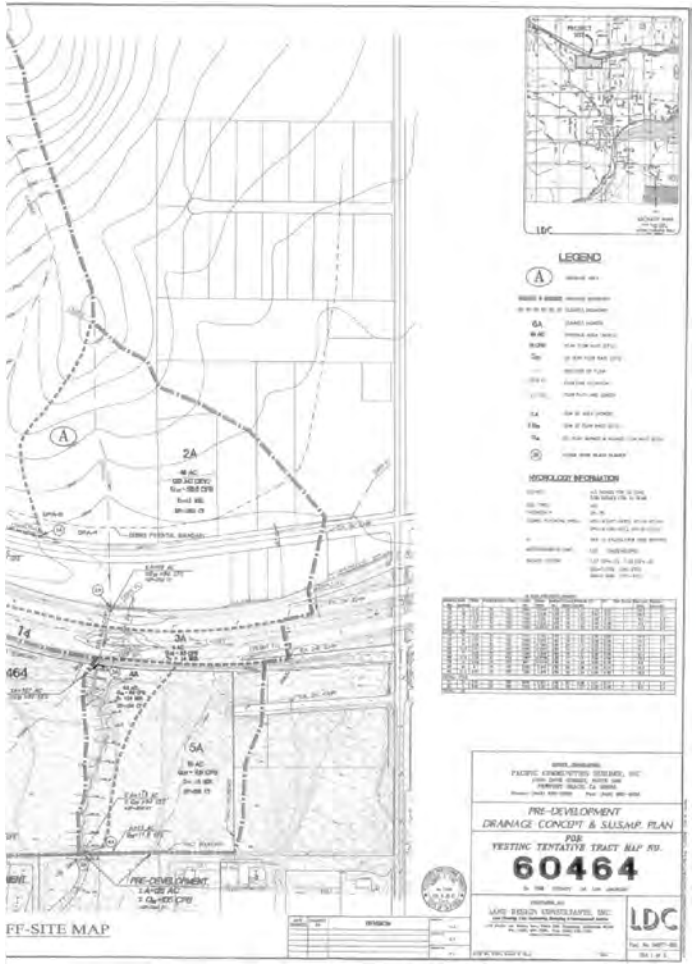
Drainage Map of the Area Where the "Acton Window" Will be Constructed Under the Environmentally Preferred SR14A Route Alternative. (Source: Developer Submittal to Los Angeles County Department of Public Works).

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ATTACHMENT 2

Subdivider's "Post Development Map" of the Area Where the "Acton Window" Will be Constructed Under the Environmentally Preferred SR14A Route Alternative.
(Source: Developer Submittal to Los Angeles County Department of Public Works).

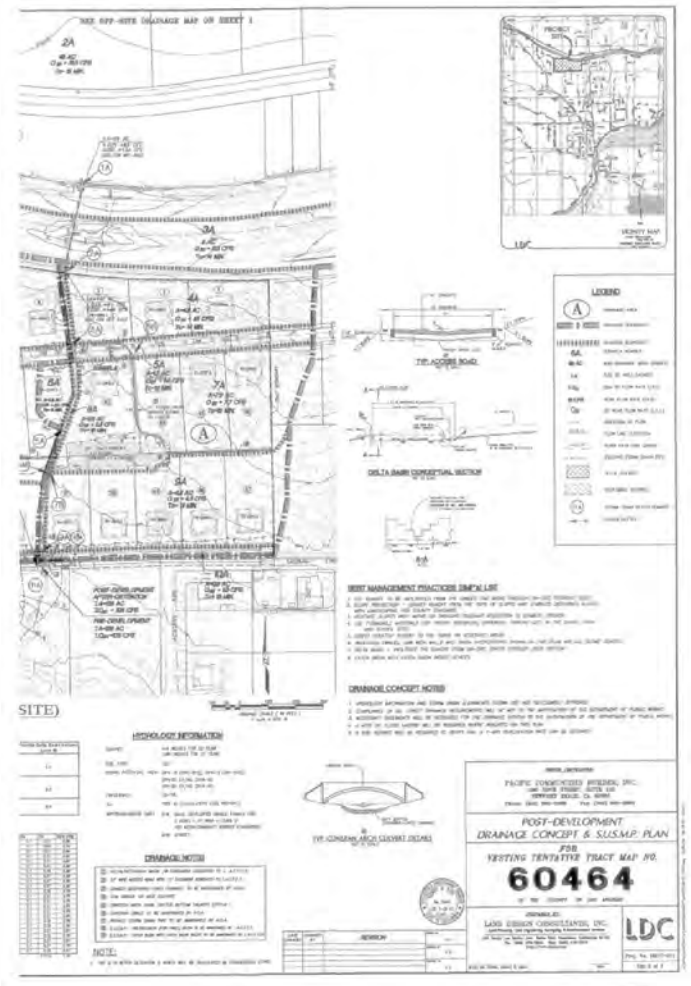


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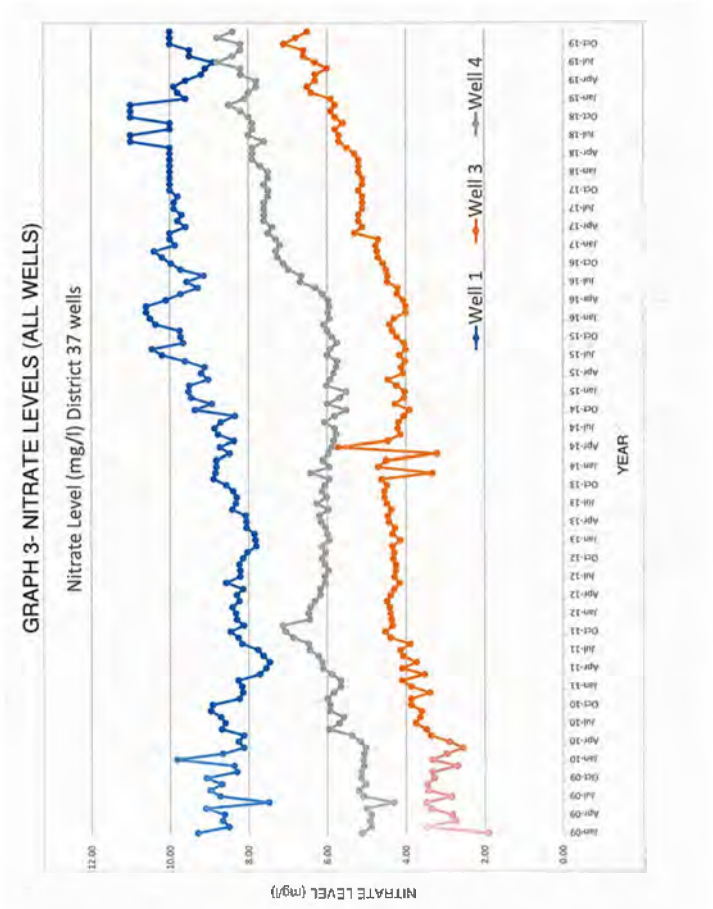
19

ATTACHMENT 3

Nitrate levels measured in local groundwater in Acton. (Source: Waterworks District 37).

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Response to Submission 4415 (Jacqueline Ayer, Acton Town Council, December 1, 2022)

4415-8719

The commenter introduces the content of their comments in Submission PB-4415. Specific comments are noted and addressed among responses to Submission PB-4415. Ultimately, among these comments, the Authority has found no errors or deficiencies. The commenter did not identify any new or significant environmental effect that requires further mitigation, and the Authority has concluded that, even in light of these comments, the EIR/EIS takes a hard look at the project's environmental impacts.

4415-8720

The commenter indicates that the BMP and SWPPP project features discussed in Draft EIR/EIS Section 3.8, Hydrology and Water Resources, were developed for urban areas and are not appropriate for rural areas. The commenter also indicates that the "stormwater runoff" that is "conveyed" by the Project has nowhere to go in Acton and Agua Dulce and that if it is dumped into the natural drainage courses in these communities, it will cause extensive erosion.

Section 3.8 does not identify the specific BMPs or SWPPP elements that will be implemented during the project. The construction-related storm water BMPs will be designed during development of the SWPPP, closer to the time of construction, and the permanent storm water BMPs will be developed during design of the facilities. It is premature to speculate or develop specific BMPs or SWPPP elements at this time. The SWPPP is a plan that is developed during the construction phase of the project and will be developed on a site-specific basis to take into consideration the erosion and sediment control requirements for the particular construction area. Practices to reduce erosion of exposed soil will be included in the plan, as indicated in HYD-IAMF#3, considering the particularities of Acton and Agua Dulce as rural areas. The BMPs and SWPPP must be developed in accordance with proper permitting and the project features (IAMFs) to minimize erosion, as described in the following paragraphs.

The commenter also indicates that construction in Acton and Agua Dulce will cause significant erosion. The Draft EIR/EIS discloses that construction could significantly impact erosion. To minimize this impact, the project would implement adequate BMPs and SWPPPs as previously described. The BMPs and SWPPPs would be developed to consider the lack of existing drainage infrastructure, as indicated by the commenter, in Acton and Agua Dulce. The commenter indicates that it is critical that drainage patterns remain preserved and unchanged to protect existing developments. The Authority agrees with this comment and notes that HYD-IAMF#1 and HYD-IAMF#2 were specifically developed to ensure that impacts on hydraulic capacity would be reduced by minimizing alterations to watercourses and maintaining existing stormwater patterns.

Under the Clean Water Act, discharge of stormwater from construction sites must comply with the conditions of a National Pollutant Discharge Elimination System (NPDES) permit. The State Water Resources Control Board is the permitting authority in

Response to Submission 4415 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4415-8720

California and has adopted the statewide General Permit for Stormwater Discharges Associated with Construction Activity that applies to projects resulting in one or more acres of soil disturbance, in both urban and rural environments. For projects disturbing more than 1 acre of soil, a SWPPP is required that specifies site management activities to be implemented during site development. These activities include construction stormwater BMP, erosion and sedimentation controls, dewatering (nuisance water removal), runoff controls, and construction equipment maintenance. The following project features have been incorporated into the project: HYD-IAMF#1 and HYD-IAMF#2 will require that surface water crossings maintain preconstruction hydraulic capacity through the implementation of on-site stormwater management BMPs to provide runoff dispersion, infiltration, detention, and evaporation. The incorporation of these IAMFs into project design will ensure that impacts on hydraulic capacity would be reduced by minimizing alterations to watercourses, implementing erosion control BMPs, and maintaining existing stormwater patterns. HYD-IAMF#3, which involves the preparation and implementation of a SWPPP, would avoid or minimize changes to drainage, stormwater, and erosion patterns during construction. Hydromodification management procedures would include steps to maintain preconstruction hydrology by emphasizing on-site retention of stormwater runoff using measures such as flow dispersion, infiltration, and evaporation (supplemented by detention where required). In addition, BMPs would ensure that stormwater runoff was retained on-site per the stormwater management and treatment plan, as outlined in HYD-IAMF#1. The construction-period SWPPP (HYD-IAMF#3) will incorporate BMPs to reduce short-term increases in construction-site runoff, and the stormwater management and treatment plan (HYD-IAMF#1) will address stormwater runoff and system capacity. HYD-IAMF#2 will require water crossings to maintain preconstruction hydraulic capacity. With implementation of HYD-IAMF#1 and HYD-IAMF#3, construction of the Build Alternatives would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surface, in a manner that would: 1) Result in substantial erosion or siltation on- or off-site, 2) Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site, and 3) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems.

The commenter also indicates that the project's impacts cannot be avoided through

4415-8720

"designing appropriate drainage facilities" because no drainage facilities could actually adequately interact with the natural drainage. This statement is not accurate. Drainage facilities like culverts, CON/SPAN bridges and box culverts are commonly used structures in construction projects, and would be adequate to maintain drainage patterns and water courses at the Acton Intermediate Window site.

Response to Submission 4415 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4415-8721

The commenter asserts that the Draft EIR/EIS conflates stormwater treatment with wastewater treatment and fails to address the impacts of wastewater pollutants on water resources.

Section 3.8, Hydrology and Water Resources, of the Draft EIR/EIS mentions wastewater only three times because the Authority addressed that issue directly in Section 3.6, Public Utilities and Energy. It addressed the effects of construction wastewater specifically in Impact PUE#4. There, the Draft EIR/EIS explains that the construction contractor will reduce water consumption for construction of the tunnels by recycling and reusing water on-site. The contractor will collect some of this wastewater in water retention ponds or, like the tunnel spoils, it will haul the water off-site. Water taken off-site for treatment would be hauled to a nearby treatment facility, most likely in the Palmdale or Lancaster area. However, the specific location for treatment of project wastewater from tunnel construction has not been identified. Regardless, the contractor will not directly pipe wastewater from tunneling activities back into local wastewater treatment facilities, collection systems, or treatment plants.

On Page 3.6-78, the Draft EIR/EIS explains a different process for managing stormwater. There, it explains, HYD-IAMF#1 requires the contractor to capture runoff from pollutant-generating surfaces by using on-site stormwater management facilities. It explains that the Authority will require the contractor to implement a construction SWPPP and to use other BMPs. Among the BMPs, the Authority may require the contractor to provide permeable surfaces and systems to retain or detain and treat stormwater from construction areas on-site. Despite these efforts, the Draft EIR/EIS recognizes that some wastewater may discharge to local stormwater management systems. Nonetheless, it expects that the SWPPP and BMPs would reduce the impacts on the capacity of existing stormwater management system facilities managed by local stormwater management authorities. Therefore, contrary to the comment's assertions, the Draft EIR/EIS treats wastewater different from stormwater, and it recognizes how the two types of water may impact local jurisdiction's stormwater treatment facilities.

4415-8722

Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the ANF, PB-Response-PUE-3: Water Demand and Usage.

The commenter states that the Draft EIR/EIS does not adequately address impacts to local water resources and well systems (particularly drinking water wells in Acton and Agua Dulce) due to tunnel construction; states that tunneling will destroy well facilities; and states that these impacts must be addressed and mitigation measures must be offered. The commenter also characterizes the Authority's analysis in Impact HWR#4 in the Draft EIR/EIS as contradictory and states that the Authority has no clear picture of the groundwater conditions (i.e., water table) in Acton and Agua Dulce. Additionally, the commenter states that Section 3.6, Public Utilities and Energy, of the Draft EIR/EIS identifies that non-potable water would be used for construction and fails to address the impacts from extracting groundwater. The commenter also indicates that at a public meeting on November 4, 2022, the Authority announced that they rely entirely on local groundwater resources in Acton and Agua Dulce; however, the Authority cannot verify the commenter's claim about the remarks made on November 4, 2022.

The resource study area (RSA) for tunnel construction is the area within 1 mile of the centerline of each of the six Build Alternatives. Pursuant to the Authority's 2019 Preliminary Geotechnical Data Report for Tunnel Feasibility, Angeles National Forest and 2019 Geotechnical Tunnel Feasibility Evaluation for High-Speed Rail Tunnels Beneath the Angeles National Forest (referenced in Section 3.8, Hydrology and Water Resources, of the EIR/EIS), based on observed impacts on groundwater from past tunnel projects, no impacts to wells are expected to occur outside the tunnel construction RSA (more than 1 mile from the centerline of each Build Alternative). Section 3.8, Hydrology and Water Resources, of Final EIR/EIS has been revised to expressly clarify concerns related to private water supply wells. As stated in the Final EIR/EIS, because only limited information is available regarding the location of private wells, there is the potential that tunnel construction could result in the destruction of private water supply wells, including wells that have not been identified, if any wells are located directly in the path of the tunnels. HYD-IAMF#8: Private Well Monitoring and Minimizing Access Disruptions for Private Water Supply Wells Outside of the ANF has been added to the Final EIR/EIS to describe in detail the options that the Authority would

Response to Submission 4415 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4415-8722

consider to address impacts to private water supply wells outside the ANF, including relocating the wells and ensuring similar pumping capacity and water quality in replacement wells.

For wells within the ANF that are determined through modeling and monitoring to be adversely affected by groundwater reductions caused by the HSR, the Adaptive Management and Monitoring Plan (AMMP) included in Mitigation Measure HWR-MM#4 requires modifications to the affected wells or by providing supplemental water. Supplemental water would only be provided if monitoring indicates that the HSR construction caused groundwater impacts. However, the Authority has identified several IAMFs to avoid and minimize the potential for impacts to water supply wells and the need for supplemental water. These include state-of-the-art design features and construction methods to avoid and minimize impacts on hydrologic resources, including through the use of TBMs equipped with specific features designed to reduce or prevent inflows and grouting and tunneling-lining approaches that have been effective at controlling water seepage (as required by HYD-IAMF#5 [Tunnel Boring Machine Design and Features], HYD-IAMF#6 [Tunnel Lining Systems], and HYD-IAMF#7 [Grouting]).

Regarding the commenter's statement which characterizes the Authority's analysis in Impact HWR#4 in the Draft EIR/EIS as contradictory and states that the Authority has no clear picture of the groundwater conditions (i.e., water table) in Acton and Agua Dulce, the Authority respectfully disagrees and has provided substantial evidence in its Draft EIR/EIS. On page 3.8-48 of the Draft EIR/EIS, the Authority identified that "The primary issues associated with tunneling outside the ANF is the tunnel depth relative to the groundwater table and tunneling through alluvial soils. When tunnel depths are above the known groundwater table, effects on groundwater and groundwater dependent resources would be minimal to none." The Authority has reviewed the conditions in Acton and Agua Dulce and has found the following: the primary issues affecting groundwater from tunneling are groundwater level and pressures, geologic and hydrogeologic conditions (includes aquifer characteristics), and tunneling construction methods. In Acton and Agua Dulce, tunnels are above the groundwater level, there are no groundwater pressures, the alluvial soils differ from fractured rock (e.g., within ANF) that convey surface water through joints/fractures to the tunnel location, and the proposed tunneling methods will not affect the groundwater levels, which are deeper than the tunnel inverts.

Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage,

4415-8722

which provides an overview of the water sources that would be used by the project. As explained in that Standard Response, the Authority would not drill wells to extract groundwater for construction.

Response to Submission 4415 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4415-8723

The commenter asserts that the Draft EIR/EIS fails to address impacts on water resources from the use of non-potable water during tunnel construction.

As described in Impact HWR#2: Construction Activities Required for the Build Alternatives, in Section 3.8, Hydrology and Water Quality of the Draft EIR/EIS, during tunnel construction, disposal of water flow into the tunnel could release water contaminated with drilling muds, sediments, and lubricants used during the tunneling activities would introduce new sources of pollutants that could contaminate groundwater within the groundwater basins which they overlay. Implementation of HWR-MM#1 will require the Authority to treat potential groundwater contamination pursuant to RWQCB permit requirements. Through treatment of groundwater and installation of groundwater barriers (where necessary), application of this mitigation measure would prevent degradation of groundwater quality. Treatment methods for groundwater would include constructed wetland systems, biofiltration and bioretention systems, wet ponds, organic mulch layers, planting soil beds, and vegetated systems (biofilters), such as vegetated swales and grass filter strips.

Draft EIR/EIS Section 3.6, Public Utilities and Energy, does indicate that non-potable water would be used to the extent feasible. PUE-MM#1 will require the Authority to utilize non-potable water from regional water utility service providers for construction activities where feasible. Non-potable water will meet the standards included in the Water Recycling Criteria, Title 22, Division 4, Chapter 3 of the California Code of Regulations, which specifies requirements for water used for various purposes. For example, water classified in this Code as Disinfected Secondary-23 can generally be used for soil compaction, mixing concrete, dust control, street cleaning and other industrial and construction activities where water will not come into contact with workers; whereas water classified as Disinfected Tertiary water according to this Code may be used in processes where water may come into contact with workers. The ASTM C1602 Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete would be considered for the use of non-potable water in the production of dowels, shotcrete, and other concrete structural elements like retaining walls, foundations, bridge decks and piers. These water quality standards for the use of non-potable water have been clarified in Section 3.6 of the Final EIR/EIS and will prevent the pollution of aquifers, perched water zones, or other groundwater sources.

4415-8723

The commenter also indicates that at a public meeting on November 4, 2022, the Authority announced that they rely entirely on local groundwater resources in Acton and Agua Dulce. The Authority cannot verify the commenter's claim about the remarks made on November 4, 2022. Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which provides an overview of the water sources that would be used by the project. As explained in that Standard Response, the Authority would not drill wells to extract groundwater for construction.

4415-8724

The commenter stated that while the Project is not required to conform with local land use and zoning policies, it must nevertheless mitigate the significant environmental impacts that arise from non-conformance with local land use and zoning policies. As indicated in Section 3.1.4.3, Consistency with Plans and Laws, the California Environmental Quality Act (CEQA) and the Council on Environmental Quality (CEQ) regulations require a discussion of inconsistencies or conflicts between a proposed undertaking and federal, state, regional, or local plans and laws to provide planning context. Further, as described in the CEQA methodology discussion within Section 3.13, whether the project would conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect is discussed in each resource section of Chapter 3 of the Draft EIR/EIS. The Authority, as the lead state and federal agency proposing to construct and operate the California HSR System, is required to comply with all federal and state laws and regulations and to secure all applicable federal and state permits prior to initiating construction on the selected Build Alternative. Therefore, there would be no inconsistencies between the six Build Alternatives and these federal and state laws and regulations. The Authority is a state agency and therefore is not required to comply with local land use and zoning regulations; however, it has endeavored to design and construct the California HSR System so that it is consistent with land use and zoning regulations.

Response to Submission 4415 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4415-8725

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter expresses concern that the project does not comply with local and state policies regarding water pollution, protection of water supplies from pollution, and use of groundwater for water supply. A response to each specific policy identified by the commenter is addressed below.

Appendix 2.0-H describes that Policy S 2.2 of the Los Angeles County General Plan (2015) and LU 3.3 of the Los Angeles County Code of Ordinances (2016) would be inconsistent for all Build Alternatives. Regarding Policy 2.2, all six Build Alternatives would cross the Governor Edmund G Brown East Branch California Aqueduct, like other transportation routes between Palmdale and Burbank. With implementation of PUE-IAMF#2 and PUE-IAMF#3, temporary utility conflicts and relocations associated with the Refined SR14, the E1 and E2 Build Alternatives' crossing of the East Branch of the California Aqueduct will be minimized and temporary service interruptions will be limited to short durations during construction. Also, construction of the SR14A, E1A, and E2A Build Alternatives would not result in temporary stoppage of water delivery through the aqueduct because those Build Alternatives cross over the Sierra Highway via an elevated viaduct and would not require realignment of the aqueduct.

Regarding LU 3.3, the Build Alternatives would result in development in Flood Hazard Areas. However, the Flood Protection Plan (see HYD-IAMF#2) would minimize increases in 100-year and 200-year flood elevations and establish design standards to allow for the Build Alternatives to remain operational during flood events. Regarding Policy C/NR 5.6, HYD-IAMF#3 would require the contractor to comply with the State Water Resources Control Board Construction General Permit to avoid or minimize temporary hydraulic impacts associated with construction activities at all construction sites and in adjacent areas during construction. These project features would reduce impacts from stormwater during construction activities through the preparation and implementation of the construction Stormwater Pollution Prevention Plan (SWPPP), including the use of best management practices (BMP) to provide hydromodification controls to maintain pre- Palmdale to Burbank Project Section hydrology and to manage the amount of stormwater runoff coming from the construction sites.

4415-8725

In addition, Section 3.6 of Final EIR/EIS indicates that any water generated from the tunnel construction would be treated and reused or hauled off-site. This would include non-potable water which can be used for tunneling purposes. Management of any water generated from construction activities would be in accordance with federal and state regulations and would prevent any discharge from impacting water quality standards. The construction contractor would recycle and reuse water on-site to reduce water consumption for construction of the tunnels. Some of this wastewater would also be collected in water retention ponds or treated in the same capacity, and like the tunnel spoils, would be hauled off-site. None of the water discharged from the tunneling activities would be directly piped back into local wastewater treatment facilities, collection systems, or treatment plants. For these reasons, the Build Alternatives would be consistent with Policy C/NR 5.6 (Minimize point and nonpoint-source water pollution).

Goal C/NR 6, Protected and usable local groundwater resources, is addressed in Appendix 2.0-H by its supporting policies, specifically Policy C/NR 6.2, Protect natural groundwater recharge areas and regional spreading grounds. Appendix 2.0-H describes that the project would be consistent with this policy, as the Authority would create new detention facilities to maintain existing levels of groundwater recharge. Furthermore, PUE-MM#1 (described in Section 3.6.7) will require the Authority to prepare an updated water supply analysis for the selected Build Alternative that details and describes the minimum adequate water supply for the RSA during normal, dry, and multiple dry years based on a more detailed project design. Additionally, PUE-MM#1 will require the Authority to utilize non-potable water from regional water utility service providers for construction activities where feasible, as well as recycling/reusing water used for tunnel construction, further minimizing demand for water supplies. Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, for further information regarding the supply of water for construction. This standard response also describes that the project would not directly use groundwater and that any indirect use of groundwater (from local water supply purveyors which include groundwater as one of their sources) would not affect sustainable groundwater management or the ability of residents that receive water from these suppliers to receive water that includes groundwater.

The commenter also indicates that Appendix 2.0-H fails to identify the Antelope Valley

Response to Submission 4415 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4415-8725

Area Plan (AV Plan) or discuss its relevance to the Project. The Draft EIR/EIS did include an assessment of the project's consistency with the Los Angeles County Antelope Valley Area Plan 2035 (2015) (see page 2.0-H-17 in Appendix 2-H of the Draft EIR/EIS). As described above, the use of local groundwater as a source of for construction is not anticipated, so there would not be a need to limit use of groundwater sources or establish controls per Policies COS 2.7 and COS 3.5.

As indicated in these responses, the Authority has identified both IAMFs and mitigation measures to address any potential impacts on water resources, including any impacts arising from conflicts with local plans. As such, the mitigation measures recommended in this comment to include the development of wastewater treatment facilities and a commitment to use only potable water are not necessary. For clarity purposes, Table 2.0-H-1, Regional and Local Policy Consistency Analysis, in Appendix 2-H of the Final EIR/EIS has been revised to include the consistency analysis for Policy COS 2.7 and Goal COS 3.

4415-8726

Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the ANF.

The commenter expressed concern regarding the impact tunneling in the Acton area will have on wells and whether the analysis in the Draft EIR/EIS sufficiently captures the number of wells that may be affected.

The resource study area (RSA) for tunnel construction is the area within 1 mile of the centerline of each of the six Build Alternatives. Pursuant to the Authority's 2019 Preliminary Geotechnical Data Report for Tunnel Feasibility, Angeles National Forest and 2019 Geotechnical Tunnel Feasibility Evaluation for High-Speed Rail Tunnels Beneath the Angeles National Forest (referenced in Section 3.8 of the EIR/EIS), based on observed impacts on groundwater from past tunnel projects, no impacts to wells are expected to occur outside the tunnel construction RSA (more than 1 mile from the centerline of each Build Alternative). Section 3.8, Hydrology and Water Resources, of Final EIR/EIS has been revised to expressly clarify concerns related to private water supply wells. As stated in the Final EIR/EIS, because only limited information is available regarding the location of private wells, there is the potential that tunnel construction could result in the destruction of private water supply wells, including wells that have not been identified, if any wells are located directly in the path of the tunnels. HYD-IAMF#8: Private Well Monitoring and Minimizing Access Disruptions for Private Water Supply Wells Outside of the ANF has been added to the Final EIR/EIS to describe in detail the options that the Authority would consider to address impacts to private water supply wells outside the ANF, including relocating the wells and ensuring similar pumping capacity and water quality in replacement wells. For wells within the ANF that are determined through modeling and monitoring to be adversely affected by groundwater reductions caused by the HSR, the Adaptive Management and Monitoring Plan (AMMP) included in Mitigation Measure HWR-MM#4 requires modifications to the affected wells or by providing supplemental water. Supplemental water would only be provided if monitoring indicates that the HSR construction caused groundwater impacts. However, the Authority has identified several IAMFs to avoid and minimize the potential for impacts to water supply wells and the need for supplemental water. HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 require design features and construction methods to

Response to Submission 4415 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4415-8726

address potential groundwater intrusion, including the installation of a tunnel liner(s) capable of effectively controlling inflows into the tunnels. As such, groundwater inflow during construction would likely be minimal and temporary. Please refer to both Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest and Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the Angeles National Forest for additional information regarding impacts to wells and correlating mitigation measures and IAMFs.

4415-8727

The comment suggests that the Authority misidentified the impacts on Acton Valley groundwater basin. The Authority correctly identified the impacts on Acton Valley. The commenter cites Department of Water Resources' Bulletin 118. As that bulletin recognizes, the Acton Valley and Antelope Valley Groundwater Basins are designated and mapped as separate basins. Therefore, for the Draft EIR/EIS evaluated these two groundwater basins separately. Although only a utility line appears within the Acton Valley Groundwater Basin, this would still cause the alignment to potentially impact the basin, and therefore is described in the Draft EIR/EIS.

4415-8728

Refer to Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the ANF.

The commenter asserts that Draft EIR/EIS Section 3.8, Hydrology and Water Resources, text and figures identifying groundwater wells within the RSA fail to include all existing wells in Acton and Agua Dulce. Numerous active wells in the Acton and Agua Dulce area are located within 1 mile of the alignment centerline of each of the six Build Alternatives (see Figure 3.8-A-21 and Figure 3.8-A-22 in Appendix 3.8-A, Hydrology and Water Resources Figures Part 1, in Volume 2 of this Final EIR/EIS). The wells identified in this analysis and depicted on the figures are from publicly available databases, such as those provided by the Palmdale Water District, Antelope Valley-East Kern Water Agency, Los Angeles County Department of Public Works, and California Department of Water Resources. Information and locations regarding private residential wells are not generally publicly available. Section 3.8, Hydrology and Water Resources, of Final EIR/EIS has been revised to expressly clarify concerns related to private water supply wells. As stated in the Final EIR/EIS, because only limited information is available regarding the location of private wells, there is the potential that tunnel construction could result in the destruction of private water supply wells, including wells that have not been identified, if any wells are located directly in the path of the tunnels. HYD-IAMF#8: Private Well Monitoring and Minimizing Access Disruptions for Private Water Supply Wells Outside of the ANF has been added to the Final EIR/EIS to describe in detail the options that the Authority would consider to address impacts to private water supply wells outside the ANF, including relocating the wells and ensuring similar pumping capacity and water quality in replacement wells. Please refer to Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the Angeles National Forest for additional information regarding impacts to wells and correlating mitigation measures and IAMFs.

The Authority understands that there are risks affecting groundwater and its recharge with the tunnel construction and analyzed these risks under Impact HWR#4 in Section 3.8. The project tunnel alignments would be constructed in compliance with CAHSRA Technical memoranda requirements (TM 2.4.2 Basic High-Speed Train Tunnel Configuration, TM 2.4.5 High-Speed Train Tunnel Structures, and TM 2.4.6 High-Speed Train Tunnel Portal Facilities) for application of engineering design features to address

Response to Submission 4415 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4415-8728

and minimize these risks. The Authority would adopt engineering and design approaches described in HYD-IAMF#5 through HYD-IMAF#7 requiring the use of state-of-the-art tunneling techniques to avoid and minimize tunneling impacts on groundwater, utilizing a tunnel liner system appropriate to the groundwater conditions/pressures, and using grout injected into the subsurface material to minimize seepage and groundwater flows into the tunnel. In the event that groundwater and/or water wells are adversely impacted, the Authority will implement an Adaptive Management and Monitoring Plan (AMMP) (see HWR-MM#4). The AMMP includes provisions for augmenting water supplies for wells and actions to restore affected resources, if necessary. With implementation of HWR-MM#4, the analysis concludes that the impacts to nearby groundwater and groundwater wells would be less than significant.

4415-8729

Refer to Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the ANF.

The commenter reiterates concern that the Draft EIR/EIS fails to include all existing wells in Acton and Agua Dulce. The commenter also raises concerns about the potential for physical destruction of private domestic wells due to tunnel construction and requests that appropriate mitigation measures be included to address well replacement services and municipal water line connection services.

Section 3.8, Hydrology and Water Resources, of Final EIR/EIS has been revised to expressly clarify concerns related to private water supply wells. As stated in the Final EIR/EIS, because only limited information is available regarding the location of private wells, there is the potential that tunnel construction could result in the destruction of private water supply wells, including wells that have not been identified, if any wells are located directly in the path of the tunnels. HYD-IAMF#8: Private Well Monitoring and Minimizing Access Disruptions for Private Water Supply Wells Outside of the ANF has been added to the Final EIR/EIS to describe in detail the options that the Authority would consider to address impacts to private water supply wells outside the ANF, including relocating the wells and ensuring similar pumping capacity and water quality in replacement wells. Please refer to Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the Angeles National Forest for additional information regarding impacts to wells and correlating mitigation measures and IAMFs. Please also refer to response to comment #8728.

Response to Submission 4415 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4415-8730

The commenter expresses concern about above ground electrical facilities to be constructed in the communities of Acton and Agua Dulce, and Los Angeles County generally, and references Page 3.8-36 of the Draft EIR/EIS and suggests these lines should be underground.

Please note that the section referenced in the comment (Section 3.8 of the Draft EIR/EIS) relates to construction impacts on surface waterbodies. Construction activities may temporarily impact surface water hydrology, requiring some temporary power lines during construction to be strung from utility poles and located outside of surface water features. Draft EIR/EIS Appendix 2-H Regional and Local Policy Consistency Analysis Page 2.0-H-12 clarifies that for Policy PS/F 6.6, the Authority would relocate utilities in unincorporated Los Angeles County underground where *feasible*, but it is not necessarily feasible, or reasonable, to underground utility lines for construction purposes. Construction work related to electrical power lines will be conducted in coordination with the provider and in accordance with the utility provider's and regulatory agency's permits and approval processes. The proposed 230kV line on the SR14A Alignment, which would run from SCE-Vincent substation to Portal 1A north of Pear Blossom Interchange along the infrastructure corridor of SR14 Freeway, Sierra Highway and Angeles Forest Highway, will be overhead. This new power line will be designed in accordance with California Code of Regulations (CCR) Title 14, Section 1250, "Fire Prevention Standards for Electric Utilities," which specifies utility-related measures for fire prevention, including firebreak clearance standards. According to the CPUC Regulations (Rule 20 Undergrounding Programs Current Proceedings, Electric Tariff Rule 15 for SCE), undergrounding for power lines is not required. Additionally, the CCR does not include any requirements to underground power lines. As such, undergrounding is not required.

For more detail on this issue, and a response to the comment on fire safety associated with above-ground lines, please refer to response to comment # 8408, which responds to another similar comment from Acton Town Council. Please also note that the reliability of above-ground electrical power lines is not an environmental impact and, therefore, is outside the scope of this document.

4415-8731

The preferred alignment (SR14A) is exclusively underground through the Acton Area (see Section 8.1.1, Figure 8-1), and therefore, would not create impermeable surfaces. The other alternative alignments that pass near the Acton area will have limited aboveground portions (see Section 8.4.1, Figure 8-2). For the limited aboveground portions of the alternative alignments, permeable materials or impervious surfaces with designed drainage infrastructure to redirect stormwater for local discharge would be implemented. Please also refer to Response to Comment #8720 (of Submission PB-4415) for additional detail on the IAMFs and mitigation, as applicable, proposed to address stormwater impacts associated with the project.

4415-8732

The comment asserts that the E1/E2 Build Alternatives would not require footprint in the Acton Valley Groundwater Basin. Earlier, in comment 8727, the commenter recognized that the project would require a utility line in the Acton Valley Groundwater Basin for the E1/E2 Build Alternatives. Because the project footprint includes any direct impacts, even the presence of that utility line means that the E1/E2 Build Alternatives' project footprints would impact the Acton Valley Groundwater Basin.

4415-8733

The commenter summarizes their prior comments on the subject of hydrology. Detailed responses have been provided to all comments included in Submission PB-4415.

4415-8734

The commenter summarizes their concerns and perceived deficiencies with the Palmdale to Burbank Draft EIR/EIS. Comments are noted and addressed among responses to Submission PB-4415. As detailed in responses to Submission PB-4415, the Draft EIR/EIS is compliant with CEQA and NEPA. Contrary to the comment's assertion, nothing in CEQA or NEPA requires any "guarantee there will be no change in any runoff characteristics . . . ." The IAMFs and mitigation measures identified in the EIR/EIS, including those that implement BMPs and SWPPPs, were determined to be effective in reducing impacts.

Response to Submission 4415 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4415-8735

The commenter provided this attachment for reference purposes in support of their previous comments. Please refer to the response to comment 4415-8720, which addresses the project's effects at the "Acton Window" location identified by the commenter.

4415-8736

The commenter provided this attachment for reference purposes in support of their previous comments. Please refer to the response to comment 4415-8720, which addresses the project's effects at the "Acton Window" location identified by the commenter.

4415-8737

The commenter expressed concern on tunneling below the water table in the Acton area due to the elevated levels of nitrates in the groundwater. The commenter attached a graph of the nitrate levels measured in local groundwater in Acton. Please refer to Response to Comment #8723, which addresses the commenter's concerns related to this Attachment.

Submission 4418 (Annakaren Ramirez, Pacoima Beautiful, December 1, 2022)

Palmdale - Burbank - RECORD #4418 DETAIL

Status : Action Pending
Record Date : 12/1/2022
Interest As : Business and/or Organization
First Name : Annakaren
Last Name : Ramirez

Stakeholder Comments/Issues :

4418-8137 I am writing on behalf of the local environmental justice non-profit Pacoima Beautiful to express deep concern for the potential impacts that the SR14A route would have on Pacoima, Sun Valley, and surrounding communities. I strongly urge the authority to choose an alternate route from Palmdale to Burbank that will not bisect the working class communities of color in Sun Valley and Pacoima. These communities have long been redlined and segregated due to transportation projects that do not take into consideration the health and quality

4418-8138 of life of local residents, and this project is no different. The SR14A as a preferred router is a clear environmental injustice, as there are no current plans to bisect more white and affluent communities, while this route specifically runs over low income communities of color. This project will negatively impact residents during construction and operation. The highspeed rail will displace and destroy homes and businesses. This project will significantly increase noise pollution for surrounding communities, and there are not adequate buffers zones to protect local residents from dangerous decibel levels. Moreover, this route does not include a planned stop any where in Pacoima or Sun Valley after it resurfaces, meaning local community members will not be able to have access to use the train. There is no clear benefit for Pacoima and Sun Valley residents if this route were established, only further inequities and disruption for the local community.

Response to Submission 4418 (Annakaren Ramirez, Pacoima Beautiful, December 1, 2022)

4418-8137

This comment is a duplicate of Submission PB-4427. See response to Submission PB-4427. Specifically, please refer to Response to Comment #8104.

4418-8138

This comment is a duplicate of Submission PB-4427. See response to Submission PB-4427. Specifically, please refer to Response to Comment #8105.

Submission 4420 (Melisa Walk, Pacoima Beautiful, December 1, 2022)

Palmdale - Burbank - RECORD #4420 DETAIL

Status :	Action Pending
Record Date :	12/1/2022
Interest As :	Business and/or Organization
First Name :	melisa
Last Name :	walk

Stakeholder Comments/Issues :

4420-8126 I am writing to express my deep concern for the detrimental impacts that the SR14A route would bring to Pacoima, Sun Valley, and other surrounding communities.

I strongly urge the authority to choose an alternate route from Palmdale to Burbank that will not bisect the working class communities of color in Sun Valley and Pacoima. These communities have long been redlined and segregated due to transportation projects that do not take into consideration the health and quality of life of local residents, and this project is no different.

4420-8127 The SR14A as a preferred router is a clear environmental injustice, as there are no current plans to bisect more white and affluent communities, while this route specifically runs over low income communities of color.

This project will negatively impact residents during construction and operation. The highspeed rail will displace and destroy homes and businesses. This project will significantly increase noise pollution for surrounding communities, and there are not adequate buffers zones to protect local residents from dangerous decibel levels.

Moreover, this route does not include a planned stop any where in Pacoima or Sun Valley after it resurfaces, meaning local community members will not be able to have access to use the train. There is no clear benefit for Pacoima and Sun Valley residents if this route were established, only further inequities and disruption for the local community.

Response to Submission 4420 (Melisa Walk, Pacoima Beautiful, December 1, 2022)

4420-8126

This comment is a duplicate of Submission PB-4427. See response to Submission PB-4427. Specifically, please refer to Response to Comment #8104.

4420-8127

This comment is a duplicate of Submission PB-4427. See response to Submission PB-4427. Specifically, please refer to Response to Comment #8105.

Submission 4424 (Veronica Padilla, Pacoima Beautiful, December 1, 2022)

Palmdale - Burbank - RECORD #4424 DETAIL

Status :	Action Pending
Record Date :	12/1/2022
Interest As :	Individual
First Name :	Veronica
Last Name :	Padilla

Stakeholder Comments/Issues :

4424-8107 As a stakeholder of Pacoima, I am writing to express my deep concern for the detrimental impacts that the SR14A route would bring to Pacoima, Sun Valley, and other surrounding communities.

I strongly urge the authority to choose an alternate route from Palmdale to Burbank that will not bisect the working class communities of color in Sun Valley and Pacoima. These communities have long been redlined and segregated due to transportation projects that do not take into consideration the health and quality of life of local residents, and this project is no different.

4424-8108 The SR14A as a preferred route is a clear environmental injustice, as there are no current plans to bisect more white and affluent communities, while this route specifically runs over low-income communities of color.

This project will negatively impact residents during construction and operation. The highspeed rail will displace and destroy homes and businesses. This project will significantly increase noise pollution for surrounding communities, and there are not adequate buffers zones to protect local residents from dangerous decibel levels.

Moreover, this route does not include a planned stop anywhere in Pacoima or Sun Valley after it resurfaces, meaning local community members will not be able to have access to use the train. There is no clear benefit for Pacoima and Sun Valley residents if this route were established, only further inequities and disruption for the local community.

Response to Submission 4424 (Veronica Padilla, Pacoima Beautiful, December 1, 2022)

4424-8107

This comment is a duplicate of Submission PB-4427. See response to Submission PB-4427. Specifically, please refer to Response to Comment #8104.

4424-8108

This comment is a duplicate of Submission PB-4427. See response to Submission PB-4427. Specifically, please refer to Response to Comment #8105.

Submission 4448 (Auxenia Privett-Mendoza, Arroyos & Foothills Conservancy, December 1, 2022)

Palmdale - Burbank - RECORD #4448 DETAIL

Status :	Unread
Record Date :	12/2/2022
Interest As :	Business and/or Organization
First Name :	Auxenia
Last Name :	Privett-Mendoza
Attachments :	Arroyos & Foothills Conservancy - P-B HSR DEIR Comments.pdf (863 kb)

Stakeholder Comments/Issues :

Dear California High-Speed Rail Authority,

The Arroyos & Foothills Conservancy has reviewed the Draft Environmental Impact Report/Environmental Impact Statement (DEIR/EIS) for the Palmdale to Burbank section of the proposed California high-speed train system and various supporting documentation, including the Biological Resources and Aquatic Resources Technical Report and the Wildlife Corridor Assessment Report. Our comments on the Palmdale to Burbank project section DEIR/EIS are attached to this email. Should you experience any issue accessing the file, please email me.

We thank you for the opportunity to provide comment on this project.

Best,

Auxenia Grace Privett-Mendoza (she/her)
Arroyos & Foothills Conservancy
Field Administrator
(626) 497-8764?
aprivettmendoza@arroyosfoothills.org<mailto:aprivettmendoza@arroyosfoothills.org>
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4448-9877

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Field Administrator

Anna Hernandez-Torres
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Katie Lam
Education & Outreach Intern

Attn: Palmdale to Burbank Project Section Draft EIR/EIS Comment December 2, 2022
Southern California Regional Office
355 S. Grand Avenue, Suite 2050
Los Angeles, CA 90071

Re: Comments to Palmdale to Burbank High Speed Rail Draft Environmental Impact Report/Environmental Impact Statement

California's High-Speed Rail Authority ("Authority") seeks to build a high-speed rail system ("HSR") connecting Sacramento to San Diego. In 2005, a "Statewide Program Environmental Impact Report/Environmental Impact Statement" was adopted. The Authority released the "Palmdale to Burbank Project Section California High-Speed Rail: Draft Environmental Impact Report/Environmental Impact Statement" on September 2, 2022 ("DEIR/EIS"), for public review and comment under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). "The Authority proposes to construct, operate, and maintain an electric powered [High Speed Rail] HSR system in California. ...The Palmdale to Burbank Project Section would serve to connect the Bakersfield to Palmdale Project Section to the north and the Burbank to Los Angeles Project Section to the south." (DEIR/EIS, p. i).

The Arroyos & Foothills Conservancy (AFC) is a non-profit organization dedicated to preserving undeveloped areas of the western San Gabriel Valley, and Crescenta Valley, and eastern San Fernando Valley to support long-term wildlife population connectivity. AFC recognizes the need for modern mass transportation in a rapidly changing world. However, the Palmdale to Burbank Draft EIR/EIS document does not adequately document current biological resources within their proposed alternatives impact and buffer footprint, nor does it clearly address impacts to sensitive resources within the alternatives E2 and E2A. Our review of the Draft EIR/EIS identified the following:

- Failure to have consistency in acknowledging Big Tujunga Wash as a wildlife corridor (DEIR/EIS p. 3.7-90; DEIR/EIS, p. 3.7-92).
- Dismissal of wildlife impacts for the San Fernando Valley section of the rail (DEIR/EIS, p. 3.7-92).
- Failure to provide mitigation measures for potential impacts on the Santa Ana Sucker and its designated critical habitat within the Los Angeles River Watershed Recovery Unit (LARW-RU).
- Failure to distinguish the unique impacts of habitat fragmentation on already impacted developed areas (DEIR/EIS p. 3.7-92)

Submission 4448 (Auxenia Privett-Mendoza, Arroyos & Foothills Conservancy, December 1, 2022) - Continued

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- Inconsistent data on sensitive plant communities found in Big Tujunga Wash that would be impacted by routes E2 and E2A (3.7-47; p. 3.7-90).
- Failure to include the 210 freeway as a wildlife crossing barrier despite its identification in the Wildlife Corridor Assessment Report (WCAR, p. 7-11; DEIR/EIS, p. 3.7-93).
- Insufficient analysis of sound effects on wildlife (DEIR/EIS, p. 3.4-34)
- Failure to provide sufficient information and analysis based on project duration for temporary impacts such as light and noise.

4448-9878

AFC recommends removing alternative routes E2 and E2A as options for the Palmdale to Burbank Project Section of the California HSR. The DEIR reflects insufficient data has been collected regarding wildlife and biodiversity within the 1000-foot buffer zone (area of impact) designated in the San Fernando Valley for these routes. Effects on wildlife connectivity in Big Tujunga Wash would significantly worsen the already fragmented connectivity that is critical to facilitate gene flow between populations of native animals and plants. Suitably safe corridors provide wildlife with a means to adapt in the face of climate change.

Qualifications of contributing advisors and AFC staff are outlined below. All contributing advisors and staff have experience in the ecology and natural history of Southern California.

The following comments are based on facts established in part by the DEIR/EIS, supplemental documents released by the Authority, published peer-reviewed scientific literature, and government agency reports.

4448-9879

Alternative Routes E2 and E2A Extend Through Critical Wildlife Passage Area: The alternative routes identified as E2 and E2A travel through an area critical to wildlife passage between the San Gabriel Mountains and the Verdugo Mountains as identified in (i) the Greater Los Angeles County Open Space for Habitat and Recreation Plan (2012), (ii) the Los Angeles County General Plan where it is identified as a Significant Ecological Area (2015), namely the Tujunga/Hansen Dam Significant Ecological Area, (iii) the eastern edge of the Rim of the Valley Corridor (2015), and (iv) the Climate Resilient Connectivity for the South Coast Ecoregion of California (2019) [1].

Big Tujunga Wash is the last remaining intact low elevation riparian zone in Los Angeles County that continues to exhibit hydrological and biological processes typical of coastal southern California. The Authority does not acknowledge Big Tujunga Wash as a terrestrial wildlife movement corridor in the DEIR/EIS section describing wildlife

[1] See also Jennings, M., Haeuser, E., Foote, D., Lewison, R., & Conlisk, E. (2020). Planning for Dynamic Connectivity: Operationalizing Robust Decision-Making and Prioritization Across Landscapes Experiencing Climate and Land-Use Change. *Land*, *9*, 341. https://doi.org/10.3390/land9100341

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movement and connectivity, citing that due to limited wildlife movement in the area, it would have "few impacts on the already limited wildlife movement localized to urban center" (DEIR/EIS, p. 3.7-92). As we outline below, alternative routes E2 and E2A will disrupt functional connectivity to an important remnant open space critical providing habitat and water resources to wildlife.

4448-9880

The expansion of the Santa Monica Mountains National Recreation Area, also entitled the Rim of the Valley Corridor, is a network of parks, trails, and open spaces connecting the mountains surrounding the San Fernando, La Crescenta, Santa Clarita, Simi, and Conejo Valleys (National Park Service, 2016). The inclusion of Tujunga Valley/Hansen Dam, among other sites, in the Santa Monica Mountains National Recreation Area by virtue of the recommended boundary adjustment currently pending before Congress, emphasizes the importance of protecting regional wildlife corridors (National Park Service, 2016). The Authority acknowledges in the DEIR/EIS that the Tujunga Valley/Hansen Dam Spreading Grounds is a Significant Ecological Area (SEA).

The Tujunga Valley/Hansen Dam SEA is an important wildlife corridor used by migratory birds (DEIR/EIS, p. 3.7-184) and designated critical habitat for the southwestern willow flycatcher (*Empidonax traillii extimus*) (DEIR/EIS, p. 3.7-86). In the Biological Resources and Aquatic Technical Report for the Palmdale to Burbank Section, provided to the public as a supplementary document to the DEIR/EIS, the least Bell's vireo (*Vireo bellii pusillus*) is also noted as having a high potential to occur in the area where E2 crosses Big Tujunga Wash (BARTR, p. 6-42). The Authority describes that there could be indirect effects to riparian habitat providing nesting and foraging habitat for special special-status birds in the E2 Alternative due to potential changes in hydrology patterns (BARTR Technical Report, p. 7-7). Bobcats, a species sensitive to habitat fragmentation and urbanization (Crooks, 2002; Possel et al., 2014) have also been observed to occupy Hansen Dam (Figure 2). The DEIR/EIS and accompanying Wildlife Corridor Assessment do not complete a sufficient assessment of Big Tujunga Wash and its significance as an area for wildlife passage. Build alternatives E2 and E2A would have significant negative impacts on the quality of habitat and the functionality of Big Tujunga Wash as a wildlife corridor. Despite the Authority's acknowledgement of these significant impacts in the DEIR/EIS (p.3.7-134), build alternatives E2 and E2A have not yet been eliminated.

4448-9881

Big Tujunga Wash, connecting down from the San Gabriel Mountains to Hansen Dam, hosts critical riparian/wetland habitat. This area has been identified as critical habitat for the Santa Ana Sucker, a species assigned threatened status by the United States Fish and Wildlife Service (USFWS, 2000). The areas of Big Tujunga Wash where Santa Ana Suckers are still found make up a full 25% of the Santa Ana Sucker's remaining occupied native range (USFWS, 2000). Additionally, Hansen Reach – the area of Big Tujunga Creek between Big Tujunga Dam and Hansen Dam, including connecting

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tributaries - is part of the Los Angeles River Watershed Recovery Unit (LARW-RU) in the most recent recovery plan (USFWS, 2017). Effects on special-status fish, identified by the Authority, include altered water quality from contaminants, sedimentation, oxygen depletion, and even death from vibrations caused by construction (DEIR/EIS p. 3.7-137). The Authority does not identify a mitigation measure specific to the Santa Ana Sucker or its RU, despite its federally threatened status. Additionally, proposed mitigation of the significant negative impacts the HSR would have on the Santa Ana Sucker's habitat by land acquisition or wetland restoration elsewhere would not be sufficient because "to have sufficient levels of resiliency, redundancy, and representation for recovery, the Santa Ana sucker must comprise healthy, viable populations within each of the three RUs" (USFWS, 2017). In the last five-year review of the species, USFWS stated that "threats have not been abated and have continued to increase, thereby making the Santa Ana sucker more vulnerable to extinction" (USFWS, 2011).

4448-9882

The Authority includes a note that the final bridge designs were not available at the time of the analysis included in the DEIR/EIS (p. 3.7-137). The construction plans for the bridge crossing over Big Tujunga Wash will be an extremely important factor in assessing the true impact construction will have on the habitat and its associated species. In the absence of drafted bridge designs, Impact BIO#13: Project Effects on Wildlife Movement Corridors, identifies that for elevated (viaduct) sections, temporary laydown areas and roads would be constructed for access and hauling material to the viaduct area (DEIR/EIS p. 3.7-188). The DEIR/EIS does not identify impacts to hydrology, water quality, habitat, and wildlife that could be caused by temporary and/or permanent infrastructure, such as laydown yards and maintenance facilities, in Big Tujunga Wash.

4448-9883

Inconsistency Regarding Tujunga Valley/Hansen Dam SEA Makeup: Inconsistencies in the identification of habitat types in the DEIR/EIS are unacceptable, particularly regarding rare plant communities. The Tujunga Valley/Hansen Dam SEA contains alluvial sage scrub/scale broom scrub, which is a rare and Sensitive Natural Community (CDFW, 2022). The Authority notes this in their description of the Tujunga Valley/Hansen Dam SEA (p. 3.7-90) but does not identify this plant community in the maps or tables demonstrating the vegetation types identified along the footprint of the proposed HSR routes (DEIR/EIS, p. 3.7-33-38; p. 3.7-47).

4448-9884

Severe Noise Impacts: In the DEIR/EIS, the Authority identifies build alternative E2 as having the highest number of severe sound impacts of all the build alternatives (DEIR/EIS, p. 3.4-146). It is well established that anthropogenic sound has effects on many different types of wildlife. Exposure to elevated environmental noise can have critical negative biological effects on wildlife, including negative impacts to gene expression, cell structure and signaling, physiological systems, and behavioral and

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community ecology (Knight and Swaddle 2011). The Authority also states that "increased noise levels and human presence may influence local shifts in populations, and noise and vibration associated with construction activities could disrupt individuals and may impair normal life cycle behaviors" (DEIR/EIS, p. 3.7-11). For species such as big brown bats (*Eptesicus fuscus*) and barn owls (*Tyto alba*) who use sound to identify, stalk and capture prey, anthropogenic noise could disrupt their ability to hunt (Barber and Crooks 2010). Construction and potentially operation of build alternatives E2 and E2A will increase anthropogenic noise in an area of critical habitat already significantly impacted by anthropogenic noise from the I-210 freeway.

4448-9885

The Authority acknowledges that "One of the most apparent [impacts from noise] is the potential for communication masking. Wild animals depend on calls and song for species identification, mate attraction, and territorial defense" (DEIR/EIS, p. 3.4-34). The Authority includes studies recognizing that continuous noise levels above 60 dBA L_{eq} can affect habitat suitability for bird species (DEIR/EIS p. 3.4-34). The threshold for significance is identified as an impact that would "generate temporary increase in ambient noise levels in the vicinity of the project in excess of the FRA/FTA and FHWA standards for severe noise impacts" and "generate temporary or permanent increase in ground-borne vibration or ground-borne noise levels exceeding FRA/FTA standards" (DEIR/EIS p. 3.4-36) during construction. A 100 dB sound exposure level ("SEL") is established "for all domestic and wild birds and mammals as an effective criterion for determining impacts of a train pass-by" (DEIR/EIS, p. 3.4-34). However, "the 100 dBA SEL impact threshold has no basis in science and will radically underestimate the noise, vibration, and startle impacts from the proposed project" (Land Protection Partners, 2014). Additionally, the Authority appears to assume that all birds and mammals experience equal sensitivity to noise and vibration, which may result in inaccurate measurement of impact on these groups.

4448-9886

As pointed out in section 3.4, the "implementation of Mitigation Measure N&V-MM#3 could reduce noise, [though] it is unlikely it would fully mitigate impacts. This represents a significant and unavoidable impact for the Refined SR14, SR14A, E1, E1A, E2, and E2A Build Alternatives" (DEIR/EIS, p. 3.4-70). As discussed above, unmitigated noise has been shown to have chronic effects on wildlife beyond startle effects (Forman & Deblinger 2000; Peris & Pescador 2004; Reijnen & Foppen 1994; Reijnen et al. 1996; Reijnen et al. 1997). This is a critical wildlife passage area where development impediments have created a funnel, severely limiting the ability of wildlife to go back and forth between the San Gabriel mountains and the Verdugo mountains. A negative impact in this area would be amplified by the development pressures already existent.

4448-9887

The Authority proposes to mitigate the expected noise impacts by installing noise barriers for certain sections of the HSR. However, such barriers are not effective for

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the greater area of impact (Mital and Ramakrishnan, 1997). This is not sufficient for the amount of noise this project will generate. As previously established, environmental noise and vibrations are critical to the development and behaviors of many species (Hill 2001). Though sound walls may reduce levels by a maximum of 11 dBA, this reduction may be of little significance to the net noise generated by the project during both construction and operation. This is acknowledged by the Authority throughout the Noise and Vibration section of the DEIR/EIS as non-mitigatable. Additionally, use of sound barriers may result in an additional loss of connectivity, adding an extra barrier for wildlife to move around and thereby having adverse effects.

4448-9888

In build alternative E2, the train will run through Hansen Dam Recreation Area. Species may lose the functional connectivity provided by Big Tujunga Wash due to being driven away by the increased anthropogenic noise or startle effects from the elevated train. Despite build alternative E2 being a proposed aerial route, ground-borne vibration may still result. The Authority identifies that the "E2 and E2A Build Alternatives [have] the most noise impacts on sensitive receivers (141/168 moderate and 164/102 severe, respectively)" (DEIR/EIS, p. 3.4-148). Because the Authority will not be able to fully mitigate noise and vibration impacts of the HSR and moderate to severe noise impacts are expected to occur on either side of the HSR section crossing over Big Tujunga Wash (DEIR/EIS, p. 3.4-103), we believe that build alternatives E2 and E2A would have a severe negative effect on the species utilizing the Big Tujunga Wash area. It is imperative that the Authority not move forward with a build option that puts numerous already-threatened species at undue risk and further reduce the connectivity of urban habitat fragments.

4448-9889

Artificial Light Impacts: Another significant anthropogenic factor affecting wildlife is artificial light at night (ALAN). ALAN has adverse impacts on wildlife (Longcore and Rich, 2006), disrupting the natural cycles influenced by day and night and has been shown to have effects ranging from disruption of gene regulation (Touzot et al., 2021) to impacts on predator-prey interactions (Gomes, 2020; Ditmer et. al., 2020). ALAN can also decrease functional connectivity for certain species, such as bats (Laforge et. al. 2019), impeding wildlife movement (Beier, 1995; Beier, 2006).

The Palmdale to Burbank Wildlife Corridor Assessment Report, provided to the public as a supplementary document to the DEIR/EIS, identifies that wildlife are avoidant of artificially lit areas and that artificially lit areas can impact species behaviors (WCAR, p. 7.1). Mitigation measures proposed in the DEIR/EIS for light impacts during construction include avoiding nightwork, shielding and directing lighting, minimizing vehicle headlights, and using remote sensing to ensure construction site security during construction (DEIR/EIS, p.3.7-24). Despite construction being temporary, the duration of construction, and therefore the lighting used during construction, is not

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included in the assessment for impacts of ALAN on wildlife. Mitigation measures proposed in the Draft EIR/EIS for ALAN during operation of the HSR include shielding or other methods to direct light downward and use of remote monitoring systems to ensure site security when the site is not in use (p. 3.7-25). These measures are not sufficient, as the presence of light itself has been shown to have adverse effects on wildlife (Beier 1995; Beier 2006). Regarding proposed routes E2 and E2A, introducing a significant construction project that results in temporary and potentially permanent ALAN impacts will significantly hinder the usefulness of the critical wildlife corridor to wildlife traveling along that route.

4448-9890

Wildlife Crossings: An important aspect of the Authority's identified mitigation measures is the establishment of wildlife crossings. However, wildlife crossings are specified to be installed specifically in places where fenced infrastructure would impede wildlife movement (DEIR/EIS, p. 3.7-22). As such, when determining where to locate wildlife crossings, we urge the Authority to take into consideration locations beyond those where wildlife movement is impeded by the HSR project, toward a more proactive improvement in wildlife mobility, as well as addressing the other above-mentioned factors impacting connectivity and reducing wildlife movement (i.e., noise and ALAN impacts).

4448-9891

BIO-MM #37 (Minimize Effects on Wildlife Movement Corridors During Construction) notes that during construction the Authority will avoid fencing, ground disturbing activities (particularly at night), and shield night lighting from illuminating wildlife corridors. The specification that night lighting be shielded to avoid light "spilling" onto wildlife corridors is insufficient to mitigate impacts on wildlife usage (Land Protection Partners, 2014). Multiple research studies have shown that the existence of lighting itself influences wildlife movement (Beier 1995; Beier 2006).

4448-9892

Should the Authority proceed with build alternative E2 or E2A, a wildlife corridor analysis of Big Tujunga Wash should be completed. While the HSR crossing over Big Tujunga Wash is planned as an elevated section, the impacts on habitat from construction, increased noise levels, ALAN, and possible other effects such as vibration, will result in a loss of the functionality of the Big Tujunga Wash as a wildlife corridor.

4448-9893

CDFW Eastern Rim of the Valley Conceptual Area Protection Plan: CDFW adopted its Eastern Rim of the Valley Conceptual Area Protection Plan (EROV CAPP) in 2017. The EROV CAPP identified a wildlife corridor running from Hahamongna Watershed Park in Pasadena, down the Arroyo Seco, into and across the San Rafael Hills, and cross developed land through the Verdugo Mountains to Hansen Dam and Big Tujunga Wash. CDFW uses the EROV CAPP in assessing conservation opportunities, particularly land acquisition that facilitates wildlife movement, within that area, namely a 20-mile

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wildlife corridor that includes the above-ground portion of Alternatives E2 and E2A in the San Fernando Valley.



Figure 1. Map of the Eastern Rim of the Valley Conceptual Area Protection Plan (EROV CAPP) (maroon outline). Existing Conservation Investments (green). Rim of the Valley Corridor (light blue outline). Designated critical habitat (dark blue outline). Significant Ecological Areas (yellow striped). Choke points (dark blue arrows). Local bridges (black dots) and state bridges (yellow dots).

AFC Data: The Arroyos & Foothills Conservancy's (AFC) regional area of interest (its Long-Term Conservation Area (LTCA) is outlined in Figure 2 (Zellmer and Goto, 2022). AFC designated, within the LTCA, areas that are critical for wildlife passage between preserved open spaces (Critical Wildlife Passage Areas, or CWPAs; Figure 2). They are high priority areas for urban wildlife conservation. AFC identified the CWPAs based on remotely sensed camera data, expert opinion, on-the-ground investigation, an GIS mapping (Zellmer and Goto, 2022). CWPAs, including the Shadow Hills CWPA described below, were identified without regard to the HSR.

4448-9893

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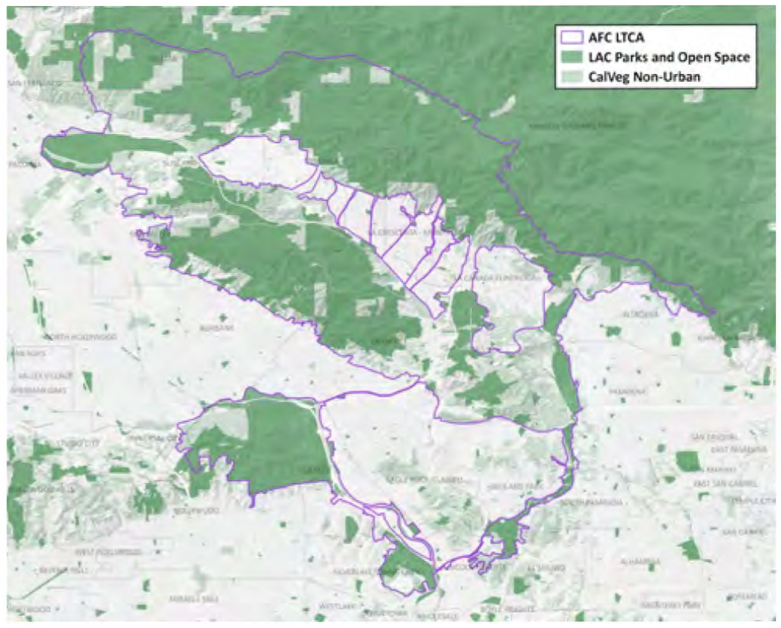


Figure 2. Map of the Arroyos & Foothills Conservancy's Long -Term Conservation Area (AFC LTCA) (outlined in purple) in the greater Los Angeles area. Existing public parks and open space (LA County) are dark green. Privately owned open space is (light green (CalVeg).

The Shadow Hills CWPA (Figure 3) includes areas of Big Tujunga Wash and Hansen Dam. Routes E2 and E2A and the Shadow Hills CWPA overlap. The Shadow Hills CWPA stretches from the section of Big Tujunga Wash over which Routes E2 and E2A would cross to the last remaining open space of land on the south side of Wentworth St. Development, and an HSR line with exclusionary fencing, would create a barrier for this important area passage for wildlife moving between the San Gabriel and Verdugo Mountains.

Submission 4448 (Auxenia Privett-Mendoza, Arroyos & Foothills Conservancy, December 1, 2022) - Continued

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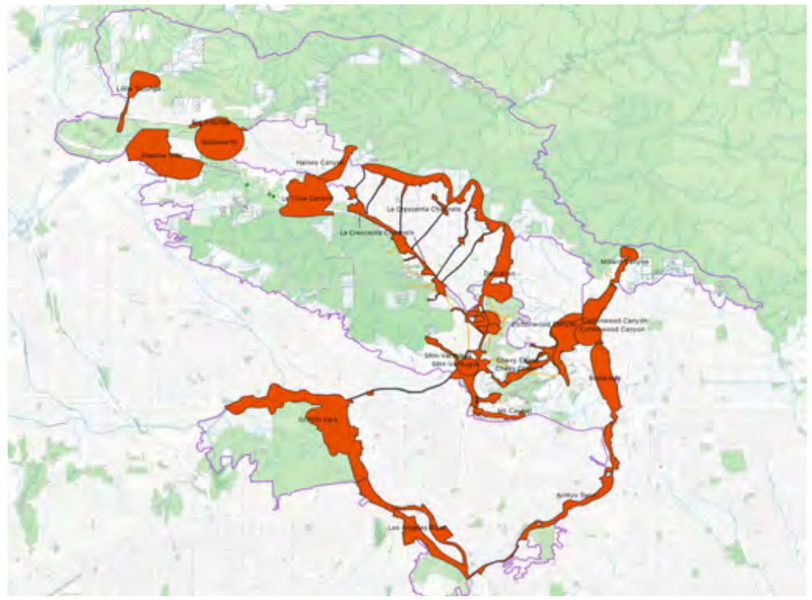


Figure 3. Map of the Arroyos & Foothills Conservancy's Critical Wildlife Passage Areas (CWPAs, orange) within its designated Long Term Conservation Area (LTCA, purple).

AFC conducted a baseline biological survey at Hansen Dam, in partnership with the U.S. Geologic Survey, to collect data on terrestrial mammal diversity. We found a healthy diversity of native mammals (Figure 4) that provide important data regarding wildlife usage in this area. Species sensitive to habitat fragmentation, such as bobcats (Crooks, 2002; Possel et al., 2014), were found throughout the area, demonstrating the good quality of habitat available to wildlife. Wildlife data for mammal species were not included in the DEIR/EIS for the Tujunga Valley/Hansen Dam SEA even though construction and operations for routes E2 and E2A would have direct impact on this area.

Community science data from eBird also demonstrates the importance of the Big Tujunga Wash/Hansen Dam area as a bird hotspot. This data source identifies 287 different species. This data is available for use at https://ebird.org/hotspot/L732299?yr=all&m=&rank=mrec.

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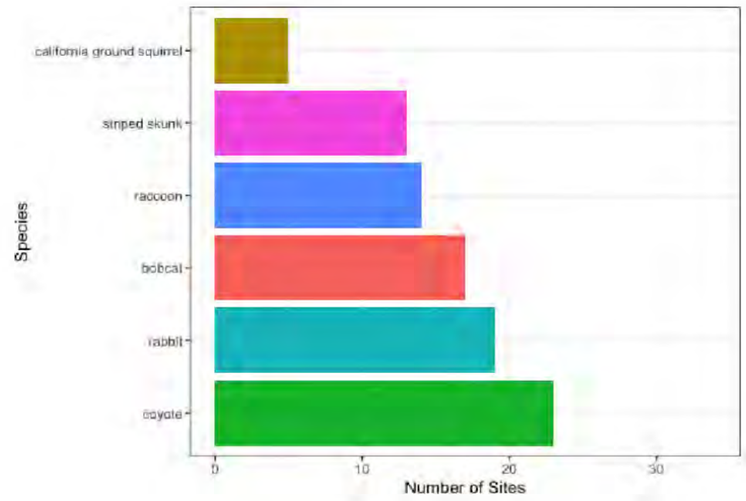


Figure 4. Number of camera sites at which each detected species was identified at Hansen Dam during the deployment of wildlife cameras between December 2020 and March 2021.

Conclusion: AFC concludes that build alternatives E2 and E2A pose a significant threat to the connectivity of urban habitat areas already impacted by fragmentation and development. The functionality of Big Tujunga Wash is ignored as an area of critical wildlife passage and should be incorporated into the DEIR/EIS. Additionally, while the Mitigation Measures and Biological Impact Avoidance and Minimization Features proposed in the DEIR/EIS attempt to address mitigation of these negative impacts, they are insufficient. Further survey efforts must be employed to gather sufficient data on the area of impact for the San Fernando Valley, which must not be dismissed as simply an urban area where wildlife will not be impacted by further development projects.

Build alternatives E2 and E2A must be viewed contextually. Development over the years has deprived wildlife of passage, including between the Verdugo Mountains and the San Gabriel Mountains. Much work is required to secure and enhance habitat to reestablish wildlife passage. That is the point of recreating and securing wildlife corridors. The Verdugo Mountains are a biological island. Connections to the San Gabriel Mountains must be both created and enhanced. The best opportunity for wildlife is Big Tujunga Wash, with ample opportunity to move under the 210 Freeway. This project creates multiple obstacles on top of those already faced to reestablish safe, secure, and inviting passage for all manner of wildlife and plants. Accordingly, E2 and E2A are highly inadvisable, biologically and ecologically.

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Respectfully submitted,

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Qualifications

Contributions to these comments were made by Mickey Long, Thomas Juhasz, and Auxenia Grace Privett-Mendoza.

Mickey Long and Thomas Juhasz are biological resource advisors for the Arroyos & Foothills Conservancy. Mickey Long retired in 2010 from his position as natural areas administrator for the Los Angeles County Department of Parks and Recreation, having spent 39 years working in the county's Natural Areas Division. As administrator, Long operated the Eaton Canyon Nature Center in Altadena, along with 18 other natural areas. He graduated from CSULA with a B.A. in Zoology. Long has taught environmental biology and human ecology courses at Art Center College of Design, and currently teaches bird identification, botany and ecology classes for LA county's nature centers. Long served fourteen years on L.A. County's Significant Ecological Areas Tech. Advisory Committee, many years on the Conservation & Rare Plant Committees for the San Gabriel Mountains Chapter of the California Native Plant Society, was past president of the Pasadena Audubon Society, and is currently a Biological Advisor for the Arroyos & Foothills Conservancy. He has published articles in peer-reviewed journals on the topics of herpetology, ornithology and botany.

Thomas Juhasz is an aquatic veterinarian who has worked as an endangered species biologist in the western US, the Pacific, and Caribbean. During his time as an endangered species biologist, he worked for AECOM International and Intercontinental Applied Ecology. Juhasz graduated from USC with a BLARC in Landscape Architecture, holds an M.S. in Environmental Science from the University of Manchester, and a D.V.M. from the University of Veterinary Medicine, Budapest. He has co-authored scientific papers in reputable peer-reviewed journals such as *Journal of Fish Biology* as well as those published at scientific conferences such as the Optical Fiber Communication Conference. Auxenia Grace Privett-Mendoza is the Field Administrator for the Arroyos & Foothills Conservancy. She graduated from Smith College with a B.A. in Biological Science. She oversees AFC's urban wildlife research partnership with Occidental College's Computational Biology Lab. She has co-authored a paper published in top peer-reviewed journal PLOS One (Smith et. al., 2021).

John Howell is the Executive Director and General Counsel for the Arroyos & Foothills Conservancy. Prior to this he practiced real estate law for 33 years.

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Response to Submission 4448 (Auxenia Privett-Mendoza, Arroyos & Foothills Conservancy, December 1, 2022)

4448-9877

The commenter expresses concerns that the Draft EIR/EIS does not adequately document the current biological resources and does not address the impact on sensitive resources within alternatives E2 and E2A. The commenter expresses concern that wildlife impacts in the San Fernando Valley are dismissed, and Big Tujunga Wash is not consistently acknowledged as a wildlife corridor. The Tujunga Valley/Hansen Dam Significant Ecological Area is identified as a wildlife corridor on pg. 3.7-90, shown in Figure 3.7-36, and reiterates the importance of the SEAs and other conservation lands. The WCA identifies the Big Tujunga Wash as a designated TNC Priority Area and LA County SEA, Critical Habitats for Santa Ana River sucker and southwest willow flycatcher, with natural qualities for wildlife movement. Alternatives E2 and E2A include a 0.82-mile-long elevated viaduct that spans the Big Tujunga Wash and Hansen Dam open space area. There are substantial existing constraints to wildlife connectivity in the San Fernando Valley where the Palmdale to Burbank Project Section would result in marginal effects on the already limited wildlife movement corridors. For this reason, the EIR/EIS analysis focuses on the non-urban areas between Palmdale and the San Fernando Valley because of existing constraints, such as the 210 freeway. As such, the 210 freeway is not explicitly called out as a barrier to wildlife movement in the Draft EIR/EIS. However, the WCA identifies the I-210 freeway as a barrier to wildlife. The EIR/EIS in Impact BIO #11 evaluates the project's effects on significant ecological areas and specifically identifies the impacts of the E2 and E2A alternatives on the Big Tujunga Wash area as being significant requiring mitigation which is also included (BIO-MM#6, BIO-MM#47, BIO-MM#50 and BIO-MM#53). The EIR/EIS also evaluates project impacts on Santa Ana Sucker under Impact BIO#4 and finds the impact would be significant requiring mitigation which is also included (BIO-MM#6, BIO-MM#32-#34, BIO-MM#46 and #47, BIO-MM#50, #53 and #55), which would reduce the impact to less-than-significant. These analyses take into consideration the length of construction, which would not be 7 years in the area of Big Tujunga Wash. As noted in Table 2-35 the duration for construction of aerial structures such as the viaduct across Big Tujunga Wash that would be associated with either the E2 or E2A alternative would take a maximum of 43 months (less than 4 years). This duration and the effects of noise and light were considered and contributed to the Authority's analysis and conclusion that the impact of the E2/E2A alternatives would be significant on the Big Tujunga Wash ecological area as well as species present such as the Santa Ana Sucker, and why extensive mitigation measures were included to mitigate these impacts. Some of the

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issues identified by the commenter such as the impacts of the E2/E2A alternatives on Big Tujunga Wash contributed to the Authority's decision to select the SR14A alternatives as its preferred alternative.

4448-9878

The commenter requests the E2 and E2A alternative be removed. The Authority's preferred alternative is the SR14A alternative, which would avoid crossing Big Tujunga Wash. Notwithstanding this, the Alternatives E2 and E2A would span over the Big Tujunga Wash on a viaduct, allowing wildlife able to traverse underneath the project alignment. The project would not significantly affect wildlife connectivity in Big Tujunga Wash.

4448-9879

The commenter provides information as to wildlife movement and biological sensitivity of areas along the E2 and E2A alternative alignment between the Angeles National Forest and the Verdugo Mountain (Big Tujunga Wash). The Authority's preferred alternative is the SR14A alternative, which would avoid crossing Big Tujunga Wash and the areas of concern noted in the comment. Notwithstanding this, the Alternatives E2 and E2A would span over the Big Tujunga Wash on a viaduct, allowing wildlife to traverse underneath the project alignment. The project would not significantly affect wildlife movement between the San Gabriel Mountains and the Verdugo Mountains.

Response to Submission 4448 (Auxenia Privett-Mendoza, Arroyos & Foothills Conservancy, December 1, 2022) - Continued

4448-9880

The commenter notes the importance of the Tujunga Valley/Hansen Dam SEA as a migratory corridor. The commenter states that the WCA and Draft EIR/EIS do not sufficiently assess the Big Tujunga Wash as an area for wildlife passage due to the impacts from the E2 and E2A Build Alternative. The Authority disagrees with the commenter and describes the importance of Tujunga Valley/Hansen Dam SEA to migrating birds on the Pacific Flyway and rare alluvial habitat within the region (Draft EIR/EIS Section 3.7.5, page 3.7-89). In this same section the Authority describes Big Tujunga Wash as habitat for least Bell's vireo and Swainson's hawk (page 3.7-59). In Table 3.7-9, the Authority describes Big Tujunga Wash as critical habitat for southwestern willow flycatcher and Santa Ana sucker. Impact BIO#3 includes acreage of direct effects to species from E2 and E2A (Table 3.7-15) and a discussion of direct and indirect effects from this alternative. This analysis includes the description of indirect effects during the construction period, which includes permanent or temporary displacement of bird species to avoid disturbance (e.g., noise, vibration, visual stimuli); such displacement would also result from fragmentation of the landscape caused by construction of project components (e.g., security fences, elevated structures, railbeds, and associated facilities). Indirect effects include interference with the daily movement, foraging, and dispersal of resident and migratory bird species. The Authority also describes in this section (page 3.7-128) that the implementation of BIO-IAMF#1, BIO-IAMF#2, BIO-IAMF#3, and BIO-IAMF#5 through BIO-IAMF#11 would reduce potential impacts to species within Big Tujunga Wash. The WCA identifies the Big Tujunga Wash as a designated TNC Priority Area and LA County SEA, Critical Habitats for Santa Ana River sucker and southwest willow flycatcher, with natural qualities for wildlife movement. Alternatives E2 and E2A include a 0.82-mile long elevated viaduct that spans the Big Tujunga Wash and Hansen Dam area. The WCA identifies the I-210 freeway as a barrier to wildlife. Potential impacts to biological resources in the San Fernando Valley are discussed and evaluated in the EIR/EIS including impacts to Santa Ana Sucker and biological resources in the Big Tujunga wash area. The EIR/EIS identifies several mitigation measures to reduce impacts to this species (BIO-MM#6, BIO-MM#47, BIO-MM#50, and BIO-MM#53). Alternatives E2 and E2A were not identified by the Authority as the Preferred Alternative.

4448-9881

The commenter expressed concern that there was not a mitigation measure specific to Santa Ana Sucker or its Recovery Unit. However, the commenter also stated that proposed mitigation for impacts to Santa Ana Sucker habitat is insufficient given recovery plan objectives. Information on designated critical habitat and conservation areas within the Palmdale to Burbank Project Section was compiled using Geographic information system layers from the USFWS Ventura and Carlsbad field offices (Authority, 2019a). The E2 Build Alternative alignment would traverse 0.26 mile of designated Santa Ana sucker critical habitat on viaduct within Big Tujunga Wash. Construction of the viaduct would require the permanent removal of 8.4 acres of designated critical habitat for the Santa Ana sucker. Areas where the in-stream aquatic habitat is covered by riparian vegetation make up the physical and biological features essential to the biotic viability of designated habitat for the Santa Ana sucker because these areas can provide thermal refuge and in-stream habitat structure. Construction of the E2 Build Alternative has the potential to result in the removal of riparian vegetation that make up the physical and biological features essential to Santa Ana sucker. Implementation of Bio-MM#6, BIO-MM#47, Bio-MM#50, and BIO-MM#53 would provide avoidance, minimization, and compensatory mitigation for the impact such that it would no longer be a substantial adverse effect on designated critical habitat. Further, additional avoidance, minimization, and mitigation measures for Santa Ana Sucker and critical habitat would be further refined and developed in coordination with the USFWS as part of the formal Section 7 consultation process. It should also be noted that the Authority's Preferred Alternative, SR14A, would avoid impacts to Santa Ana Sucker at Big Tujunga Wash.

Response to Submission 4448 (Auxenia Privett-Mendoza, Arroyos & Foothills Conservancy, December 1, 2022) - Continued

4448-9882

The commenter is concerned about potential impacts to the hydrology, water quality, habitat, and wildlife in Big Tujunga wash from temporary or permanent infrastructure associated with the E2 and E2A Build Alternatives, such as laydown yards and maintenance facilities that are not identified in the Draft EIR/EIS. There are no proposed placements of laydown yards or maintenance facilities within Big Tujunga Wash. The methods for identifying impacts are discussed in Sections 3.1.4.4 and 3.7.4.3, as well as in the discussion of each impact in Section 3.7.6.3, including but not limited to Impact BIO#2 (Project Construction Effects on Special-Status Amphibian Habitat), Impact BIO#3 (Project Construction Effects on Special-Status Bird Habitat), and Impact BIO#4 (Project Construction Effects on Special-Status Fish Habitat). The hydrological impacts of the Build Alternatives are evaluated in Section 3.8 (Hydrology and Water Resources). BIO-IAMF#5 requires that all sensitive areas be identified on the construction plans and other measures address avoidance of impacts to sensitive biological resources. BIO-IAMF#8 requires that staging areas and traffic routes be delineated prior to any ground disturbance to minimize effects to sensitive biological resources. Additionally, the mitigation measures included in Section 3.7.7 provide further avoidance, minimization, and compensatory mitigation requirements for all project work, including any work in or around Big Tujunga Wash.

As described in Chapter 8, Preferred Alternative, of this Final EIR/EIS, the Authority has identified the SR14A Build Alternative as the Preferred Alternative for the Palmdale to Burbank Project Section, which would avoid effects on wildlife movement corridors in Big Tujunga Wash.

4448-9883

The commenter expressed concern about "alluvial sage scrub/scalebroom scrub" being present in Tujunga Valley/Hansen Dam SEA and a sensitive natural community, but not being specifically identified on maps or in tables. Coastal Scrub and Desert Wash are defined in the Tujunga Valley/Hansen Dam SEA area on Figure 3.7-13. Coastal Scrub is an alternative name for "alluvial sage scrub" and Desert Wash is alternative name for "scalebroom scrub" which are described in Table 3.7-4 on p 3.7-35 to include the Big Tujunga Wash crossing. The name "alluvial sage scrub/scalebroom scrub" is not a vegetation community defined by A Manual of California Vegetation (Sawyer et al. 2009) or California Wildlife Habitat Relationship (CWHR) system which were used as sources for defining the vegetation communities and landcover types. Scalebroom scrub is an associated CWHR vegetation community with Desert Wash, and is defined as a special-status plant community in Table 3.7-6 and 3.7-10 and potential impacts are discussed under Impact BIO#1.

4448-9884

Refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter expresses concern over the effects of noise on wildlife. The EIR/EIS utilizes noise impact thresholds established by the Federal Railroad Administration for effects on animals. To further address potential noise effects, the EIR/EIS cites NV-IAMF#1, which provides guidelines for minimizing construction noise and vibration. Also, please refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife, which discusses this topic further.

Response to Submission 4448 (Auxenia Privett-Mendoza, Arroyos & Foothills Conservancy, December 1, 2022) - Continued

4448-9885

Refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter asserts, based on citations from Section 3.4 of the Draft EIR/EIS, that the Authority appears to assume that all birds and mammals experience equal sensitivity to noise and vibration, which may result in inaccurate measurement of impact on these groups.

As discussed under Impact BIO#14 in the Draft EIR/EIS, wildlife responses to noise are species dependent and would depend on the timing, intensity, and frequency of the sound, as well as the species' tolerance to noise. Each animal's response to noise and thresholds are unique enough that noise standards cannot be established. When these species are in proximity of the 100 dBA sound exposure level contour identified in Section 3.4, Noise and Vibration, their ability to communicate may be affected by noise and vibration generated by the at-grade portions of the Build Alternatives.

Impact BIO#14 of the Draft EIR/EIS further acknowledges that the noise exposure limit of sound exposure level of 100 dBA for wildlife would be limited to locations within 40 to 50 feet of the aboveground alignment centerline, which is typically within the fenced right-of-way. Such fencing would preclude wildlife from approaching the alignment at a proximity of 40 to 50 feet. However, as discussed under Impact BIO#14, a train would take approximately 2 seconds to pass any given point, and it is expected that such short periods of time would not affect animal species' communications with the exception of special-status birds as discussed further below.

The effect of operational noise on birds depends on the interaction of existing noise conditions relative to the published thresholds for noise impacts. At the noise levels that would be generated outside the fence line, masking is the primary impact on birds. Masking occurs when new noise sources make bird calls inaudible due to the greater volume of the new sound. Dooling and Popper identify the conservative threshold of 60 A-weighted decibels for masking effects (Dooling and Popper 2007). This threshold must be considered relative to existing conditions, such as existing ambient noise sources. For example, on the Burbank to Los Angeles Project Section, the USFWS noted that for least Bell's vireo that are habituated to existing conditions of 63-73 A-

4448-9885

weighted decibels of ambient noise, an increase due to train operations, of 67-77 A-weighted decibels is not likely to adversely affect the species (USFWS 2021a). Because the area of operational impact has some ambient noise but is generally not subject to high levels of ambient noise, the conservative threshold of 65 A-weighted decibels is used for this analysis.

The Authority modeled habitat for FESA-listed special-status bird species that would be subject to noise in excess of 65 dBA (this excludes areas within the fenced right-of-way that would already be replaced with facilities and areas where noise levels generated by existing transportation facilities already exceed 65 dBA). As shown in Table 3.7-31 of the Draft EIR/EIS, three special-status bird species were identified as having suitable habitat within the noise exposure limit of sound exposure level of 100 A-weighted decibels: Coastal California gnatcatcher, Least Bell's vireo, and Southwestern willow flycatcher. Where noise levels would exceed 65 dBA outside of the fenced HSR right-of-way and outside of areas where noise levels currently exceed 65 dBA, the Authority will implement BIO-MM#101, which involves the development of sound barriers to minimize or avoid noise impacts in locations with special-status bird habitat.

Related to vibration impacts, Impact BIO#14 concludes that vibration from train passage has a low potential to affect wildlife movement because the duration of vibration would be brief (up to 3 seconds) for each train passing or because train passages would occur primarily during the day, while most activity by vulnerable wildlife receptors is nocturnal.

Response to Submission 4448 (Auxenia Privett-Mendoza, Arroyos & Foothills Conservancy, December 1, 2022) - Continued

4448-9886

Refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter raises concerns about unmitigated noise impacts on wildlife movement between the San Gabriel Mountains and the Verdugo Mountains. The commenter references text from Impact N&V#4: Operational Traffic Noise Impacts on Sensitive Receivers and incorrectly ties N&V-MM#3: Implement California High-Speed Rail Project Noise Mitigation Guidelines to impacts to wildlife. As discussed under Impact N&V#4, N&V-MM#3 would mitigate impacts to sensitive receivers, which include residences, schools, hotels/motels, and medical facilities. N&V-MM#3 does not apply to Impact N&V#7: Noise and Vibration Impacts on Domestic Animals, which evaluates operational noise and vibration impacts on domestic animals. Rather N&V-MM#8 would mitigate Impact N&V#7 by requiring active and passive warning signs to be posted along the Pacific Crest Trail and in Vasquez Rocks Natural Area Park, the Hansen Dam Recreation Area, and Stonehurst Park and Recreation Center under the Refined SR14, SR14A, E2, and E2A Build Alternative alignments.

The commenter states that unmitigated noise impacts to wildlife would reduce the ability of wildlife to go back and forth between the San Gabriel mountains and the Verdugo mountains. None of the proposed build alternative alignments are located between the San Gabriel Mountains and the Verdugo Mountains, and would therefore not create a barrier to wildlife movement nor would they result in noise impact between these two habitats.

Impact BIO#14 in the Draft EIR/EIS evaluates wildlife responses to noise due to project operation. As discussed in the impact evaluation, the noise exposure limit of sound exposure level of 100 dBA for wildlife would be limited to locations within 40 to 50 feet of the aboveground alignment centerline, which is typically within the fenced HSR right-of-way. Such fencing would preclude wildlife from approaching the alignment at a proximity of 40 to 50 feet. Additionally, where the Build Alternative alignments would occur within urban areas or adjacent to highways, noise exposure would be masked by other noisy features of the landscape. Operation of the Build Alternatives would be masked in urban areas in Antelope Valley and Lancaster Valley and major highways (SR 14), as these features produce noise of a magnitude comparable to that of the HSR line, and they

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produce that noise more continuously. Impact BIO#14 concludes that implementation of BIO-IAMF#4 (Conduct Operation and Maintenance Period WEAP Training), HYD-IAMF#1 (Storm and Groundwater Management), HMW-IAMF#9 (Environmental Management System), HMW-IAMF#10 (Hazardous Materials Plans), and BIO-IAMF#12 (Design the Project to be Bird Safe) have been incorporated into the Palmdale to Burbank Project Section design to reduce impacts on special-status species and associated habitat during operation. However, operation of each of the six Build Alternatives could have a substantial adverse effect on special-status species by threatening to eliminate or result in measurable degradation of habitat. Therefore, BIO-MM#36 (Install Aprons or Barriers within Security Fencing) and BIO-MM#101 (Minimize Permanent, Intermittent Noise Impacts on Special-Status Bird Habitat) would be implemented to reduce effects related to operational noise impacts to wildlife. BIO-MM#36 would require exclusion barriers and fencing to prevent wildlife from accessing the HSR right-of-way, and BIO-MM#101 would require the construction of sound barriers to address the permanent, intermittent impact of noise on suitable special-status bird habitat. With implementation of the identified IAMFs and mitigation measures, the Build Alternatives would result in a less than significant impact on special-status species during operation.

Please refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife, which discusses this topic further.

Response to Submission 4448 (Auxenia Privett-Mendoza, Arroyos & Foothills Conservancy, December 1, 2022) - Continued

4448-9887

Refer to Standard Response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife, PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter expresses concern over the effects of sound on wildlife and states that sound barriers do not provide sufficient reduction in noise and may result in restricting wildlife connectivity. The commenter further states that the Draft EIR/EIS acknowledged that noise effects on wildlife were unmitigable. The Authority disagrees with commenter's assertion. Although the Draft EIR/EIS disclosed that construction noise impacts on structures such as residences was significant and unavoidable, the conclusion for wildlife is that construction and operational noise effects on wildlife would be less than significant after mitigation (see Table 3.7-37).

The commenter questions the effectiveness of the sound barriers proposed to mitigate significant noise impacts. As discussed in Response to Comment #9886, sound barriers have been used by other transportation agencies (e.g., Caltrans, FRA) to effectively reduce noise effects resulting from operation of projects.

The commenter also suggests that the placement of sounds barriers would restrict wildlife movement. Sound barriers would not present a barrier to wildlife movement because they would be installed where the at-grade segment is already a barrier.

4448-9888

The commenter opines that because the E2/E2A project alignment runs through the Hansen Dam Recreation Area, this would result in a loss of functional connectivity for wildlife that is currently provided within the Big Tujunga Wash due to an increase in project-related anthropogenic noise, startle effects and ground-borne vibration from the elevated train. The commenter notes concerns with E2 and E2A Build Alternative alignments having the most noise impacts on sensitive receivers compared to the other build alternative alignments. The commenter also notes the Authority will not be able to fully mitigate noise and vibration impacts of the HSR and moderate to severe noise impacts are expected to occur on either side of the HSR section crossing over Big Tujunga Wash (Draft EIR/EIS, p. 3.4-103). The commenter notes that build alternatives E2 and E2A would have a severe negative effect on the species utilizing the Big Tujunga Wash area and puts numerous already-threatened species at undue risk and further reduce the connectivity between other urban habitat fragments. Lastly the commenter also notes their opposition to moving forward with the E2/E2A alternative alignment for this reason. As described in p. 3.7-184, the E2 and E2A Build Alternatives would require construction through the Tujunga Valley/Hansen Dam SEA as it traverses the Big Tujunga Wash south of the Lake View Terrance neighborhood of Los Angeles. The Tujunga Valley/Hansen Dam SEA is a valuable wildlife corridor. Although build alternatives SR14, SR14A, E1, and E1A would fill the southernmost perimeter of the Hansen Dam Spreading Grounds, this area represents a fraction of the total spreading ground area and would not impact connectivity between other portions of the SEA. E2 and E2A cross the Tujunga Wash north of Hansen Dam and the spreading grounds. The Authority also conducted extensive wildlife movement analysis for this project which is published in their Wildlife Corridor Assessment Report (available upon request through the Public Records Act portal), a technical report prepared by the Authority that identifies the Big Tujunga Wash as a designated TNC Priority Area and LA County SEA, Critical Habitats for Santa Ana River sucker and southwest willow flycatcher, with natural qualities for wildlife movement. Build Alternatives E2 and E2A include a 0.82-mile-long elevated viaduct that spans the Big Tujunga Wash and Hansen Dam area. The technical analysis identified the I-210 freeway as a barrier to wildlife. The implementation of several IAMF (BIO-IAMF#1, BIO-IAMF#2, BIO-IAMF#3, and BIO-IAMF#5 through BIO-IAMF#12) will reduce impacts on wildlife corridors (3.7-18 through 3.7-20) for all the build alternatives including E2 and E2A across the Tujunga Valley/Hansen Dam SEA as it traverses the Big Tujunga Wash via viaduct. The Authority's preferred alternative is

Response to Submission 4448 (Auxenia Privett-Mendoza, Arroyos & Foothills Conservancy, December 1, 2022) - Continued

4448-9888

SR14A which crosses the Tujunga Channel south of Hansen Dam via viaduct.

4448-9889

The commenter expresses concern that the mitigation measures proposed in the Draft EIR/EIS are not sufficient to avoid adverse effects of nighttime lighting on wildlife movement during construction and operation, and raised specific concern regarding the potential for permanent artificial light at night (ALAN) impacts that could significantly hinder the usefulness of critical wildlife corridors. The Authority has incorporated BIO-IAMF#12 into the project design to avoid and minimize impacts from operational lighting sources by several methods, including using appropriate shielding to reduce horizontal or skyward illumination and avoiding the use of high-intensity lights (e.g., sodium vapor, quartz, and halogen). Additionally, BIO-IAMF#12 specifies that no lighting be installed under viaduct and bridge structures in riparian habitat areas. BIO-MM#37 (Minimize Effects on Wildlife Movement Corridors During Construction) includes avoiding ground disturbing activities within wildlife movement corridors and when that is not feasible, shielding and directing the nighttime lighting towards the work area. BIO-MM#64 (Establish Wildlife Crossings) includes design considerations for establishing/continuing wildlife crossings across the Build Alternatives. Among many design considerations is the "avoidance of artificial light at approaches to wildlife crossings." BIO-MM#100 (Implement Lighting Minimization Measures for Operations) would minimize the intensity and duration of operational lighting of permanent facilities as well as intermittent train lighting in order to avoid potential effects associated with ALAN. Implementation of these measures would generally limit light to active work areas, and effectively manage spillover such that non-work areas would be close to background levels, and are therefore anticipated to be effective in minimizing effects to wildlife movement corridors associated with artificial light at night. As described in Chapter 8, Preferred Alternative, of this Final EIR/EIS, the Authority has identified the SR14A Build Alternative as the Preferred Alternative for the Palmdale to Burbank Project Section, which would avoid ALAN effects from the E2 and E2A Build Alternative alignment.

4448-9890

Refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter expresses concerns related to wildlife connectivity and crossing opportunities and urges the Authority to take into consideration implementation of wildlife crossings at locations beyond those where wildlife movement is impeded by the HSR project.

Wildlife crossings in locations where wildlife movement is not impeded by the Build Alternatives are not required as mitigation for the project. As explained in Impact BIO#13: Project Effects on Wildlife Movement Corridors in Section 3.7, Biological and Aquatic Resources, of the Draft EIR/EIS, the underground tunnel sections and elevated viaduct sections allow wildlife to cross the HSR alignment unimpeded. The remaining impermeable at-grade segments were reviewed for opportunities to add a crossing where wildlife movement would likely be least constrained by adjacent infrastructure. Table 6-6 in the WCA and Table 2-13 in the supplemental WCA list the at-grade segments in relationship to adjacent permeable segments by mile. Physical constraints of the HSR grade, height clearance, and position in the landscape narrowed the locations where a wildlife crossing could be located. The number and lengths of crossing opportunities over underground tunnels and underneath elevated viaducts allow for a diversity of crossing opportunities throughout the project alignment. BIO-MM#64 (Establish Wildlife Crossings) includes design considerations for establishing/continuing wildlife crossings across the HSR Build Alternatives. Among many design considerations is the "Avoidance of artificial light at approaches to wildlife crossings." BIO-MM#100 (Implement Lighting Minimization Measures for Operations) would minimize the intensity and duration of operational lighting of permanent facilities, as well as intermittent train lighting in order to avoid potential effects associated with artificial light at night. Implementation of these measures, among others, are anticipated to be effective in minimizing effects to wildlife movement corridors associated with artificial light at night. With respect to noise effects on wildlife, the Draft EIR/EIS screened for potential effects by applying a noise criterion for HSR pass-by events that considered potential for wildlife relocation, running, physiological effects such as changes in hormones or blood composition, and startle. The Draft EIR/EIS concluded that impacts from wildlife exposure to operational noise impacts would be less than significant under

Response to Submission 4448 (Auxenia Privett-Mendoza, Arroyos & Foothills Conservancy, December 1, 2022) - Continued

4448-9890

CEQA with the implementation of mitigation measures identified in Chapter 3.7.

4448-9891

The commenter expresses shielding the light from spilling onto wildlife corridors is insufficient to mitigate impacts on wildlife usage during construction. BIO-MM #37 (Minimize Effects on Wildlife Movement Corridors During Construction), described in Section 3.7.7 of the Draft EIR/EIS, describes how contractors would minimize nighttime construction and keep night lighting (e.g., for security) from spilling into potential wildlife movement areas. If night work is required, lighting will avoid illuminating natural lands through directional lighting and shielding. Lighting for construction will only be temporary in nature. BIO-MM#64 (Establish Wildlife Crossings) includes design considerations for establishing/continuing wildlife crossings across the Build Alternatives. Among many design considerations is the "Avoidance of artificial light at approaches to wildlife crossings". BIO-MM#100 (Implement Lighting Minimization Measures for Operations) would minimize the intensity and duration of operational lighting of permanent facilities as well as intermittent train lighting in order to avoid potential effects associated with ALAN.

4448-9892

The commenter suggests that a wildlife corridor analysis be completed if the Authority proceeds with the E2 and E2A Build Alternative alignment between the Angeles National Forest and the Verdugo Mountain (Big Tujunga Wash). The Authority's preferred alternative is the SR14A Build Alternative, which would avoid crossing Big Tujunga wash and the areas of concern noted in the comment. Notwithstanding this, the E2 and E2A Build Alternatives would span over the Big Tujunga Wash on a viaduct, allowing wildlife to traverse underneath the project alignment.

4448-9893

The commenter highlighted the importance of the CDFW adopted Eastern Rim of the Valley Conceptual Area Protection Plan (EROV CAPP) and the Arroyos &Foothills Conservancy's (AFC) regional area of interest (its Long-Term Conservation Area and their Critical Wildlife Passage Areas). The commenter is concerned that the E2 and E2A Build Alternatives cross the last remaining open space of land on the south side of Wentworth Street at the Shadow Hills CWPA, which would create a barrier for an important area passage for wildlife moving between the San Gabriel and Verdugo Mountains. The commenter also indicates that wildlife data for mammal species was not included in the Draft EIR/EIS for the Tujunga Valley/Hansen Dam SEA.

The Tujunga Valley/Hansen Dam Significant Ecological Area is identified as a wildlife corridor on page 3.7-90 (shown in Figure 3.7-36), and reiterates the importance of the SEAs and other conservation lands. The WCA identifies the Big Tujunga Wash as a designated TNC Priority Area and LA County SEA, Critical Habitats for Santa Ana River sucker and southwest willow flycatcher, with natural qualities for wildlife movement.

The E2 and E2A Build Alternatives include a 0.82-mile-long elevated viaduct that spans the Big Tujunga Wash and Hansen Dam area. This viaduct would be permeable to wildlife movement. Impacts to special-status mammal species are discussed in Impact Bio#6; Table 3.7-20 quantifies the acreage of special-status mammal habitat within the Build Alternative construction footprints, including within the Tujunga Valley/Hansen Dam SEA. Impacts to the Tujunga Valley/Hansen Dam SEA are discussed in Impact BIO#11, which indicates that construction of the E2 and E2A Build Alternatives has the potential to degrade the biotic viability of the Tujunga Valley/Hansen Dam SEA such that its functionality for species would be compromised. However, with implementation of BIO-MM#6, BIO-MM#47, BIO-MM#50, and BIO-MM#53, this impact would be minimized or avoided such that it would not result in a substantial adverse impact on SEAs.

As described in Chapter 8, Preferred Alternative, of the Draft EIR/EIS, the Authority has identified the SR14A Build Alternative as the Preferred Alternative for the Palmdale to Burbank Project Section, which would largely avoid effects to Tujunga Valley/Hansen Dam SEA.

The E2 and E2A Build Alternatives are the only Build Alternative alignments that cross

Response to Submission 4448 (Auxenia Privett-Mendoza, Arroyos & Foothills Conservancy, December 1, 2022) - Continued

4448-9893

the Verdugo Mountains and they are not the preferred alternative. Alternatives E2 and E2A traverse the approximate 1.77-mile distance across the Verdugo Mountains either underground in tunnel or elevated on viaduct, allowing wildlife to cross the HSR alignment. There is a 0.038 mile (200 foot) at-grade section that would be fenced and impermeable; however, it is assumed that a highly mobile mammal such as mountain lion would be able to traverse around this small segment.

4448-9894

The commenter provides a summary of prior comments about the effects of the E2 and E2A Build Alternatives on biological resources and wildlife connectivity in the Big Tujunga wash and surrounding areas.

Responses to the individual comments are provided separately in Response to Comments #9877 through #9893. Please refer to those Response to comments. The Authority's Preferred Alternative is the SR14A Build Alternative, which would avoid crossing Big Tujunga wash. The comment also provides the qualifications of the commenters and the references. The Authority notes the qualifications and references.

Submission 4451 (Jacqueline Ayer, Acton Town Council, December 1, 2022)

Palmdale - Burbank - RECORD #4451 DETAIL

Status :	Delimited
Record Date :	12/2/2022
Interest As :	Business and/or Organization
First Name :	Jacqueline
Last Name :	Ayer
Attachments :	Final Transportation Comments.pdf (8 mb) ATC_Comment_Letter_on_CHSRA_DEIRDEIS_Traffic_Section.pdf (171 kb)

Stakeholder Comments/Issues :

[*PLEASE CONFIRM RECEIPT*

To the California High Speed Rail Authority;
Attached please find comments submitted by the Acton Town Council pertaining to the "Transportation" impact analysis (Section 3.2) of the Draft Environmental Impact Report/Environmental Impact Statement issued by the California High Speed Rail Authority for the Palmdale-Burbank Section of the High Speed Rail Project.
Please contact the Acton Town Council at atc@actontowncouncil.org if you have difficulties opening the attached or require additional information.

Sincerely,
Jacqueline Ayer
Correspondence Secretary

ACTON TOWN COUNCIL
1887
P.O Box 810, Acton CA 93510

December 1, 2022

California High Speed Rail Authority
Southern California Regional Office
355 S. Grand Avenue, Suite 2050
Los Angeles, CA 90071
Electronic Transmission of 64 pages to
Palmdale_Burbank@hsr.ca.gov

Subject: Acton Town Council Comments on Section 3.2 of the Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement.

Reference: Notice of Notice of Availability/Notice of Public Hearing for the California High-Speed Rail – Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement Issued September 2, 2022.

To the California High Speed Rail Authority;

Attached please find comments submitted by the Acton Town Council on Section 3.2 of the Draft Environmental Impact Report/Environmental Impact Statement prepared for the Palmdale to Burbank Project Section of the California High Speed Rail Project. If you have any questions or require further information, please contact the Acton Town Council at atc@actontowncouncil.org.

Sincerely,

/S/ Jacqueline Ayer
Jacqueline Ayer, Correspondence Secretary
The Acton Town Council

cc: Rick Simon, Engineering Manager, Palmdale-Burbank Section [Rick.Simon@hsr.ca.gov]
Genoveva Arellano, Principal: Arellano & Associates [GArellano@arellanoassociates.com]

"Our lives begin to end the day we become silent about things that matter" Martin Luther King, Jr.

Submission 4451 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

ANALYSIS OF THE "TRANSPORTATION" SECTION PRESENTED IN THE PALMDALE-BURBANK DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT.

1.0 INTRODUCTION

4451-9055

The "Transportation" impact assessment presented in Chapter 3.2 of the Draft Environmental Impact Report/Environmental Impact Statement (hereafter referred to as "the Draft") that was prepared by the California High Speed Rail Authority ("CHSRA") for the Palmdale-Burbank Segment of the High Speed Rail Project ("Project") has been evaluated and numerous factual errors and material deficiencies have been identified. These errors and deficiencies are set forth in the comments presented below; they demonstrate that the Draft does not comply with the California Environmental Quality Act ("CEQA"). Please note: These comments were prepared by a competent engineer with more than 35 years of environmental engineering experience and they present expert opinion supported by facts pertaining to the significant environmental effects that will be caused by the Project and which must be mitigated. Accordingly, the comments provided herein constitute "substantial evidence" as that term is defined by the CEQA Statute [California Public Resources Code §21080(e)(1)] and Guidelines [California Code of Regulations Section 15064(f)(5)]. These comments also demonstrate that CHSRA/FRA have failed to conduct a substantive 'hard look' review of the Project's environmental impacts as required by NEPA.

2.0 MAJOR DEFICIENCIES NOTED IN THE DRAFT.

4451-9056

2.1 The Draft Fails to Properly Report Traffic Impacts at Unsignalized Intersections.

It is appreciated that the Draft assesses traffic impacts at unsignalized intersections in a manner that is consistent with Chapters 19 and 20 of the "Highway Capacity Manual 2010" by using the "vehicle delay" methodology to assess "Level of Service" ("LOS") impacts rather than the "Volume to Capacity" or "v/c" methodology. However, the Draft fails to report the vehicle delay results properly. Specifically, at unsignalized intersections, vehicle delay values are supposed to be reported for all approaches to the intersection. For example, consider the intersection of Antelope Woods Road and Crown Valley Road in Acton; this intersection has 4 approaches (one each from the north, south, east, and west), thus Table 3.2-23 should report a separate LOS value for each of these four approaches. However, Table 3.2-23 reports only one; thus, it provides an incomplete and actually incorrect "picture" of the LOS at this location. Ironically, this omission will work to CHSRA's detriment because (as discussed below), the actual LOS that currently exists at the intersection of Antelope Woods Road and Crown Valley Road is "F" for westbound traffic and "E" for eastbound traffic, which means that that CHSRA's trucks exiting the "Acton Window" construction site will experience significant delays while trying to turn left to access the freeway and will become heavily "backed up" during peak morning hours. This problem that CHSRA trucks will experience is completely masked and arguably suppressed by the Draft because Table 3.2-23 only reports one value for the LOS at this intersection rather than 4 values representing the northbound, southbound, eastbound, and westbound approaches.

4451-9056

The incomplete and incorrect LOS values reported for unsignalized intersections throughout the Project area render the results reported for both "existing" traffic conditions and "existing + Project" traffic conditions completely erroneous. This is of particular concern to the rural communities of Acton and Agua Dulce (where virtually all intersections are unsignalized) because it means that stakeholders have been provided incomplete and incorrect information regarding actual traffic impacts that will occur in our communities; this prevents us from providing meaningful comments on the Draft's traffic impact analysis.

To address this problem, the Draft must be revised to properly report LOS values at unsignalized intersections under both "existing" and "existing + project" conditions, and it should be recirculated for public comment and review to ensure that the robust public process guaranteed by CEQA and NEPA is achieved.

4451-9057

2.2 Traffic Impacts at the Intersection of Crown Valley Road and Antelope Woods Road will be much more Significant than What is Reported in the Draft.

It has been repeatedly pointed out in meetings with CHSRA engineers and staff that the intersection of Antelope Woods Road and Antelope Valley Road is the most sensitive traffic area in the Community of Acton and that the excessive truck traffic that will result at this intersection if the SR14A alternative is selected will be significantly adverse. This intersection already experiences significant traffic loads that pose safety risks to our residents because it is 1) adjacent to the High Desert Middle School where children from Acton and Agua Dulce congregate after school while they walk to the Park or the Library; 2) it is immediately adjacent to 14 Freeway intersection that are heavily used by freeway commuters in the morning and afternoon to access the freeway-serving fast food and service station businesses located at freeway intersections; ad 3) it is where traffic congestion is already significantly adverse, particularly in the morning during school drop-off events. Yet, the Draft indicated that there are no traffic problems at the intersection of Antelope Woods Road and Crown Valley; in fact, it assigns a current "Level of Service" ("LOS") condition of "B" to this intersection [Table 3.2-23]. It is not known where this result came from or whether the traffic study that resulted in these LOS values was conducted at a time that accurately represents typical traffic conditions in the area; however, it is suspected that any traffic analysis that was conducted at this intersection occurred during the COVID pandemic because that is when the SR14A route alternative was developed. Accordingly, it is certain that the existing traffic conditions at the intersection of Antelope Woods Road and Crown Valley under normal conditions are very congested and that the intersection does not operate at an LOS of "B". This is not conjecture; it is fact. A pre-pandemic traffic study conducted at this intersection in 2017 clearly shows that, during morning peak hours, the LOS at this intersection is "F"[1]. It is certain that current conditions are even worse now because the middle school has even more children than it did in 2017.

The Draft also fails to address the significant safety risks to school children and other pedestrians that will result from the increased construction traffic at this intersection if the SR14A route is selected. All of this renders the Draft deficient. The Draft must be revised to: 1) accurately report current traffic conditions at this intersection during Peak AM hours;

[1] See page 8 of the traffic study excerpt provided in Attachment 1; only an excerpt is provided because the traffic study itself is very lengthy; a complete copy of the traffic study can be provided upon request.

4451-9057

2) disclose the actual traffic impacts that will result when construction traffic caused by the SR14A alternative is added to the existing traffic situation at this intersection (especially during peak AM hours); and 3) disclose the child safety and pedestrian risks that already exist at this intersection and the extent to which these risks will be magnified by the construction traffic that will be added by the Project.

Most importantly, the Draft must recommend mitigation measures to reduce the safety risks and terrible traffic impacts that will result at the intersection of Antelope Woods Road and Crown Valley if the SR14A route is selected. The best mitigation measure would be to construct a temporary, dedicated onramp and offramp to the northbound lanes of the 14 freeway from the "Acton Window" construction location; this would deconflict the normal traffic on Crown Valley Road and mitigate safety issues associated with the proximity of potential construction traffic to the High Desert Middle School. A far less appropriate mitigation measure would be to delay all construction traffic during the morning and afternoon time intervals when school children are being picked up and dropped off.

4451-9058

2.3 The Draft Reports Incorrect Peak Hour Traffic Levels on all Roadway Segments that are Analyzed and Also Omits Critical Data.

According to Table 3.2-20, the "northbound" traffic volumes, v/c values, and LOS levels are identical to the "southbound" traffic volumes, v/c values, and LOS levels for every single roadway segment that is evaluated. This is a mathematical impossibility because (for instance) southbound traffic on Sierra Highway near Red Rover Mine Road during peak morning hours is much heavier than southbound traffic because Sierra Highway is a commuter corridor that connects the Antelope Valley to the Los Angeles basin; therefore, southbound lanes are much more heavily used in the morning than northbound lanes. Similar discrepancies are noted in Tables 3.2-21 and 3.2-22 (particularly for the segment of Sierra Highway west of Pearblossom) Another deficiency noted in Table 3.2-20 is that it only reports AM traffic conditions and traffic impact results for Sierra Highway west of Red Rover Mine Road in Acton; it omits PM traffic conditions and traffic impacts for Sierra Highway at this location entirely. This is a substantial deficiency; Northbound traffic on Sierra Highway west of Red Rover Mine Road is significant because Sierra Highway is a critical commuter corridor (as discussed above). Accordingly, the Draft must be revised to consider impacts on this roadway segment at all hours and not just during the morning. The fact is, it appears that none of the results presented in Tables 3.2-20, 3.2-21., and 3.2-23 are accurate or reliable; these are substantial deficiencies which prevent the public from providing meaningful comments on the Draft's traffic impact analysis. The entire traffic analysis section of the Draft should be revised and recirculated for public comment and review to ensure that the robust public process guaranteed by CEQA and NEPA is achieved.

4451-9059

2.4 The Traffic Mitigation Measures Offered by the Draft are Not Appropriate in Rural Communities of Los Angeles County and are in Fact Precluded by Adopted Planning Policies.

Page 3.2-116 of the Draft identifies various traffic mitigation measures, and it specifically identifies the installation of traffic signals under mitigation measure TR-MM#4. This is entirely unacceptable to the residents of Acton because traffic signals are not appropriate in our rural community. The County of Los Angeles has adopted numerous policies in the County General Plan and the Antelope Valley Area Plan that make it explicitly clear that traffic signals and other

4451-9059

urban infrastructure have no place in rural communities like Acton[2]. Thus, implementation of TR-MM#4 in the Community of Acton is contrary to every aspect of Acton's community profile and it utterly controverts many adopted plan policies and goals. It is understood that CHSRA's position is that it does not have to comply with local plans and policies [Page 3.2-12]; however, CEQA *does* compel CHSRA to ascertain whether the Project (or the Project's mitigation measure) is inconsistent with any general plan policies that were adopted for the purpose of avoiding or mitigating an environmental effect; if these inconsistencies result in significant environmental impacts, mitigation must be provided[3]. In other words, while the Project is not required to conform with local land use and zoning policies, CEQA nevertheless requires the Project to mitigate the significant environmental impacts that arise from non-conformance. There is no question that the installation of a traffic signal in Acton would be utterly inconsistent with environmental protection policies adopted by the County General Plan and AV Area Plan for the purpose of preserving Acton's rural profile by preventing the incursion of urban infrastructure; there is also no question that the installation of a traffic signal in Acton will result in unmitigable significant adverse impacts in the Community by advancing urbanization in a manner that is entirely contrary to our rural profile. Therefore, mitigation TR-MM#4 cannot be implemented in Acton and another solution must be found. For the SR14A route alternative in particular, it is recommended that CSHRA construct temporary onramps and offramps connecting to the 14 freeway directly from the "Acton Window" construction to avoid all construction traffic concerns in our community.

4451-9060

2.5 CHSRA May Not Be Required to Develop Mitigation Measures to Reduce LOS Transportation Impacts of Project Construction, but CHSRA is Required to Identify and Mitigate Transportation Safety Impacts.

The Draft points out several times that, because LOS is not an impact under CEQA, no mitigation measures are required to reduce LOS impacts. While LOS impacts may be "off the table", the traffic, pedestrian, bicycle, and equestrian safety concerns that arise from these LOS impacts are not "off the table", and CHSRA is mandated to address them. Yet, the Draft spends virtually no time discussing safety concerns; in fact, it does not even identify any particular safety concerns at any of the intersections and roadway segments that it analyzes! Worse yet, the Draft offers no mitigation measures for these (unidentified) safety concerns and instead offers vaguely described "Impact Avoidance and Minimization Features" ("IAMFs"). These IAMFs merely commit to the development of construction management plans; they incorporate no performance standards for mitigation and include no discussion on what level of mitigation will be achieved or whether the mitigation will fully address the significant safety impacts that the project will create. As discussed in more detail below, all of this violates CEQA's prohibition on deferring mitigation measures.

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[2] Among other things, the AV Area Plan establishes "rural" as an area where traffic signals and other urban infrastructure is absent. See excerpts from the Antelope Valley Area Plan provided in Attachment 2. Also, Page 74 of the County General Plan defines "Rural" as "a way of life characterized by living in a non-urban or agricultural environment at low densities without typical urban services" and it explicitly identifies urban infrastructure as "curbs, gutters and sidewalks; street lighting, landscaping and traffic signalization; public solid waste disposal, integrated water and sewerage system; mass transit; and commercial facilities dependent upon large consumer volumes".

[3] California Code of Regulation, Title 14, Chapter 3, Appendix G.

Submission 4451 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

3.0 ADDITIONAL DEFICIENCIES NOTED IN THE DRAFT.

For simplicity and to facilitate review, the deficiencies and factual errors noted in the Draft are presented sequentially by page number below,

4451-9061

Page 3.2-15 states in part *disposal of spoils at the Vulcan Mine site would require an agreement with the mine owner and coordination with the USFS.* This would imply that, unlike the other planned disposal sites (Boulevard Mine and CalMat Mine), an agreement is not currently in place to dispose of spoils at this location. This means that the Vulcan Mine site may not be where the spoils are disposed of and a different site will be used that will have different impacts. If the Vulcan Mine site is not where Project spoils will ultimately be deposited and another location is selected, CHSRA will be required to prepare a supplemental EIR/EIS and circulate it for public comment to ensure compliance with both CEQA and NEPA.

4451-9062

Page 3.2-31. Table 3.2-7 defines a segment of Agua Dulce Canyon Road between Burke Road and Briggs Edison Road; however, Burke Road does not intersect Agua Dulce Canyon Road. Therefore, it is unclear what the actual endpoints are for this segment and if it was consistently used throughout the analysis of all impacts presented in the Draft. The Draft must be revised to correct this error not only in the "Transportation" section but also in all other sections of the Draft that rely on this incorrect information.

4451-9063

Page 3.2-63 states "Refined SR14 and SR14A Build Alternative spoils hauling would degrade LOS to unacceptable levels at the roadway segments listed in Table 3.2-20 for up to 6.4 years, depending on location and Build Alternative." Based on the discrepancy noted above, it is not clear how this conclusion was reached; it is also not clear whether, after Table 3.2-20 is corrected, the impact will be more severe or less severe.

4451-9064

Page 3.2-64 states "The E1 and E1A Build Alternatives spoils hauling would degrade LOS and V/C ratios to unacceptable levels at the roadway segments listed in Table 3.2-21. Roadway segments in the spoils hauling RSA are displayed on Figure 3.2-4 though Figure 3.2-6. The E2 and E2A Build Alternatives spoils hauling would degrade LOS and V/C ratios to unacceptable levels at the roadway segments listed in Table 3.2-22." Based on the discrepancy noted above, it is not clear how this conclusion was reached; it is also not clear whether, after Table 3.2-21 is corrected, the impact will be more severe or less severe.

4451-9065

Page 3.2-71 states "Refined SR14 and SR14A Build Alternative spoils hauling would degrade LOS to unacceptable levels at the intersections listed in Table 3.2-23 for up to 6.4 years depending on location and Build Alternative". In particular, the Crown Valley intersection to the SR14 EB and WB ramps will be severely impacted due to the proximity to the window that will be used to support tunnel boring operations. In order to mitigate these impacts, TR-MM#12 requires development of a transportation Congestion Management Plan to address circulation and connections for modes of travel during the construction duration. This "mitigation measure" is completely unacceptable and it impermissibly defers consideration of appropriate mitigation measures in a manner that utterly violates CEQA. Section 15126.4(a)(1)(B) of the CEQA Guidelines makes it clear that "Formulation of mitigation measures shall not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts

4451-9065

specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will considered, analyzed, and potentially incorporated in the mitigation measure." Mitigation measure TR-MM#12 does not meet this standard[4]: it does not include performance standards and it does demonstrate that any of the measures it identifies can feasibly achieve anything. Therefore, CHSRA has absolutely no basis to conclude on page 3.2-71 that TR-MM#12 will be effective in reducing impacts associated with haul route traffic.

4451-9066

Page 3.2-80 indicates that a method for reducing traffic impacts will be to restrict construction/spoils hauling hours. While this seems a reasonable thing to do, it seems unlikely that such an approach will actually be implemented because it will interfere with the project schedule and interrupt the "work tempo" needed to achieve the project schedule. The Draft must be revised to explain how restricting construction hours were factored into the project timeline and completion schedule and thereby clearly demonstrate that this mitigation measure can be feasibly implemented.

4.0 CONCLUSION

4451-9067

Because so much of the data that is presented in the Traffic Analysis section of the Draft is unreliable and simply incorrect, and because so many of the measures proposed in the Draft are deficient and violate CEQA because they defer mitigation determinations, the public has been prevented from providing appropriately responsive comments on the Draft. Therefore, the Traffic Impact section should be completely revised and recirculated again for public comment.

[4] **Mitigation Measure** TR-#12 states "Prepare a Transportation Construction Management Plan—Prior to construction, the Authority will require the construction contractor to develop a plan to manage circulation and connections for modes of travel during the construction duration. Implementation of the transportation CMP will maintain the flow of traffic, bicyclists, pedestrians, and buses in and around the construction zones. Typical measures associated with a CMP include the following...."

Submission 4451 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4451-9068

ATTACHMENT 1

Traffic Study results conducted in 2017 for the intersection of Antelope Woods Road and Crown Valley Road.

7

4451-9068

TRAFFIC IMPACT STUDY

ACTON RETAIL CENTER PROJECT
ACTON, CA

County of Los Angeles

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Tustin, CA 92780-1943
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www.hfinc.com

Prepared by:

Hall & Foreman

A Division of David Evans and Associates, Inc.

August 4, 2015

SORT AR000237

Submission 4451 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4451-9068

Hall & Foreman
A Division of David Evans and Associates, Inc.

August 4, 2015 Job No. VV.150135.0000

Robert H. Friedman, AIA
Friedman Architects & Contractors
2059 E. Foothill Blvd
Pasadena, CA 91107

RE: TRAFFIC IMPACT STUDY –ACTON RETAIL CENTER PROJECT - ACTON, CALIFORNIA, LOS ANGELES COUNTY

Dear Mr. Friedman;

Hall & Foreman, a Division of David Evans and Associates, Inc. is pleased to submit this Traffic Impact Study (TIS) for the proposed Acton Retail Center Project located in the unincorporated community of Acton, California, Los Angeles County. The project is comprised of a 6,000 square-foot retail building with a 1,600 square foot storage facility and a 3,300 square-foot restaurant, on an approximate 85,250 square foot parcel. The proposed project is located near the intersection of Sierra Highway and Crown Valley Road in the unincorporated community of Acton, California, Los Angeles County.

The report examines the traffic impacts specifically for the project and presents recommended traffic improvements. The report also addresses the impacts of overall growth within the area to assure that cumulative traffic mitigations can be addressed.

We are pleased to have been of assistance to you in processing and obtaining approval for the project. If you have any questions or comments, please feel free to contact me at 760-524-9115.

Respectfully submitted,

Hall & Foreman, a Division of David Evans and Associates, Inc.

Robert A. Kilpatrick, P.E., T.E.
Senior Associate

SORT AR000238

4451-9068

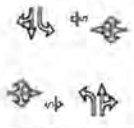
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A Division of David Evans and Associates, Inc.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	10-Mar-15	VV.150135.0000	1 OF 2

E/W STREET : ANTELOPE WOODS ROAD
N/S STREET : CROWN VALLEY ROAD
CONDITION : AM PEAK HOUR

INTERSECTION : 5

CONDITION DIAGRAMS



EXISTING GEOMETRICS **PROPOSED GEOMETRICS**

TURN MOVEMENTS

CONDITION	EXISTING TRAFFIC	TRUCK PERCENTAGE	PROJECT TRIPS	EXISTING PLUS PROJECT TRAFFIC	RELATED PROJECT TRIPS	EXISTING PLUS PROJECT PLUS RELATED PROJECT TRAFFIC
SCENARIO #	1			3		5
ANTELOPE WOODS ROAD						
EB LEFT	5	0%	0	5	0	5
EB THRU	5	0%	0	5	0	5
EB RIGHT	5	0%	0	5	0	5
WB LEFT	55	0%	0	55	0	55
WB THRU	5	0%	0	5	0	5
WB RIGHT	130	0%	0	130	0	130
CROWN VALLEY ROAD						
NB LEFT	5	0%	0	5	0	5
NB THRU	120	15%	20	140	5	145
NB RIGHT	75	0%	0	75	0	75
SB LEFT	210	0%	0	210	0	210
SB THRU	140	15%	20	160	5	165
SB RIGHT	5	0%	0	5	0	5
TOTALS	**760**	**0.3**	**40**	**800**	**10**	**810**

Tustin Office: 714.665.4500 Tel/ 714.665.4501 Fax
Santa Clarita Office: 661.284.7400 Tel/ 661.284.7401 Fax
Victorville Office: 760.524.9100 Tel/ 760.524.9101 Fax
Temecula Office: 951.294.9300 Tel/ 951.294.9301 Fax

SORT AR000386

Submission 4451 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4451-9068

4451-9068

Hall & Foreman

A Division of David Evans and Associates, Inc.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TM	10-Mar-15	VV.150135.0000	2	2

E/W STREET : ANTELOPE WOODS ROAD N/S STREET : CROWN VALLEY ROAD
CONDITION : AM PEAK HOUR PHF : 0.57

NORTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

SOUTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

EAST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

WEST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
1	22	40	19	41	0	30	0	6	0	0	0
0	32	124	42	22	0	67	3	32	0	0	0
0	43	32	9	23	0	31	1	17	0	0	0
0	43	14	3	33	0	3	0	2	0	0	0

	TRUCK TOTAL	AUTO VOLUMES	TOTALS	ROUNDED TOTALS	TRUCK PERCENTAGE
ANTELOPE WOODS ROAD					
EB LEFT	0	0	**0**	**5**	0%
EB THRU	0	0	**0**	**5**	0%
EB RIGHT	0	0	**0**	**5**	0%
WB LEFT	0	57	**57**	**55**	0%
WB THRU	0	4	**4**	**5**	0%
WB RIGHT	0	131	**131**	**130**	0%
CROWN VALLEY ROAD					
NB LEFT	0	0	**0**	**5**	0%
NB THRU	19	100	**119**	**120**	15%
NB RIGHT	0	73	**73**	**75**	0%
SB LEFT	0	210	**210**	**210**	0%
SB THRU	18	122	**140**	**140**	15%
SB RIGHT	0	1	**1**	**5**	0%

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Victorville Office: 760.524.9100 Tel/ 760.524.9101 Fax
Temecula Office: 951.294.9300 Tel/ 951.294.9301 Fax

SORT AR000387

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Acton
N/S: Crown Valley Road
E/W: Antelope Woods Road
Weather: Clear

File Name : ATNCVAWAM
Site Code : 20114476
Start Date : 11/18/2014
Page No : 1

Groups Printed- Total Volume

	Crown Valley Road Southbound				Antelope Woods Road Westbound				Crown Valley Road Northbound				Antelope Woods Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	18	21	0	39	1	0	6	7	0	30	4	34	0	0	0	0	80
07:15 AM	40	22	1	63	6	0	30	36	0	41	19	60	0	0	0	0	159
07:30 AM	124	32	0	156	32	3	67	102	0	22	42	64	0	0	0	0	322
07:45 AM	32	43	0	75	17	1	31	49	0	23	9	32	0	0	0	0	156
Total	214	118	1	333	56	4	134	194	0	116	74	190	0	0	0	0	717
08:00 AM	14	43	0	57	2	0	3	5	0	33	3	36	0	0	0	0	98
08:15 AM	20	34	0	54	4	0	7	11	0	51	5	56	0	0	0	0	121
08:30 AM	9	29	0	38	3	0	7	10	0	50	8	58	0	0	0	0	106
08:45 AM	14	20	0	34	2	0	9	11	0	36	2	38	0	0	0	0	83
Total	57	126	0	183	11	0	26	37	0	170	18	188	0	0	0	0	408
Grand Total	271	244	1	516	67	4	160	231	0	286	92	378	0	0	0	0	1125
Apprch %	52.5	47.3	0.2		29	1.7	69.3		0	75.7	24.3		0	0	0		
Total %	24.1	21.7	0.1	45.9	6	0.4	14.2	20.5	0	25.4	8.2	33.6	0	0	0	0	

	Crown Valley Road Southbound				Antelope Woods Road Westbound				Crown Valley Road Northbound				Antelope Woods Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	40	22	1	63	6	0	30	36	0	41	19	60	0	0	0	0	159
07:30 AM	124	32	0	156	32	3	67	102	0	22	42	64	0	0	0	0	322
07:45 AM	32	43	0	75	17	1	31	49	0	23	9	32	0	0	0	0	156
08:00 AM	14	43	0	57	2	0	3	5	0	33	3	36	0	0	0	0	98
Total Volume	210	140	1	351	57	4	131	192	0	119	73	192	0	0	0	0	735
% App. Total	59.8	39.9	0.3		29.7	2.1	68.2		0	62	38		0	0	0		
PHF	.423	.814	.250	.563	.445	.333	.489	.471	.000	.726	.435	.750	.000	.000	.000	.000	.571

B-13
SORT AR000388

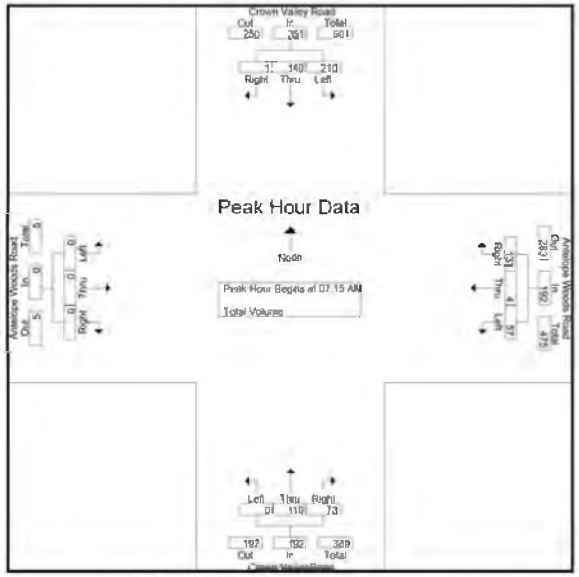
Submission 4451 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4451-9068

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Acton
N/S: Crown Valley Road
E/W: Antelope Woods Road
Weather: Clear

File Name : ATNCVAWAM
Site Code : 20114476
Start Date : 11/18/2014
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:00 AM				07:15 AM				07:00 AM			
+0 mins.	40	22	1	63	1	0	6	7	0	41	19	60	0	0	0	0
+15 mins.	124	32	0	156	6	0	30	36	0	22	42	64	0	0	0	0
+30 mins.	32	43	0	75	32	3	67	102	0	23	9	32	0	0	0	0
+45 mins.	14	43	0	57	17	1	31	49	0	33	3	36	0	0	0	0
Total Volume	210	140	1	351	56	4	134	194	0	119	73	192	0	0	0	0
% App. Total	59.8	39.9	0.3		28.9	2.1	69.1		0	62	38		0	0	0	
PHF	.423	.814	.250	.563	.438	.333	.500	.475	.000	.726	.435	.750	.000	.000	.000	.000

B-14
SORT AR000389

4451-9068

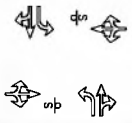
Hall & Foreman
A Division of David Evans and Associates, Inc.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
INTERSECTION CAPACITY ANALYSIS	TM	10-Mar-15	VV.150135.0000	1	OF 3

E/W STREET : ANTELOPE WOODS ROAD
N/S STREET : CROWN VALLEY ROAD
CONDITION : EXISTING CONDITION, AM PEAK HOUR

INTERSECTION : 5

CONDITION DIAGRAMS



EXISTING GEOMETRICS

TURN MOVEMENTS

MOVEMENT	VOLUME	NUMBER OF LANES	CAPACITY	V/C RATIO	CRITIVAL V/C	TOTAL
EB LEFT	5	0	0	0	X	
EB THRU	5	1	1600	0.01		
EB RIGHT	5	0	0	0		
WB LEFT	55	0	0	0		
WB THRU	5	1	1600	0.12	X	
WB RIGHT	130	0	0	0		
NB LEFT	5	1	1600	0.00		
NB THRU	120	1	1600	0.12	X	
NB RIGHT	75	0	0	0		
SB LEFT	210	1	1600	0.13	X	
SB THRU	140	1	1600	0.09		
SB RIGHT	5	0	0	0		

SUM OF CRITICAL V/C RATIOS	0.372
ADJUSTMENT FOR LOST TIME	0.100
INTERSECTION CAPACITY UTILIZATION (ICU)	0.472
LEVEL OF SERVICE (LOS)	A

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Submission 4451 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4451-9068

4451-9068

HCM 2010 TWSC
5: CROWN VALLEY RD & ANTELOPE WOODS RD 3/10/2015

Intersection	
Int Delay, s/veh	56.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	5	5	55	5	130	5	120	75	210	140	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	57	57	57	57	57	57	57	57	57	57	100
Heavy Vehicles, %	0	0	0	0	0	0	0	15	0	0	15	0
Mvmt Flow	9	9	9	96	9	228	9	211	132	368	246	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1397	1345	248	1288	1281	276	251	0	0	342	0	0
Stage 1	985	985	-	294	294	-	-	-	-	-	-	-
Stage 2	412	360	-	994	987	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	120	153	796	142	167	768	1326	-	-	1228	-	-
Stage 1	301	329	-	719	673	-	-	-	-	-	-	-
Stage 2	621	630	-	298	328	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	61	106	796	101	116	768	1326	-	-	1228	-	-
Mov Cap-2 Maneuver	61	106	-	101	116	-	-	-	-	-	-	-
Stage 1	299	230	-	714	668	-	-	-	-	-	-	-
Stage 2	428	626	-	199	230	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	47.2	211.5	0.2	5.5
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1326	-	-	111	251	1228	-	-
HCM Lane V/C Ratio	0.007	-	-	0.237	1.328	0.3	-	-
HCM Control Delay (s)	7.7	-	-	47.2	211.5	9.2	-	-
HCM Lane LOS	A	-	-	E	F	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.9	17.5	1.3	-	-

Acton Retail Shopping Center 3/10/2015 Existing Condition, AM
Hall & Foreman, Inc., TM

Synchro 8 Report
Page 1

SORT AR000391

Hall & Foreman
A Division of David Evans and Associates, Inc.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN MOVEMENTS	TM	10-Mar-15	VV.150135.0000	1	OF 2

E/W STREET : ANTELOPE WOODS ROAD
N/S STREET : CROWN VALLEY ROAD
CONDITION : PM PEAK HOUR

INTERSECTION : 5

TURN MOVEMENTS

CONDITION	EXISTING TRAFFIC	TRUCK PERCENTAGE	PROJECT TRIPS	EXISTING PLUS PROJECT TRAFFIC	RELATED PROJECT TRIPS	EXISTING PLUS PROJECT PLUS RELATED PROJECT TRAFFIC
SCENARIO #:	2			4		6
ANTELOPE WOODS ROAD						
EB LEFT	5	0%	0	5	0	5
EB THRU	5	0%	0	5	0	5
EB RIGHT	5	0%	0	5	0	5
WB LEFT	10	0%	0	10	0	10
WB THRU	5	0%	0	5	0	5
WB RIGHT	40	0%	0	40	0	40
CROWN VALLEY ROAD						
NB LEFT	5	0%	0	5	0	5
NB THRU	190	10%	20	210	5	215
NB RIGHT	20	0%	0	20	0	20
SB LEFT	75	0%	0	75	0	75
SB THRU	185	5%	15	200	5	205
SB RIGHT	10	0%	0	10	0	10
TOTALS	**555**	**0.15**	**35**	**590**	**10**	**600**

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Santa Clarita Office: 661.284.7400 Tel/ 661.284.7401 Fax
Victorville Office: 760.524.9100 Tel/ 760.524.9101 Fax
Temecula Office: 951.294.9300 Tel/ 951.294.9301 Fax

SORT AR000396

Submission 4451 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4451-9068

Hall & Foreman
A Division of David Evans and Associates, Inc.

4451-9068

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TM	10-Mar-15	VV.150135.0000	2	OF 2

E/W STREET : ANTELOPE WOODS ROAD
CONDITION : PM PEAK HOUR
N/S STREET : CROWN VALLEY ROAD
PHF : 0.84

NORTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

SOUTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

EAST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

WEST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	48	30	6	56	0	16	0	2	0	0	0
0	42	18	1	37	0	10	0	4	0	0	0
1	40	13	7	49	0	6	0	2	0	0	1
9	56	16	4	49	0	7	0	1	0	0	1

	TRUCK TOTAL	AUTO VOLUMES	TOTALS	ROUNDED TOTALS	TRUCK PERCENTAGE
ANTELOPE WOODS ROAD					
EB LEFT	0	2	2	5	0%
EB THRU	0	0	0	5	0%
EB RIGHT	0	0	0	5	0%
WB LEFT	0	9	9	10	0%
WB THRU	0	0	0	5	0%
WB RIGHT	0	39	39	40	0%
CROWN VALLEY ROAD					
NB LEFT	0	0	0	5	0%
NB THRU	18	173	191	190	10%
NB RIGHT	0	18	18	20	0%
SB LEFT	0	77	77	75	0%
SB THRU	5	181	186	185	5%
SB RIGHT	0	10	10	10	0%

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City of Acton
N/S: Crown Valley Road
E/W: Antelope Woods Road
Weather: Clear

File Name : ATNCVAWPM
Site Code : 20114476
Start Date : 11/18/2014
Page No : 1

Groups Printed- Total Volume

	Crown Valley Road Southbound				Antelope Woods Road Westbound				Crown Valley Road Northbound				Antelope Woods Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	30	48	0	78	2	0	16	18	0	56	6	62	0	0	0	0	158
04:15 PM	18	42	0	60	4	0	10	14	0	37	1	38	0	0	0	0	112
04:30 PM	13	40	1	54	2	0	6	8	0	49	7	56	1	0	0	1	119
04:45 PM	16	56	9	81	1	0	7	8	0	49	4	53	1	0	0	1	143
Total	77	186	10	273	9	0	39	48	0	191	18	209	2	0	0	2	532
05:00 PM	18	48	1	67	6	0	12	18	0	30	8	38	1	0	0	1	124
05:15 PM	16	61	0	77	1	0	11	12	0	46	3	49	0	0	0	0	138
05:30 PM	24	46	0	70	3	0	7	10	0	41	1	42	0	0	0	0	122
05:45 PM	20	37	0	57	2	0	11	13	0	33	1	34	0	0	0	0	104
Total	78	192	1	271	12	0	41	53	0	150	13	163	1	0	0	1	488
Grand Total	155	378	11	544	21	0	80	101	0	341	31	372	3	0	0	3	1020
Apprch %	28.5	69.5	2		20.8	0	79.2		0	91.7	8.3		100	0	0		
Total %	15.2	37.1	1.1	53.3	2.1	0	7.8	9.9	0	33.4	3	36.5	0.3	0	0	0.3	

	Crown Valley Road Southbound				Antelope Woods Road Westbound				Crown Valley Road Northbound				Antelope Woods Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	30	48	0	78	2	0	16	18	0	56	6	62	0	0	0	0	158
04:15 PM	18	42	0	60	4	0	10	14	0	37	1	38	0	0	0	0	112
04:30 PM	13	40	1	54	2	0	6	8	0	49	7	56	1	0	0	1	119
04:45 PM	16	56	9	81	1	0	7	8	0	49	4	53	1	0	0	1	143
Total Volume	77	186	10	273	9	0	39	48	0	191	18	209	2	0	0	2	532
% App. Total	28.2	68.1	3.7		18.8	0	81.2		0	91.4	8.6		100	0	0		
PHF	.642	.830	.278	.843	.563	.000	.609	.667	.000	.853	.643	.843	.500	.000	.000	.500	.842

B-15
SORT AR000398

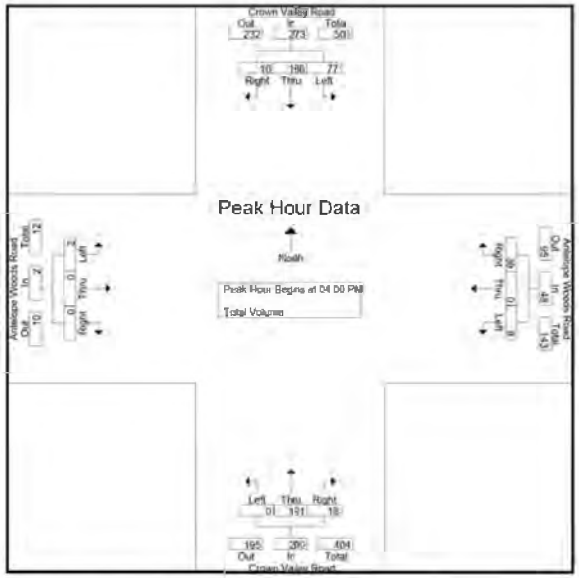
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City of Acton
N/S: Crown Valley Road
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Weather: Clear

File Name : ATNCVAWPM
Site Code : 20114478
Start Date : 11/18/2014
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				05:00 PM				04:00 PM				04:15 PM			
+0 mins.	16	56	9	81	6	0	12	18	0	56	6	62	0	0	0	0
+15 mins.	18	48	1	67	1	0	11	12	0	37	1	38	1	0	0	1
+30 mins.	16	61	0	77	3	0	7	10	0	49	7	56	1	0	0	1
+45 mins.	24	46	0	70	2	0	11	13	0	49	4	53	1	0	0	1
Total Volume	74	211	10	295	12	0	41	53	0	191	18	209	3	0	0	3
% App. Total	25.1	71.5	3.4		22.6	0	77.4		0	91.4	8.6		100	0	0	
PHF	.771	.865	.278	.910	.500	.000	.854	.736	.000	.853	.643	.843	.750	.000	.000	.750

4451-9068

Hall & Foreman
A Division of David Evans and Associates, Inc.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
INTERSECTION CAPACITY ANALYSIS	TM	10-Mar-15	VV.150135.0000	1 OF 3

E/W STREET : ANTELOPE WOODS ROAD
N/S STREET : CROWN VALLEY ROAD
CONDITION : EXISTING CONDITION, PM PEAK HOUR

INTERSECTION : 5

CONDITION DIAGRAMS



EXISTING GEOMETRICS

TURN MOVEMENTS

MOVEMENT	VOLUME	NUMBER OF LANES	CAPACITY	V/C RATIO	CRITIVAL V/C	TOTAL
EB LEFT	5	0	0	0	X	
EB THRU	5	1	1600	0.01		
EB RIGHT	5	0	0	0		
WB LEFT	10	0	0	0		
WB THRU	5	1	1600	0.03	X	
WB RIGHT	40	0	0	0		
NB LEFT	5	1	1600	0.00		
NB THRU	190	1	1600	0.13	X	
NB RIGHT	20	0	0	0		
SB LEFT	75	1	1600	0.05	X	
SB THRU	185	1	1600	0.12		
SB RIGHT	10	0	0	0		

SUM OF CRITICAL V/C RATIOS	0.213
ADJUSTMENT FOR LOST TIME	0.100
INTERSECTION CAPACITY UTILIZATION (ICU)	0.313
LEVEL OF SERVICE (LOS)	A

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HCM 2010 TWSC
5: CROWN VALLEY RD & ANTELOPE WOODS RD 3/10/2015

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	5	5	10	5	40	5	190	20	75	165	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	0	0	0	10	0	0	5	0
Mvmt Flow	6	6	6	12	6	48	6	226	24	89	220	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	682	667	226	661	661	238	232	0	0	250	0	0
Stage 1	405	405	-	250	250	-	-	-	-	-	-	-
Stage 2	277	262	-	411	411	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	367	382	818	379	385	806	1348	-	-	1327	-	-
Stage 1	626	602	-	759	704	-	-	-	-	-	-	-
Stage 2	734	695	-	622	598	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	322	355	818	351	358	806	1348	-	-	1327	-	-
Mov Cap-2 Maneuver	322	355	-	351	358	-	-	-	-	-	-	-
Stage 1	623	562	-	756	701	-	-	-	-	-	-	-
Stage 2	682	692	-	570	558	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14	11.8	0.2	2.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1348	-	-	420	597	1327	-	-
HCM Lane V/C Ratio	0.004	-	-	0.043	0.11	0.067	-	-
HCM Control Delay (s)	7.7	-	-	14	11.8	7.9	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.2	-	-

Acton Retail Shopping Center 3/10/2015 Existing Condition, PM
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Synchro 8 Report
Page 1

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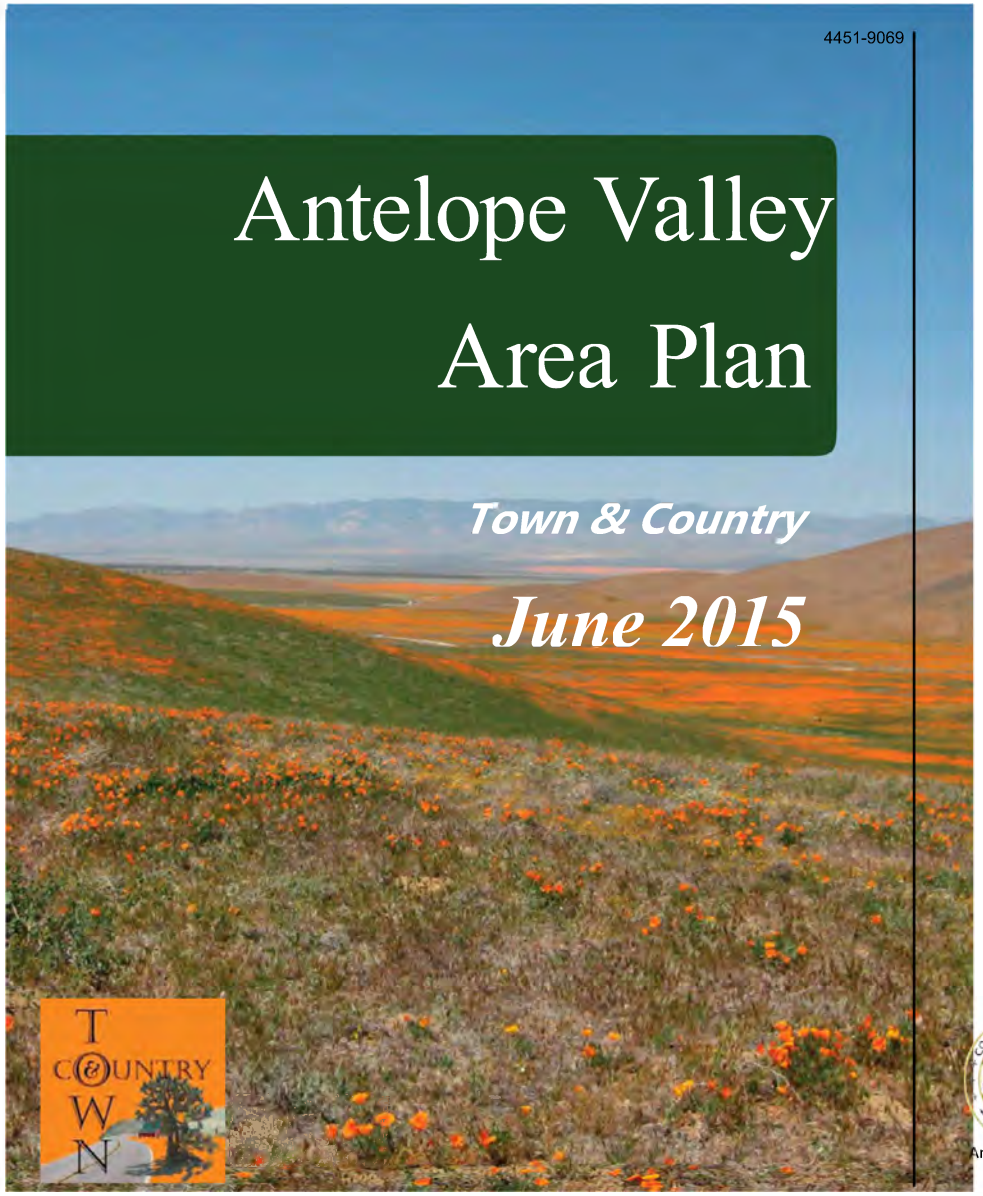
ATTACHMENT 2

Excerpts from Antelope Valley Area Plan.

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Submission 4451 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

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Antelope Valley Area Plan

Town & Country

June 2015

"To enrich lives through effective

"To improve the quality of life through innovative and resourceful physical and environmental planning, balancing

Submission 4451 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

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ACKNOWLEDGEMENTS

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Don Knabe
Fourth District

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Fifth District

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Third District (immediate-past)

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Special Thanks

Department of Public Works
Fire Department
Department of Parks and Recreation
Department of Public Health

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Antelope Valley Area Plan

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I. PURPOSE AND VALUES

Purpose

The purpose of the Antelope Valley Area Plan (Area Plan) is to achieve the communities' shared vision of the future through the development of specific goals, policies, land use and zoning maps, and other planning instruments. This shared vision is articulated in the Town and Country Vision Statement, which was developed by the Antelope Valley communities in various workshops in 2008. It goes:

> The Antelope Valley region is a wonderful place to live, work, play, and raise a family. The Valley is a mosaic of unique small towns in which rural lifestyles are cherished. These diverse towns are unified by an extraordinary environmental setting that includes agricultural lands, natural open spaces, expansive mountain views, diverse ecological habitats, and dark night skies. The Valley's network of trails, roads, and transit link these dispersed towns to each other and to a wide offering of local-serving businesses and quality social, educational, cultural, and recreational services and facilities.
>
> Residents, business owners, and property owners collaborate with a responsive local government to ensure that life in the Antelope Valley region will continue to be exciting, enjoyable, and rewarding. The growing population's need for additional housing and employment opportunities is balanced against the need to respect historical heritage and preserve the natural environment. Public improvements and private developments are sustainable, conserving available resources and relying on alternative energy sources, and complement the small scale of existing rural towns. A wide array of activities and opportunities for youth ensure that the Valley's high quality of life will be sustained for future generations.

The Area Plan is a blueprint for future development and conservation in the Antelope Valley that informs decision-making at all levels to help ensure that individual activities are consistent with, and supportive of, the communities' vision. It is a tool for residents, elected officials, planners, service providers, and developers. Each group will use the Area Plan in different ways, but all are guided by its vision, goals, and policies. Residents will use the Area Plan as a benchmark in attaining their aspirations for the development and preservation of their communities. Elected officials and planners will refer to the Area Plan when allocating resources to address residents' most important issues and priorities. Service providers will use the Area Plan as a guide for deciding which infrastructure and improvement projects should be undertaken and which programs should be established or improved. Developers will look to the Area Plan's goals and policies in deciding what to build, including location, character, and appearance.

As a component of the Los Angeles County General Plan, the Antelope Valley Area Plan refines the countywide goals and policies in the General Plan by addressing specific issues relevant to the Antelope Valley, such as community maintenance and appearance, and provides more specific guidance on

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elements already found in the General Plan. The General Plan provides guidance on all issues not covered in the Area Plan.

The Area Plan also helps further the countywide objective of reducing greenhouse gases in order to meet the goals of the California Global Warming Solutions Act of 2006 (Assembly Bill 32) and California's Sustainable Communities and Climate Protection Act (Senate Bill 375), which aim to achieve reductions of greenhouse gases. Los Angeles County has undertaken countywide measures to address these mandates, including adoption of the Green Building, Drought Tolerant Landscaping, and Low Impact Development Ordinances in 2008. The Area Plan strengthens these efforts by including goals and policies to support local development practices and initiatives to reduce greenhouse gas emissions. Implementation of the Land Use, Mobility, and Conservation and Open Space Elements contained in this Area Plan cumulatively affect the future reduction of greenhouse gases both locally and regionally.

Values

All aspects of the Area Plan are informed by a set of core values that ground and guide the Area Plan. In order to best serve the common interests represented in this Area Plan, planning values outline the shared responsibilities of the many partners who will work together to transform goals and policies into a realized vision. The core values of the Antelope Valley Area Plan are:

1. **Collaboration**: The issues and actions identified in the Area Plan are multi-dimensional and complex. As such, it takes a collaborative effort to accomplish the Area Plan's goals. Working in partnership with individuals from public agencies, private organizations and throughout the community, participants in planning and implementation of the Area Plan can come together to achieve the community's vision.

2. **Participation:** The dedicated commitment and ongoing participation of community members, service providers and elected officials will ensure that the Area Plan's implementation over time remains in line with the communities' vision. Community participation also demonstrates to elected leaders and service providers that constituents support the implementation of the Area Plan and expect results.

3. **Accountability**: By adopting this Area Plan, elected leaders have expressed their commitment to achieving the communities' vision by adhering to the Area Plan's goals and policies and by using the implementation actions to guide their work. Land use decisions will be made to benefit the needs of the community as a whole and not individual interests. Accountability means that all stakeholders take responsibility for their respective components of the Area Plan.

4. **Stewardship**: In order for the Area Plan to be effective in achieving the community's goals, people who live, learn, work, and play in the Antelope Valley will have to take an active role in ensuring the Area Plan's timely and thorough implementation. Community members and service providers can and should provide feedback on the insights into the Area Plan's effectiveness.

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5. **Balance**: As the diverse and sometimes conflicting needs of current and future stakeholders evolve, the tools within the Area Plan create a framework which allows for balanced decisions to be made. For residents of the Antelope Valley, achieving a balance will unfold gradually. This shall be achieved by encouraging growth and development in appropriate areas of the Antelope Valley and ensuring that these enhance the quality of life of the communities without compromising their rural character.

II. BACKGROUND

Setting

The Antelope Valley planning area is bounded by the Kern County border to the north, the Ventura County border to the west, the Angeles National Forest (inclusive) to the south, and the San Bernardino County border to the east. It excludes the Cities of Lancaster and Palmdale. This area covers approximately 1,800 square miles and includes over two dozen communities.

For a map of the Antelope Valley and the immediate vicinity, please see Map 1.1: Planning Area Boundary.

History

The historic development of the Antelope Valley started in 1876 with the completion of the Southern Pacific Railroad line from San Francisco to Los Angeles via the Antelope Valley. Many communities began to develop, including Lancaster, Palmdale, Rio del Llano and Littlerock, all dependent upon stock raising, dry farming and fruit orchards.

The World War II years brought the development of Edwards Air Force Base and a doubling of the Antelope Valley population. Military defense work expanded in the 1950s, and Palmdale Airport emerged as a national center for jet testing. The latter part of the decade saw the start of an economic downturn throughout the country that slowed military investments in Antelope Valley projects.

The final decades of the 20th century saw the Antelope Valley emerge with major new housing opportunities as vast acreages were subdivided for affordable tract homes. Lancaster and Palmdale incorporated as independent cities, and rural communities continued to grow. Farming regained its status as a productive employer, but the area continued to develop without balancing the growth in housing with a corresponding growth in jobs and investment in infrastructure. Today, many who live in the Antelope Valley commute to jobs in other parts of the Los Angeles Basin. New local commercial centers are expanding the shopping, entertainment and employment opportunities of Antelope Valley residents. For additional information on the setting and history of the Antelope Valley, please see Background Report.

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Past and Current Planning Efforts

The previous Antelope Valley Areawide General Plan was adopted by the Los Angeles County Board of Supervisors on December 4, 1986. It contained Valleywide goals and policies pertaining to land use, housing, community revitalization, community design, human resources, circulation, public services and facilities, governmental services, environmental resource management, noise abatement, seismic safety, public safety, and energy conservation. This Area Plan replaces the previous Antelope Valley Areawide General Plan in its entirety.

This Area Plan covers issues that were important in 1986 and are still important to the communities; for example, managing growth, minimizing disruption of ecological resources, placing development away from natural hazards, and ensuring a variety of housing types and costs. This Area Plan also addresses new issues that have emerged in recent years; for example, maintaining agricultural uses, improving mobility, developing renewable energy resources, and curbing greenhouse gas emissions.

Community Participation

The Area Plan is the result of a highly inclusive and extensive community participation program launched in the fall of 2007. Through a series of 23 community meetings, residents and other stakeholders worked alongside planners to develop a shared vision of the future, identify community issues, draft proposals for the future, and prioritize their recommendations, forming the foundation of the Area Plan.

Building on the foundation laid by the communities, planners partnered with other County departments to explore the recommendations, refine the proposed goals and policies, plan for program implementation, and gather support to ensure success. Plan development is an iterative process, and in this case, the communities were included in the earliest steps of development and subsequent rounds of review. The Area Plan began with, and will be realized by, the dedicated residents and stakeholders who have committed, and will continue to commit their time, energy and interests to the Antelope Valley.

III. VISION AND STRATEGY

Vision Statement

At the heart of the County's approach to community planning is the idea that the Area Plan is an adopted version of the communities' aspirations for the future. Collectively, those aspirations amount to a community vision, based on shared values and common goals. The communities reached consensus on the following vision statement:

> The Antelope Valley region is a wonderful place to live, work, play, and raise a family. The Valley is a mosaic of unique small towns in which rural lifestyles are cherished. These diverse towns are unified by an extraordinary environmental setting that includes agricultural lands, natural open spaces, expansive mountain views, diverse ecological

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habitats, and dark night skies. The Valley's network of trails, roads, and transit link these dispersed towns to each other and to a wide offering of local-serving businesses and quality social, educational, cultural, and recreational services and facilities.

Residents, business owners, and property owners collaborate with a responsive local government to ensure that life in the Antelope Valley region will continue to be exciting, enjoyable, and rewarding. The growing population's need for additional housing and employment opportunities is balanced against the need to respect historical heritage and preserve the natural environment. Public improvements and private developments are sustainable, conserving available resources and relying on alternative energy sources, and complement the small scale of existing rural towns. A wide array of activities and opportunities for youth ensure that the Valley's high quality of life will be sustained for future generations.

This vision of the Antelope Valley's future serves as a touchstone through the planning process, and it is reflected in the land use map, goals, and policies that comprise the Area Plan.

Issues

Through the planning and visioning process, the County identified issues of Valleywide significance that, it determined, were best addressed in a comprehensive and coordinated manner. In anticipation of future growth, the planning effort focused on ways to manage this growth and addressed the need for balance on the following issues:

1. Preservation and enhancement of each unique town's rural character, allowing for continued growth and development without compromising the rural lifestyle;
2. Preservation of open space around existing towns, in order to preserve hillside areas and significant ridgelines, conserve biological resources, provide opportunities for recreation, and make more efficient use of existing infrastructure in the core areas;
3. Planning for integrated circulation systems, including bikeways, walkways, and multi-purpose trails;
4. Conservation of significant resources, including agricultural lands, mineral resources, water supply, and scenic areas;
5. Preservation of public health, safety, and welfare, through identification of natural and environmental hazards, including noise, seismic, fire, and airborne emissions, and designation of land uses in an appropriate manner to mitigate these impacts; and
6. Coordination on enhancing public and community services such as law enforcement, fire protection, and parks.

Rural Preservation Strategy

The Area Plan's Rural Preservation Strategy addresses issues of Valleywide significance in a manner that builds upon the communities' vision statement. While each community in the Antelope Valley possesses its own identity, they are all unified in the pursuit of preserving the rural lifestyle and the rural

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character of the region. This rural character is what makes the Antelope Valley so unique and valuable to the rest of Southern California.

The term "rural" is defined by the following characteristics:

- Living in a low density environment without high intensity land uses, such as regional commercial centers;
- A natural, peaceful, quiet setting, with the ability to find a sense of solitude;
- Views of adjacent natural areas by day, such as hillsides and ridgelines, and views of starry skies by night;
- Agricultural and equestrian uses that are sensitive to the land; and
- An absence of infrastructure generally found in urban and suburban areas, including but not limited to curbs, gutters, sidewalks, street lighting, and traffic signals.

The Rural Preservation Strategy is based on four types of environments – rural town center areas, rural town areas, rural preserve areas, economic opportunity areas – that serve different purposes. Collectively, these environments preserve the rural character of the region, conserve environmental resources, and protect residents from potential hazards while allowing for additional growth and development. For more information on these environments, please see Chapter 2: Land Use Element.

Rural town center areas are the focal points of rural communities, serving the daily needs of residents and providing local employment opportunities. The majority of new locally-oriented public facilities and new locally-oriented commercial uses should be directed to these areas. These areas will provide pleasant pedestrian environments and will be accessible by a range of transportation options to reduce vehicle trips. Some of these areas will allow for a mix of commercial and residential uses.

Rural town areas provide a transition between rural town center areas and rural preserve areas, as they are occupied by a mix of residential and light agricultural uses. Residents living in these areas are willing to forego urban infrastructure and services in order to live in a rural environment. The majority of new residential development should be directed to these areas, provided that such development is consistent with the existing community character and allows for light agricultural, equestrian, and animal-keeping uses where appropriate. These areas will provide transportation linkages to rural town center areas and other nearby destination points.

Rural preserve areas are areas outside of the Town Areas, which are largely undeveloped and generally not served by existing or planned infrastructure and public facilities. Many of these areas contain environmental resources, such as Significant Ecological Areas, Scenic Resource Areas, and Agricultural Resource Areas. In addition, many of these areas contain safety hazards, such as Seismic Zones, Very High Fire Hazard Severity Zones, and Flood Zones. The primary benefit of these areas is that they provide habitat for regionally significant biological species while simultaneously providing scenic value to residents. A secondary benefit of these areas is that they contain natural resources which provide economic opportunities. Development in these areas should be limited to single family homes at very low densities, light and heavy agricultural uses, including equestrian and animal-keeping uses, and other uses where appropriate.

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Economic opportunity areas are defined clusters of land along the routes of two new proposed major infrastructure projects in the Antelope Valley, namely the High Desert Corridor and the Northwest 138 Corridor Improvement Project. These areas were identified as having tremendous potential for economic growth and development. Thus, any development induced by these two infrastructure projects should be guided to these areas so that the areas around them can be preserved and maintained at low density, or agricultural uses. This is intended to balance the growth and development which the two projects will undoubtedly bring, with the general intent of this Area Plan to preserve the ecological value and rural character of the Antelope Valley.

The Rural Preservation Strategy necessitates a "trade-off" between preserving rural character and developing additional infrastructure, as infrastructure improvements are typically funded by increased property tax revenues and developer fees. In rural town center areas and rural town areas, the amount of potential development allowed by this Area Plan will be equal to, or greater than, the amount of potential development allowed by the previous Area Plan. Therefore, those areas are likely to benefit from increased property tax revenues and developer fees, which can help fund additional infrastructure. In rural preserve areas, the amount of potential development allowed by this Area Plan will be far less than the amount of potential development allowed by the previous Area Plan. Therefore, rural preserve areas are unlikely to benefit from increased property tax revenues and developer fees, which may make it difficult to fund additional infrastructure. The Area Plan acknowledges this "trade-off" by directing additional infrastructure to rural town center areas and rural town areas, where the placement of additional infrastructure may be more cost-effective and environmentally sensitive, and not to rural preserve areas, where the placement of additional infrastructure may not be necessary. Residents of rural preserve areas should be prepared to forego additional infrastructure in order to live in a very remote rural environment and enjoy the benefits offered by such an environment. On the other hand, the economic opportunity areas provide an opportunity for the Area Plan to maximize the investment that state and regional agencies are bringing into the area, while still achieving the general goal of rural preservation in the Antelope Valley.

IV. HOW TO USE THE ANTELOPE VALLEY AREA PLAN

Definitions

The following definition shall apply only as it specifically appears in this Area Plan and shall not be used in any other context outside of this Area Plan.

> "Legal lot" means any lot created in compliance with the provisions of the Subdivision Map Act, or would qualify for a conditional certificate of compliance as provided in the Subdivision Map Act. Where a conditional certificate of compliance is reviewed by the County, the conditions imposed therein will be based on those required at the time the lot was created, including land use density and required area under the zoning code.

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Area Plan Format and Content

The Area Plan is organized into eight chapters. Chapter 1 (Introduction) presents the Area Plan's purpose and values, the geographic area, and the communities' vision statement. Chapter 2 (Land Use Element) discusses how the communities' vision translates into a development pattern through the concept of land use. Chapter 3 (Mobility Element) describes the multi-modal approach to moving around the Antelope Valley. Chapter 4 (Conservation and Open Space Element) describes conservation efforts to address potential threats to natural resources. Chapter 5 (Public Safety, Services and Facilities Element) provides measures to ensure services are in place to maintain the safety and welfare of residents. Chapter 6 (Economic Development Element) provides the blueprint for the planning area to build a healthy and sustainable economic base that will drive development and private-sector led conservation and preservation of open space in the area. Chapters 2 through 6 contain goals and policies specific to each chapter's respective topic but all work jointly to comprehensively implement the overall vision. Chapter 7 (Community-Specific Land Use Concepts) highlights each established town and describes its land use form in more detail. Finally, Chapter 8 (Plan Implementation) describes future planning activities that will be undertaken to further implement the goals and policies of this Area Plan. Appendix A includes descriptions of the Significant Ecological Areas within the Antelope Valley Area Plan.

Applicability

The following provisions shall apply to complete applications filed prior to the effective date of this Antelope Valley Area Plan.

The applicant can choose whether the application will be reviewed for consistency with the previously adopted Antelope Valley Areawide General Plan or this Antelope Valley Area Plan. In either case, approval of the application is not guaranteed.

If an application is reviewed for consistency with the previously adopted Antelope Valley Areawide General Plan, the applicant may modify the application prior to consideration by the Regional Planning Commission, Hearing Officer, or Director. The modification will be reviewed for consistency with the previously adopted Antelope Valley Areawide General Plan if it does not change the housing type (e.g., from single family to two family or multifamily) nor increase:

- The residential density;
- The floor area or lot coverage of non-residential space;
- The amount of grading; or
- The area of ground disturbance.

A modification may necessitate the submittal of revised, updated, or additional materials and reports, such as site plans, elevations, and oak tree reports. In addition, a modification may necessitate

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additional environmental review pursuant to the California Environmental Quality Act and the County's environmental review procedures.

Modification to an application that is already approved but not used, can be reviewed for consistency with the previously adopted Antelope Valley Areawide General Plan if it is found to be in substantial conformance with such application as determined by the Director. Otherwise a modification shall be considered a new application and shall be reviewed for consistency with this Antelope Valley Area Plan.

If an approval is used and has a grant term, the approved use may be maintained until the end of the grant term. At the end of the grant term, the use shall be subject to the Antelope Valley Area Plan policies in effect at that time. During the grant term, a modification to the approved use will be reviewed for consistency with the previously adopted Antelope Valley Areawide General Plan if the modification is found to be in substantial conformance with such application as determined by the Director. Otherwise, a modification to the approved use shall be subject to the Antelope Valley Area Plan policies in effect at that time.

If an approval is used and does not have a grant term, the approved use may be maintained in perpetuity unless a time limit is specified in the Zoning Code. In addition, all applicable non-conforming use provisions of the Zoning Code shall apply to the approved use. A modification to the approved use will be reviewed for consistency with the previously adopted Antelope Valley Areawide General Plan if the modification is found to be in substantial conformance with the use originally approved as determined by the Director. Otherwise, a modification to the approved use shall be subject to the Antelope Valley Area Plan policies in effect at that time.

Guidance

The Antelope Valley Area Plan is a component of the Los Angeles County General Plan. All of its maps, goals, policies, and implementing actions must be consistent with the elements of the Countywide General Plan. Users should be guided by the following:

- **General Plan Applicability**: Should any areas of conflicting interpretation arise, unless specifically noted, the provisions of the Countywide General Plan shall prevail.
- **Comprehensive Area Plan**: The Land Use Policy Map is never to be interpreted as a stand-alone document, but must be interpreted in light of applicable written policies in the Area Plan.
- **Equally Weighted Policies**: No policy, whether in written or diagram form, shall be given greater weight than any other policy in evaluating the policy intent of this Antelope Valley Area Plan.
- **Vision and Rural Preservation Strategy**: The interpretation of policy should be governed by the Vision and Rural Preservation Strategy of the Antelope Valley Area Plan.

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- **Established Town Descriptions**: Descriptions of established towns in Chapter 7 are intended to provide more detailed descriptions of existing land use patterns, local character, and desired local development patterns, and should be referred to in addition to the remainder of the Area Plan in planning for local projects.
- **Non-Conforming Uses**: All legally established uses in existence at the time of adoption of this Antelope Valley Area Plan are deemed to be consistent with this Area Plan, although Zoning Ordinance provisions regarding Non-Conforming Uses may apply.
- **Undersized Parcels**: Existing legal lots may be developed (following current development requirements) regardless of lot size. For example, a 10 acre parcel designated Rural Land 20 (1du/20ac) may still develop one home.
- **Pending Projects**: Completed applications filed prior to the effective date of this Area Plan shall be allowed to be reviewed for consistency with the previously adopted Area Plan. Projects may be maintained as originally approved provided the approval is still valid and has not expired. Any subsequent changes of use or intensity shall be subject to the policies of this Area Plan.
- **Community Standards Districts**: Community-specific zoning regulations shall be consistent with the goals and policies of this Area Plan. Such regulations shall be instituted only when a unique or detrimental condition exists within a community that prevents implementation of this Area Plan.
- **Regulatory Codes**: Title 21 (Subdivision) and 22 (Zoning) of the Los Angeles County Code provide detailed development guidelines that work to implement this Area Plan. Project applications shall refer to these codes, including Community Standards Districts, to ensure that development and land use activities are compatible with the zoning and to not threaten the health, safety, and welfare of the communities.
- **Staff Consultation**: While the Antelope Valley Area Plan is meant to be a guide for the public in determining allowable uses of private property, the public is encouraged to consult with members of the County's planning staff prior to investing in the preparation of development plans that might later prove to be inconsistent with the Antelope Valley Area Plan.

In addition to the direction provided by this Area Plan, new development and land use activities are regulated by many agencies other than the Department of Regional Planning. Obtaining approval for certain types of actions may require proof of the availability for public services, fair-share provisions for public facilities, and other permitting. The applicant for any such application is advised to consult with all applicable departments and agencies.

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Chapter 7

COMMUNITY-SPECIFIC LAND USE CONCEPTS

Chapter 7: Community-Specific Land Use Concepts Element

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I. Background

Purpose

The previous Chapters of this Area Plan set forth general goals and policies that may be applied throughout the unincorporated Antelope Valley. However, each community varies in its nature, form, and character. The Community-Specific Land Use Concepts contained in this Chapter describe in greater detail how this Area Plan, particularly the Land Use Element, is to be implemented in each community within the unincorporated Antelope Valley.

The Land Use Concepts (Concepts) attempt to provide expectations for how each rural community may change and grow throughout the life of this Area Plan. The Concepts specify the desired land uses for each area and identify potentially incompatible land uses that would not be desirable. Residents, stakeholders, and decision-makers should refer to the Concepts to familiarize themselves with the setting and character of each community and should use this information when considering the appropriateness of land use development projects, infrastructure improvements, and consideration efforts.

The following communities are addressed in this Chapter:

- Acton
- Antelope Acres
- Crystalaire
- El Dorado and White Fence Farms
- Elizabeth Lake and Lake Hughes (The Lakes)
- Fairmont
- Gorman
- Green Valley
- Juniper Hills
- Lake Los Angeles
- Lakeview
- Leona Valley
- Littlerock and Sun Village (Southeast Antelope Valley)
- Llano
- Neenach
- Pearblossom
- Quartz Hill
- Roosevelt
- Three Points

Vision and Strategy

The Area Plan's Vision Statement acknowledges that the unincorporated Antelope Valley "is a mosaic of unique small towns" and the Community-Specific Land Use Concepts are intended to reflect each community's unique nature, form, and character, as well as each community's unique vision of the future. The Area Plan's Rural Preservation Strategy seeks to achieve the Area Plan's Vision Statement

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through a framework of rural town centers, rural town areas, rural preserve areas, and economic opportunity areas. The Community Specific Land Use Concepts describe how this framework has been applied to each community and refines the framework in a manner that addresses each community's individual needs. Overall, this Chapter ensures that the Area Plan will serve as a living document that will shape future implementation efforts in a manner that is both complementary of the overall Vision Statement and Rural Preservation Strategy and relevant to, and appropriate for, each community within the unincorporated Antelope Valley.

Community Standards Districts

Some of the communities described in this Chapter are within Community Standards Districts (CSD's). CSD's are overlays in the Zoning Code that provide specific development standards with unique land use issues that are not adequately addressed by the County's Subdivision and Zoning Codes. CSD's, as well as other applicable County Code requirements, should be consulted when projects are being considered in a community.

II. Land Use Concepts

Acton

The community of Acton is located in the southwestern portion of the Antelope Valley, south of the City of Palmdale along State Route 14. The community is adjacent to the National Forest, and natural hillsides and significant ridgelines separate the community from the City of Palmdale and the remainder of the Antelope Valley. Community residents are concerned about urbanization of the area and wish to remain an unincorporated rural community with a unique identity. Some portions of the community are partially developed with a variety of agricultural uses and single-family homes on large lots. Other portions are largely undeveloped, are generally not served by existing infrastructure, contain environmental resources, such as Significant Ecological Areas and Hillside Management Areas, and are subject to safety constraints, such as Very High Hazard Severity Zones.

The community has a rural town center area along Crown Valley Road between Gillespie Avenue and Soledad Canyon Road. The rural town center area has been designated as Rural Commercial (CR) to serve the daily needs of residents and provide local employment opportunities. New buildings in the rural town center area shall be limited to two stories in height and shall include Old West design elements with earth tone colors at a pedestrian-oriented scale, with primary building entries facing Crown Valley Road or adjacent local streets. New development in the rural town center that would require the installation of urban infrastructure, such as concrete curbs and gutters, street lights, and traffic signals, shall be strongly discouraged as this does not fit with the community's unique rural character and identity.

The rural town centers shall continue to be the focal point of the community and shall be linked to the surrounding rural town area through trails and pedestrian routes. Pedestrian routes shall have permeable paving, consistent with rural community character, instead of concrete sidewalks. Public amenities, such as plazas and community bulletin boards, are encouraged in this area.

Some areas outside the rural town center area have also been designated as Rural Commercial (CR) to acknowledge existing uses and to provide additional commercial services and local employment opportunities. The intent of these designations is to allow low-intensity local commercial uses that

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serve community residents and to prohibit high-intensity regional commercial uses that serve travelers along State Route 14. Moving west to east through the community, areas with this designation include:

- Two parcels along Sierra Highway, generally between Sand Creek Drive and Wanstead Drive, north of State Route 14;
- A parcel along Sierra Highway, east of Red Rover Mine Road and north of State Route 14;
- Several parcels surrounding the intersection of Crown Valley Road and Sierra Highway and of Crown Valley Road and Antelope Woods Road, both of which are adjacent to State Route 14;
- A parcel at the northeast corner of Soledad Canyon Road and Santiago Road;
- Several parcels at the northwest and northeast corners of the intersection of Sierra Highway and Santiago Road, north of State Route 14;
- Several parcels along the south side of Sierra Highway between San Gabriel Avenue and State Route 14; and
- Several parcels along the north side of Sierra Highway, west of State Route 14.

New buildings in these CR designations shall also be limited to two stories in height, shall include Old West design elements with earth tone colors at a pedestrian-oriented scale, and shall be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes shall have permeable paving, consistent with rural community character, instead of concrete sidewalks. Development in these CR designations that would require the installation of urban infrastructure, such as concrete curbs and gutters, street lights and traffic signals, shall be discouraged as this does not fit with the community's unique rural character and identity. New commercial uses outside of these CR designations, or outside the CR designation within a rural town center area, are also strongly discouraged, as they are not compatible with the community character.

Some areas within the community have been designated as Light Industrial (IL) to acknowledge existing uses and to provide additional local employment opportunities. Moving west to east through the community, areas with this designation include:

- Several parcels at the northeast and southeast corners of Sierra Highway and Red Rover Mine Road;
- Several parcels along Soledad Canyon Road, south of the Crown Valley Road intersection and the rural town center area;
- Several parcels along Soledad Canyon Road, northeast of the Crown Valley Road intersection, and also along Syracuse Avenue and Gillespie Avenue, all east of the rural town center area;
- Several parcels along the south side of Soledad Canyon Road between Santiago Road and Malinta Avenue; and

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- Several parcels along Sierra Highway, west and north of the Vincent Grade/Acton Metrolink Station.

New buildings in these IL designations shall be limited to two stories in height, shall include Old West design elements with earth tone colors at a pedestrian-oriented scale, and shall be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes shall have permeable paving, consistent with rural community character, instead of concrete sidewalks. Development in these IL designations that would require the installation of urban infrastructure, such as concrete curbs and gutters, street lights and traffic signals shall be strongly discouraged as this does not fit with the community's unique rural character and identity. New industrial uses outside of these IL designations are also strongly discouraged, as they are not compatible with the community character.

All advertising signs shall be limited to no more than 35 feet. More restrictions on the allowed Floor Area Ratio (FAR), drive-through services and other such regulations may be adopted by the community through their Community Standards District. Please see Chapter 8 (Plan Implementation) of this Area Plan for more details.

Most of the community is considered to be a rural town area. The rural town area has been designated as Rural Land 5 (RL5), with a maximum density of 1 residential unit for each 5 gross acres of land, Rural Land 2 (RL2), with a maximum density of 1 residential unit for each 2 gross acres of land, and Rural Land 1 (RL1), with a maximum density of 1 residential unit for each 1 gross acre of land. Small portions of the rural town area have other designations, as follows:

- The area generally bounded by Syracuse Avenue to the north, Bartlett Street and 1st Street to the west, Cory Avenue and 9th Street to the south, and 3rd Street to the east has been designated as Residential 5 (H5), with a maximum density of 5 residential units for each 1 net acre of land. In addition, a few parcels between Syracuse Avenue and Gillespie Avenue, east of Crown Valley Road, have been designated as H5; and

- The area surrounding the H5 designation, generally bounded by Sacramento Avenue to the north, 41st Street West and 40th Street West to the west, 9th Street and Spring Avenue to the south, and Crown Valley Road to the east, has been designated as Residential 2 (H2), with a maximum density of 2 residential units for each 1 net acre of land.

- The RL5, RL2, RL1, H2, and H5 designations are intended to reflect the existing densities within various parts of the rural town area, which are developed or partially developed as the result of previous land divisions. The RL5, RL2, RL1, H2, and H5 designations are not intended to promote further land divisions. New land divisions in the rural town area shall maintain a large minimum lot size to ensure consistency with the desired community character.

The majority of new residential development in Acton shall be directed to the rural town area instead of the surrounding rural preserve area, provided that such development is consistent with existing community character. New land divisions shall maintain a large minimum lot size. Various types of agriculture, equestrian, and animal-keeping uses should be allowed through the rural town area, provided that lots meet Zoning Code requirements for those uses. Home-based occupations may also be permitted throughout the rural town area, provided that they meet Zoning Code requirements.

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The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit per 10 gross acres of land, or Rural Land 20 (RL20), with a maximum density of 1 residential unit per 20 gross acres of land. These very low densities reflect the underlying infrastructure constraints, environmental resources, and safety constraints. Development in the rural preserve area shall be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Antelope Acres

The community of Antelope Acres is located in the northwestern portion of Antelope Valley, west of the City of Lancaster. Community residents are concerned about urbanization of the area and wish to remain an unincorporated rural community with a unique identity. Some portions of the community are partially developed with light agricultural uses and single-family homes on large lots, while other portions are largely undeveloped and contain environmental resources, such as Significant Ecological Areas and Agricultural Resource Areas.

The community has a rural town center area located along 90th Street West between Avenue E-4 and Avenue E-12. The rural town center area has been designated as Rural Commercial (CR) to serve the daily needs of residents and provide local employment opportunities. New buildings in the rural town center area should be limited to one story in height and should include Old West design elements at a pedestrian-oriented scale, with primary building entries facing 90th Street West. No other portions of the community have been designated for commercial or industrial use, and new commercial and industrial uses outside the rural town center area are strongly discouraged, as they are incompatible with the community character.

Over time, the rural town center areas should become the focal point of the Antelope Acres community and should be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. Public amenities, such as plazas and community bulletin boards, are encouraged in this area.

The community includes rural town areas that surround the rural town center area and are generally bounded by Avenue E and Avenue C to the north, 80th Street West to the east, Avenue F and Avenue F-8 to the south, and 95th Street West and 90th Street West to the west. These areas have been designated as Rural Land 2 (RL2), with a maximum density of 1 residential unit per 2 gross acres of land. This designation is intended to reflect the existing density of the rural town areas and is not intended to promote further land divisions. New land divisions in the rural town areas shall maintain a large minimum lot size to ensure consistency with the existing community character.

The majority of new residential development in Antelope Acres should be directed to the rural town areas instead of the surrounding rural preserve areas, provided that such development is consistent with the existing community character and allows for light agriculture, equestrian, and animal-keeping uses should be allowed through the rural town area, provided that lots meet Zoning Code requirements for those uses. Heavy agriculture uses should be discouraged in the rural town areas because of potential impacts on existing residents. Home-based occupations are also appropriate in the rural town areas, provided that they meet Zoning Code requirements.

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The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land, or Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. These very low densities reflect the underlying infrastructure constraints and environmental resources. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Crystalaire

The community of Crystalaire is located in the southeastern portion of the Antelope Valley, south of Llano, and includes a golf course and a small airport which are described in more detail below. Some portions of the community are developed with single-family homes on large lots. Other portions are largely undeveloped and contain environmental resources, such as Significant Ecological Areas, and are subject to safety hazards, such as Flood Zones, particularly along Big Rock Creek and Big Rock Wash..

The community currently does not have a rural town center area but a stretch of 165th Street East between East Avenue W-12 and East Avenue X, in front of Crystalaire Airport has been designated Mixed Use – Rural (MU-R) in anticipation of a future town center to develop in this area. New commercial uses outside of this MU-R designation are strongly discouraged, as they are not compatible with the community character.

The community includes a rural town area that includes the existing subdivision near the Crystalaire Country Club and adjacent lands that are generally bounded by 165th Street East to the east and Avenue Y-4 to the south. This area has been designated as Residential 2 (H2), with a maximum density of 2 residential units for each 1 net acre of land. This designation is intended to reflect the existing density of the rural town area. New land divisions in this area shall have large lot sizes that are consistent with the existing subdivision near the Crystalaire Country Club.

The majority of new residential development in Crystalaire should be directed to the rural town area instead of the surrounding rural preserve areas, provided that such development is consistent with existing community character and allows for light agriculture, equestrian, and animal-keeping uses, provided that lots meet Zoning Code requirements for those uses. Heavy agriculture uses should be prohibited because of potential impacts on existing residents. Home-based occupations may also be permitted in this area, provided that they meet Zoning Code requirements.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land, or Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. These very low densities reflect the underlying infrastructure constraints, environmental resources, and safety constraints. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Crystalaire Airport

The Crystalaire Airport is a privately owned and operated aviation facility that occupies several parcels. These parcels have been designated as Public and Semi-Public (P) to acknowledge the existing airport use and to allow for its continued operation. However, the Area Plan acknowledges that these parcels

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also contain commercial and industrial uses and are an appropriate location for such uses given its proximity to the communities of Crystalaire and Llano. Accordingly, at the time of this Area Plan's adoption, the parcels were zoned Rural Commercial – Mixed Use (MXD-RU) and Light Industrial (M-1). This Area Plan allows commercial mixed-use and industrial uses on these parcels without a Plan Amendment, provided that these are compatible with airport operations and that these do not restrict or prohibit the operations of the airport.

Crystalaire Golf Course

The Crystalaire Golf Course is a privately owned golf facility that occupies several parcels. These parcels have been designated as Open Space – Parks (OS-PR) and zoned Commercial – Recreation (C-R) to acknowledge the existing residential recreational use and its open space character on the property, and to allow for its continued operation. The Area Plan also acknowledges that some limited residential uses may be appropriate as accessory to the primary use as a golf course. Thus the Area Plan allows some limited residential uses on these parcels without a Plan Amendment, provided that the golf course is in continued operation and that the residential uses occupy not more than 10 percent of the total area. All requirements of the base zone shall apply, including but not limited to, an approved conditional use permit.

El Dorado and White Fence Farms

The communities of El Dorado and White Fence Farms are located in the central portion of the Antelope Valley and are surrounded by the cities of Lancaster and Palmdale. Although these communities are adjacent to urbanized areas, such as the Rancho Vista community and the Antelope Valley Mall, they have a distinctly rural character. The communities are partially developed with light agricultural uses and single-family homes on large lots.

These communities do not have a rural town center area, but they are served by the rural town center area in Quartz Hill and by commercial centers in the adjacent cities. Two parcels on 10th Street West and one parcel on Avenue N have been designated as Rural Commercial (CR) in recognition of existing commercial uses. No other portions of the communities have been designated for commercial or industrial use, and new commercial uses outside of these CR designations and new industrial uses are strongly discouraged, as they are not compatible with the communities' character.

The communities are considered to be a rural town area and have been designated as Rural Land 2 (RL2), with a maximum density of 1 residential unit for each 2 gross acres of land. This designation is intended to reflect the communities' existing density and is not intended to promote further land divisions. New land divisions shall maintain a large minimum lot size to ensure consistency with the existing character of the communities.

Light agriculture, equestrian, and animal-keeping uses are appropriate in these communities, but heavy agriculture uses should be discouraged because of potential impacts on existing residents. Home-based businesses are also appropriate in these communities, provided that they meet Zoning Code requirements.

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Elizabeth Lake and Lake Hughes (The Lakes)

The communities of Elizabeth Lake and Lake Hughes are located in the southwestern portion of the Antelope Valley, northwest of Leona Valley, and are partially within the National Forest. Some portions of the community are developed or partially developed with single-family homes, light agricultural uses, and a limited amount of commercial and industrial uses. Other portions are largely undeveloped, are generally not served by existing infrastructure, contain environmental resources, such as Significant Ecological Areas and Hillside Management Areas, and are subject to safety constraints, such as the San Andreas Fault and Very High Fire Hazard Severity Zones.

The communities share one rural town center area in Lake Hughes, located along Elizabeth Lake Road between Trail I and Mountain View Road, west of the Lake Hughes Community Center. The rural town center area has been designated as Rural Commercial (CR) and Light Industrial (IL) to serve the daily needs of residents and provide local employment opportunities. New buildings in the rural town center area should be limited to two stories in height and should be designed at a pedestrian-oriented scale, with primary building entries facing Elizabeth Lake Road or adjacent local streets.

The rural town center area should continue to be the focal point of the communities and should be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. Public amenities, such as plazas and community bulletin boards, are encouraged in this area.

Some areas outside the rural town center area have been designated as Rural Commercial (CR) to acknowledge existing uses and to provide additional commercial services and local employment opportunities. Moving west to east through the communities, areas with this designation include:

- Several parcels along Lake Hughes Road between Elizabeth Lake Road and Desswood Road (Lake Hughes); and
- Two parcels at the southwest corner of Elizabeth Lake Road and Johnson Road (Elizabeth Lake).

New buildings in these CR designations should also be limited to two stories in height, should be designed at a pedestrian-oriented scale, and should be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. New commercial uses outside of these CR designations, or outside the CR designations within the rural town center area, are strongly discouraged, as they are not compatible with the communities' character.

Several parcels at the southwest corner of Elizabeth Lake Road and Lake Hughes Road have been designated as Light Industrial (IL) to acknowledge an existing use. New industrial uses outside of this IL designation, or outside the IL designation within the rural town center area, are strongly discouraged, as they are not compatible with the communities' character.

The community of Elizabeth Lake includes rural town areas. The primary rural town area surrounds the Elizabeth Lake water body. North of Elizabeth Lake Road, the primary rural town area is generally bounded by Hawk Drive, Gist Drive, and hillsides to the north, Munz Ranch Road to the west, and Pekaboo Road and hillsides to the east. South of Elizabeth Lake Road, the primary rural town area is generally bounded by Sandrock Drive, Ranch Club Road, and Elizabeth Lake Road to the north, the

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National Forest boundary to the west, the National Forest boundary, Ranch Club Road, and Kiptree Drive to the south, and Elizabeth Lake Road to the east. The primary rural town area has been designated as Residential 5 (H5), with a maximum density of 5 residential units for each 1 net acre of land. A few parcels north of Elizabeth Lake Road have been designated as Rural Land 2 (RL2), with a maximum density of 1 residential unit for each 2 gross acres of land. The H5 and RL2 designations are intended to reflect the existing densities within the primary rural town area, which resulted from previous land division activities. The H5 and RL2 designations are not intended to promote further land divisions. The privately owned portion of Elizabeth Lake water body is considered to be one of the communities' rural preserve areas, which are discussed below.

A secondary rural town area in Elizabeth Lake is located north of Johnson Road between Leadhill Drive and Limeridge Drive and is partially developed as the result of previous land division activities. The secondary rural town area has been designated as Residential 9 (H9), with a maximum density of 9 residential units for each 1 net acre of land. The H9 designation is intended to reflect the existing density of this area and is not intended to promote further land divisions.

The community of Lake Hughes also includes a rural town area. The rural town area extends west from the rural town center area and is generally bounded by Elizabeth Lake Road, Elderberry Street, High Trail, Lone Pine Trail, and hillsides to the north, Muir Drive and a line approximately 1,500 feet west of Lake Hughes Road to the west, Desswood Road, New View Drive, and South Shore Drive to the south, and Mountain View Road to the east. The rural town area has been designated as Residential 5 (H5), with a maximum density of 5 residential units for each 1 net acre of land. A few parcels west of Lake Hughes Road have been designated as Rural Land 5 (RL5), with a maximum density of 1 residential unit for each 5 gross acres of land. The H5 and RL5 designations are intended to reflect the existing densities within the rural town area, which resulted from previous land division activities. The H5 and RL5 designations are not intended to promote further land divisions.

The majority of new residential development in Elizabeth Lake and Lake Hughes (collectively known as The Lakes) should be directed to the rural town areas instead of the surrounding rural preserve areas, provided that such development is consistent with existing community character. New land divisions in the rural town area shall maintain a large minimum lot size to ensure consistency with the desired community character. Light agriculture, equestrian, and animal-keeping uses should be allowed throughout the rural town ares, provided that lots meet Zoning Code requirements for those uses. Heavy agriculture uses should be prohibited throughout the rural town areas because of potential impacts on existing residents. Home-based businesses may be permitted throughout the rural town areas, provided that they meet Zoning Code requirements.

The remaining lands in the communities are considered to be rural preserve areas and have been designated as Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. This very low density reflects the underlying infrastructure constraints, environmental resources, and safety constraints. Development in rural preserve areas should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate. The privately owned portion of the Elizabeth Lake water body has been designated as RL20 and the Area Plan supports efforts to acquire this area and preserve it as open space (see Conservation and Open Space Element, Policy COS 18.1).

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Fairmont

The community of Fairmont is located in the northwestern portion of the Antelope Valley, west of Antelope Acres and near the Antelope Valley California Poppy Reserve. The community is largely undeveloped and is generally not served by existing infrastructure and public facilities, but it does contain some single-family homes on large lots and some agricultural uses. The community includes environmental resources, such as Significant Ecological Areas, and is subject to safety hazards, such as fault zones.

The community does not have a rural town center area. No portion of the community has been designated for commercial or industrial use, except for a parcel along Avenue D to reflect an existing use. New commercial or industrial uses are strongly discouraged, as they are not compatible with the community character.

The entire community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land, or Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. These very low densities reflect the underlying infrastructure constraints, environmental resources, and safety constraints. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Gorman

The community of Gorman is located in the far northwestern portion of Antelope Valley along the Golden State Freeway (Interstate 5). A portion of the community is partially developed with commercial uses that primarily serve travelers along the Freeway, along with some single-family homes and light agricultural uses. The remainder of the community is largely undeveloped, is generally not served by existing infrastructure, and contains environmental resources such as Hillside Management Areas and Significant Ecological Areas.

The community has a rural town center area surrounding the Golden State Freeway interchanges at Gorman School Road. The rural town center area has been designated as Major Commercial (CM) to serve the daily needs of residents and interstate travelers.

Some areas outside the rural town center area have also been designated Rural Commercial (CR) in recognition of existing commercial uses and future opportunities to serve interstate travelers. The existing Flying J Travel Plaza on Frazier Park Road and two parcels east of it also have been designated as Rural Commercial (CR). Several parcels surrounding Smokey Bear Road have been designated as Rural Commercial. No other portions of the community have been designated for commercial or industrial use, and new commercial uses outside these CR and CM designations and new industrial uses are strongly discouraged, as they are incompatible with the community character.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. This very low density reflects the underlying infrastructure constraints and environmental resources. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

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Green Valley

The community of Green Valley is located in the southwestern portion of the Antelope Valley, south of Elizabeth Lake, and is completely within the National Forest. A large portion of the community is developed with single-family homes and commercial uses, while the remaining portion is largely undeveloped and contains scenic hillsides that are located in a Very High Fire Hazard Severity Zone.

The community does not have a rural town center area but is served by the rural town center areas in Lake Hughes Road and Leona Valley. Two areas, generally located at the intersections of Spunky Canyon Road and San Francisquito Canyon Road and of Spunky Canyon Road and Calle Olivera, have been designated as Rural Commercial (CR), recognizing existing uses that serve the daily needs of residents and provide local employment opportunities. New buildings in these areas should be limited to one story in height and should be designed at a pedestrian-oriented scale. No other portions of the community have been designated for commercial or industrial use, and new commercial uses outside these CR designations and new industrial uses are strongly discouraged, as they are incompatible with the community character.

The community includes rural town areas which are developed or partially developed as the result of previous land division activities. These areas generally extend southeast from San Francisquito Canyon Road and generally extend both north and south from Spunky Canyon Road, and are bounded by hillsides. These areas have been designated as Residential 9 (H9), with a maximum density of 9 residential units for each 1 net acre of land. The H9 designation is intended to reflect these areas' existing densities and development pattern, and is not intended to promote further land divisions.

The majority of new residential development in Green Valley should be directed to the rural town areas instead of the surrounding rural preserve area, provided that such development is consistent with existing community character. Light agriculture, equestrian and animal-keeping uses should be allowed in these areas, provided that lots meet Zoning Code requirements for those uses. Heavy agriculture uses should be prohibited in these areas because of potential impacts on existing residents. Home-based occupations may also be permitted in these areas, provided that they meet Zoning Code requirements.

The remainder of the privately-owned land in the community is considered to be a rural preserve area and has been designated as Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. This very low density reflects the underlying infrastructure constraints, environmental resources, and safety constraints. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Juniper Hills

The community of Juniper Hills is located in the southern portion of the Antelope Valley, south of Littlerock and Pearblossom. The community is largely developed and is generally not served by existing infrastructure and public facilities, but it does contain many single-family homes on large lots and some agricultural uses. The community is adjacent to the National Forest, includes scenic hillside areas, and is subject to several safety hazards, including the San Andreas Fault and Very High Fire Hazard Severity Zones.

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The community does not have a rural town center area but is served by the rural town center areas in Littlerock and Pearblossom. The Juniper Hills Community Center on 106th Street East serves as a community meeting place, in lieu of a rural town center area, and residents have expressed a desire for a Post Office. No portion of the community has been designated for commercial or industrial use, and new commercial or industrial uses are strongly discouraged, as they are not compatible with the community character.

The entire community is considered to be a rural town area and has been designated as Rural Land 5 (RL5), with a maximum density of 1 residential unit for each 5 gross acres of land. This very low density reflects the underlying infrastructure constraints, environmental resources, and safety constraints. Development in the rural town area should be limited to single-family homes on large lots, light agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Lake Los Angeles

The community of Lake Los Angeles is in the eastern portion of the Antelope Valley. As of the 2000 Census, it had the largest population of any unincorporated community in the Valley. Many portions of the community are developed or partially developed with a wide range of uses and a distinctly rural character. The remaining portions are largely undeveloped and generally not served by existing infrastructure, include environmental resources, such as buttes and Significant Ecological Areas, and are subject to safety hazards, such as Flood Zones.

The community has a rural center area along Avenue O between 167th Street East and 172nd Street East, and along 170th Street East between Avenue O and Glenfall Avenue. The rural town center area has been designated as Rural Commercial (CR) to serve the daily needs of residents and provide local employment opportunities. New buildings in the rural town center area should be limited to two stories in height and include Old West or Southwestern design elements at a pedestrian-scale, with primary building entries facing Avenue O or 170th Street East. New development in the rural town center area should not require the installation of urban infrastructure, such as concrete curbs and gutters and traffic signals.

The rural town center area should continue to be the focal point of the community and should be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. Streetscape improvements are recommended for Avenue O and 170th Street East, including native landscaping, "Old West" style street lights that meet dark sky objectives (only where necessary for public safety), and coordinated street furniture, such as benches, bus shelters, and bicycle racks. Other public amenities, such as plazas and community bulletin boards, are also encouraged in this area.

Some areas outside of the rural town center area have also been designated as Rural Commercial (CR) to provide additional commercial services, such as feed and tack stores. These areas include the intersection of Avenue P and 170th Street East and the northwest and northeast corners of the intersection of Avenue) and 175th Street East. New buildings in these areas should also be limited to two stories in height and include Old West or Southwestern design elements at a pedestrian-oriented scale with transportation links to surrounding rural town areas. No other portions of the community have been designated for commercial or industrial use, and new commercial uses outside these CR

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designations and new industrial uses are strongly discouraged, as they are incompatible with the community character.

The community includes several rural town areas. One area is generally bounded by Avenue Q to the north, 150th Street East to the west, Palmdale Boulevard to the south, and 160th Street East to the east. This area has been designated as Rural Land 1 (RL1), with a maximum density of 1 residential unit per 1 gross acre of land. This designation is intended to reflect the area's existing density and is not intended to promote further land divisions. Another similar area is generally bounded by Avenue M-8, Penfield Avenue, and Avenue N to the north, 155th Street East, 150th Street East, and 152nd Street East to the west, Avenue N and Avenue O to the south, and 160th Street East and 165th Street East to the east. This area has also been designated as RL1, and this designation is also intended to reflect the area's existing density and is not intended to promote further land divisions.

Another rural town area is generally bounded by Avenue M, Avenue M-4, and Avenue M-12 to the north, 160th Street East to the west, Avenue N to the south, and 170th Street East, 175th Street East, and 180th Street East to the east. This area has been designated as Rural Land 5 (RL5), with a maximum density of 1 residential unit per 5 gross acres of land. This designation is intended to reflect the area's existing density and is not intended to promote further land divisions. The final rural town area is generally bounded by Avenue O and Avenue N to the north, 165th Street East and 160th Street East to the west, Avenue Q, Avenue P-12, Rawhide Avenue, and Avenue P to the south, and 165th Street East, 170th Street East, 175th Street East, and 180th Street East to the east. This area has been designated as Residential 2 (H2), with a maximum density of 2 residential units per 1 net acre of land. This designation is intended to reflect the area's existing density and is not intended to promote further land divisions. However, the buttes east of 170th Street East have been designated as RL5, acknowledging the need to limit development in scenic resource areas. The buttes west of 170th Street East, which are in a Significant Ecological Area, are considered to be in the rural preserve area, which is discussed below.

The majority of new residential development in Lake Los Angeles should be directed to the rural town areas instead of the surrounding rural preserve area, provided that such development is consistent with existing community character and allows for light agriculture, equestrian, and animal-keeping uses, provided that lots meet Zoning Code requirements for those uses. Heavy agriculture uses should be prohibited because of potential impacts on existing residents. Home-based businesses may also be permitted in the rural town areas, provided that they meet Zoning Code requirements. New land divisions in the rural town areas shall maintain a large minimum lot size to ensure consistency with the existing community character.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land or Rural Land 20 (RL20, with a maximum density of 1 residential unit for each 20 gross acres of land. These very low densities reflect the underlying infrastructure and safety constraints. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Lakeview

The community of Lakeview is located in the southern central portion of the Antelope Valley, adjoining the City of Palmdale to the north and east, and includes Lake Palmdale. Although this community is adjacent to urbanized areas, it has a distinctly rural character. Some portions of the community are

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partially developed with light agricultural uses and single-family homes on large lots. Other portions are largely undeveloped and generally not served by existing infrastructure, include environmental resources such as Hillside Management Areas, and are subject to safety hazards, such as Very High Fire Hazard Severity Zones.

The community does not have a rural town center area but is served by commercial centers in the adjacent City of Palmdale. A few parcels at the intersection of the State Route 14 and Avenue S, and two parcels along Sierra Highway between Pearblossom Highway and Barrel Springs Road, have been designated as Rural Commercial (CR). In addition, several parcels at the intersection of Pearblossom Highway and Sierra Highway, and a parcel on Avenue S west of State Route 14 have been designated as Light Industrial (IL). These designations recognize existing uses and opportunities for additional local services and employments. No other portions of the community have been designated for commercial or industrial use, and new commercial or industrial uses outside of these CR and IL designations are strongly discouraged, as they are not compatible with the community character.

The community includes a rural town area that is generally bounded by the City of Palmdale boundary to the north, the City of Palmdale boundary, Farnborough Avenue and Tovey Avenue to the west, a line approximately 1,300 feet south of Lakeview Drive and Barrel Springs Road to the south, and the City of Palmdale boundary to the east. North of Avenue S, this area has been designated as Rural Land 2 (RL2), with a maximum density of 1 residential unit for each 2 gross acres of land. South of Avenue S, this area has been designated as Rural Land 1 (RL1), with a maximum density of 1 residential unit for each 1 gross acre of land, with the following exceptions:

- West of Tovey Avenue – RL2; and
- South of Lakeview Drive and west of El Camino Drive – RL2.

The RL1 and RL2 designations are intended to reflect this area's existing densities. New land divisions in this area shall maintain large lot sizes that are compatible with the community character.

The majority of new residential development in Lakeview should be directed to the rural town area instead of the surrounding rural preserve area, provided that such development is consistent with existing community character and allows for light agriculture, equestrian, and animal-keeping uses, provided that lots meet Zoning Code requirements for those uses. Heavy agriculture uses should be prohibited because of potential impacts on existing residents. Home-based businesses may also be permitted in this area, provided that they meet Zoning Code requirements.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land, or Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. This very low density reflects the underlying infrastructure constraints, environmental resources, and safety hazards. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Leona Valley

The community of Leona Valley is located in the southwestern portion of the Antelope Valley, adjacent to the National Forest, and is bounded by the City of Palmdale to the north and east. Community residents are concerned about urbanization of the area and wish to remain in an unincorporated rural

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community with a unique identity. Some portions of the community are partially developed with light agricultural uses and single-family homes on large lots. Other portions are largely undeveloped, are generally not served by existing infrastructure, contain environmental resources, such as Significant Ecological Areas and Hillside Management Areas, and are subject to safety constraints, such as the San Andreas Fault and Very High Fire Hazard Severity Zones.

The community has a rural town center located at the intersection of Elizabeth Lake Road and 90th Street West. The rural town center area has been designated as Rural Commercial (CR) to serve the daily needs of residents and provide local employment opportunities. New buildings in the rural town center area should be limited to one story in height and should be designed at a pedestrian-oriented scale, with primary building entries facing Elizabeth Lake Road or 90th Street West. No other portions of the community have been designated for commercial or industrial use, and new commercial uses outside of this CR designation and new industrial uses are strongly discouraged, as they are incompatible with community character.

The rural town center area should continue to be the focal point of the community and should be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. Public amenities, such as community bulletin boards, are encouraged in this area.

The community includes a rural town area that surrounds the rural town center. North of Elizabeth Lake Road, the rural town area is generally bounded by North Side Drive, Babia Street, and Penhaven Lane to the north, 100th Street West to the west, Elizabeth Lake Road to the south, and 86th Street West to the east. South of Elizabeth Lake Road, the rural town area is generally bounded by Leona Avenue and Elizabeth Lake Road to the north, 107th Street West, 98th Street West, and 92nd Street West to the west, hillsides and Odd Road to the south, and 86th Street West to the east. The rural town area has been designated as Rural Land 2 (RL2), with a maximum density of 1 residential unit for each 2 gross acres of land. This designation is intended to reflect the existing density of the rural town area and is not intended to promote further land divisions.

The majority of new residential development in Leona Valley should be directed to the rural town area instead of the surrounding rural preserve area, provided that such development is consistent with existing community character. New land divisions shall maintain a large minimum lot size to ensure compatibility with the community character. Each new home should have a unique architectural design. Light agriculture, equestrian, and animal-keeping uses should be allowed throughout the rural town area, provided that lots meet Zoning Code requirements for those uses. Heavy agriculture should be prohibited throughout the rural town area because of potential impacts on existing residents. Home-based businesses may also be permitted throughout the rural town area, provided that they meet Zoning Code requirements.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. This very low density reflects the underlying infrastructure constraints, environmental resources, and safety constraints. Development in the rural preserve area should be limited to single-family homes on very large lots (2.5 net acres or greater), light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

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Littlerock and Sun Village (Southeast Antelope Valley)

The communities of Littlerock and Sun Village are located in the southeastern portion of the Antelope Valley, east of the City of Palmdale. Residents of the communities are concerned about urbanization of the area and wish to remain as unincorporated rural communities with unique identities. Many portions of the communities are developed or partially developed with a wide range of uses and a distinctly rural character. The remaining portions are largely undeveloped and generally not served by existing infrastructure, include environmental resources such as Significant Ecological Areas, and are subject to safety hazards, such as Flood Zones.

Each community has a rural town center area. The Littlerock rural town center area is located along Pearblossom Highway between Little Rock Wash and 90th Street East. This rural town center area has been designated as Rural Commercial (CR), and Light Industrial (IL) to serve the daily needs of residents and provide local employment opportunities. This rural town center area also serves travelers along Pearblossom Highway. A possible expansion of the town center has also been identified further to the east where additional parcels have been designated Rural Commercial (CR) and Light Industrial (IL). New buildings in this rural town center area should be limited to two stories in height and include Old West or Southwestern design elements with earth tone colors at a pedestrian-oriented scale, with primary building entries facing Pearblossom Highway. The industrial designations in this rural town center have been expanded to accommodate light industrial uses appropriate for rural areas, such as truck storage facilities.

The Sun Village rural town center area is located along Palmdale Boulevard between Little Rock Wash and 95th Street East, and along 90th Street East between Palmdale Boulevard and Avenue Q-14. This rural town center area has been designated as Rural Commercial (CR) to serve the daily needs of residents and provide local employment opportunities. New buildings in this rural town center area should be limited to three stories in height and include Southwestern, Spanish Mission, or Mediterranean design elements with earth tone colors at a pedestrian-oriented scale, with primary building entries facing Palmdale Boulevard or 90th Street East.

The two rural town center areas should continue to be the focal point of their respective communities and should be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. Streetscape improvements are recommended for Palmdale Boulevard and 90th Street East in the Sun Village rural town center area, including native landscaping, "Southwestern" style street lights that meet dark sky objectives (only where necessary for public safety), and coordinated street furniture, such as benches, bus shelters, and bicycle racks. If Pearblossom Highway is relinquished by the State of California (Caltrans), similar streetscape improvements are recommended in the Littlerock rural town center area. Other public amenities, such as plazas and community bulletin boards, are encouraged in both rural town center areas.

Some areas outside the two town center areas have also been designated as Rural Commercial (CR) to provide additional commercial services and local employment. These areas include the intersection of Avenue T and 87th Street East and the northeast corner of Avenue S and 90th Street East. New buildings in these areas should also be limited to two stories in height and include Old West or Southwestern design elements with a pedestrian-oriented scale and transportation links to surrounding rural town areas. New commercial uses outside of these CR designations, are strongly discouraged, as they are not compatible with the communities' character.

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Several parcels near the intersection of Avenue R-8 and 90th Street East and a parcel at the northwest corner of Avenue T-8 and 80th Street East have been designated as Heavy Industrial (IH), recognizing existing uses appropriate for rural areas, such as truck storage facilities. New industrial uses outside of these IH designations, or outside the IL designations within the Littlerock rural town center area, are strongly discouraged, as they are not compatible with the communities' character.

The community includes several rural town areas. The first rural town area surrounds the Littlerock rural town center area and is generally bounded by Avenue U to the north, the Little Rock Wash to the west, the California Aqueduct and Avenue U-4 to the south, and 89th Street East and 94th Street East to the east. This area has been designated as Rural Land 5 (RL5), with a maximum density of 1 residential unit for each 5 gross acres of land, with the following exceptions:

- The area generally bounded by Avenue U to the north, the Littlerock Wash to the west, Pearblossom Highway to the south, and 75th Street East to the east, has been designated as Residential 5 (H5), with a maximum density of 5 residential units for each 1 net acre of land.

A second rural town area surrounds the Sun Village rural town center area and is generally bounded by Avenue Q to the north, the Little Rock Wash to the west, Avenue R to the south, and 115th Street East to the east. This rural town area has been designated as Rural Land 1 (RL1), with a maximum density of 1 residential unit for each 1 gross acre of land; and Rural Land 2 (RL2), with a maximum density of 1 residential unit for each 2 gross acres of land.

A third rural town area is generally bounded by Avenue R to the north, the Little Rock Wash and 87th Street East to the west, Avenue U to the south, and 106th Street East, 116th Street East and 120th Street East to the east. This rural town area has been designated as RL1-and RL2.

The RL1, RL2, RL5 and H5 designations are intended to reflect the rural town area's existing densities and are not intended to promote further land divisions. All future land divisions must comply with any minimum lot sizes as set forth in the Southeast Antelope Valley Community Standards District.

The majority of new residential development in Littlerock and Sun Village (collectively known as Southeast Antelope Valley) should be directed to rural town areas instead of the surrounding rural preserve area, provided that such development is consistent with existing community character and allows for light agriculture, equestrian, and animal-keeping uses, provided that lots meet Zoning Code requirements for those uses. Heavy agriculture uses should be prohibited in the rural town areas because of potential impacts on existing residents. Home-based businesses may also be permitted in the rural town areas, provided that they meet Zoning Code requirements. New land divisions in the rural town areas shall maintain a large minimum lot size to ensure consistency with the desired community character.

The remainder of the communities is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land or Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. These very low densities reflect the underlying infrastructure constraints, environmental resources, and safety constraints. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

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Llano

The community of Llano is located in the southeastern portion of the Antelope Valley, along Pearblossom Highway (State Route 138). Some portions of the community are partially developed with light agricultural uses and single-family homes on large lots, while other portions are largely undeveloped, generally not served by existing infrastructure, and contain environmental resources, such as Significant Ecological Areas.

The community does not have a rural town center area but is served by the rural town center area in Pearblossom. A few parcels along Pearblossom Highway have been designated as Rural Commercial (CR) or Light Industrial (IL), recognizing existing uses and opportunities for additional local services and employment. No other portions of the community have been designated for commercial or industrial use, and new commercial or industrial uses outside these CR and IL designations are strongly discouraged, as they are not compatible with the community character.

The community includes a rural town area that is generally bounded by Pearblossom Highway to the north, 170th Street East and 172nd Street East to the west, Avenue W-14 to the south, and 175th Street East on the east. This area has been designated as Rural Land 5 (RL5), with a maximum density of 1 residential unit for each 5 gross acres of land. This designation is intended to reflect the existing density of the rural town area and is not intended to promote further land divisions.

The majority of new residential development in Llano should be directed to the rural town area instead the surrounding rural preserve area, provided that such development is consistent with existing community character and allows for light agriculture, equestrian, and animal-keeping uses. Heavy agriculture uses should be prohibited in this area because of potential impacts on existing residents. Home-based businesses may also be permitted in this area, provided that they meet Zoning Code requirements.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land, or Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. These very low densities reflect the underlying infrastructure constraints and environmental resources. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Neenach

The community of Neenach is located in the far western portion of the Antelope Valley, along Avenue D (State Route 138). Some portions of the community are partially developed with light agricultural uses and single-family homes on large lots, while other portions are largely undeveloped and contain environmental resources, such as Significant Ecological Areas and Agricultural Resource Areas.

The community does not have a rural town center area but is served by the rural town center areas in Antelope Acres and Lake Hughes. A few parcels on Avenue D have been designated as Rural Commercial (CR) or Light Industrial (IL) in recognition of existing and/or planned commercial and industrial uses. No other portions of the community have been designated for commercial or industrial use, and new

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commercial and industrial uses outside of these CR and IL designations are strongly discouraged, as they may not be compatible with the community character.

The community includes rural town areas that are generally bounded by Avenue B to the north, 270th Street West and 260th Street West to the west, Avenue D to the south, and 250th Street West on the east. These areas have been designated as Rural Land 5 (RL5), with a maximum density of 1 residential unit for each 5 gross acres of land. This designation is intended to reflect the existing density of the rural town areas and is not intended to promote further land divisions.

The majority of new residential development in Neenach should be directed to the rural town areas instead of the surrounding rural preserve areas, provided that such development is consistent with existing community character and allows for light agriculture, equestrian, and animal-keeping uses. Heavy agriculture uses should be prohibited in rural town areas because of potential impacts on existing residents. Home-based businesses are also appropriate in the rural town areas, provided that they meet Zoning Code requirements.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land, or Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. These very low densities reflect the underlying infrastructure constraints and environmental resources. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Pearblossom

The community of Pearblossom is located in the southeastern portion of the Antelope Valley, along Pearblossom Highway between Littlerock and Llano. Some portions of the community are developed with a wide range of uses and a distinctly rural character, while other portions are largely undeveloped, generally not served by existing infrastructure, and subject to safety hazards, such as Seismic Zones and Flood Zones.

The community has a rural town center area along Pearblossom Highway between 121st Street East and 133rd Street East. The rural town center area has been designated as Rural Commercial (CR) or Light Industrial (IL) to serve the daily needs of the residents and provide local employment opportunities. New buildings in the rural town center area should be limited to two stories in height and include Old West or Southwestern design elements at a pedestrian-oriented scale, with primary building entries facing Pearblossom Highway. No other portions of the community have been designated for commercial or industrial use, and new commercial and industrial uses outside of the rural town center area are strongly discouraged, as they are incompatible with the community character.

The rural town center area should continue to be the focal point of the communities and should be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. Public amenities, such as plazas and community bulletin boards, are encouraged in this area.

The community includes rural town areas that are generally bounded by Pearblossom Highway to the north, 121st Street East to the west, Avenue W, the California Aqueduct, and Avenue W-11 to the south, and 135th Street East on the east. North of Avenue W, these areas have been designated as Residential

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2 (H2), with a maximum density of 2 residential units for each 1 net acre of land or Residential 18 (H18), with a maximum density of 18 residential units for each 1 net acres of land. South of Avenue W and west of 128th Street East, these areas have been designated as Rural Land 5 (RL5), with a maximum density of 1 residential unit for each 5 gross acres of land. South of Avenue WE and east of 128th Street East, these areas have been designated as Rural Land 1 (RL1), with a maximum density of 1 residential unit for each 1 gross acre of land. These designations are intended to reflect existing densities of the area and are not intended to promote further land divisions.

The majority of new residential development in Pearblossom should be directed to the rural town areas instead of the surrounding rural preserve area, provided that such development is consistent with existing community character and allows for light agriculture, equestrian, and animal-keeping uses. Heavy agriculture uses should be prohibited in these areas because of potential impacts on existing residents. Home-based businesses may also be permitted in these areas, provided that they meet Zoning Code requirements.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land, or Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. These very low densities reflect the underlying infrastructure and safety resources. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Quartz Hill

The community of Quartz Hill is located in the central portion of the Antelope Valley and is surrounded by the cities of Lancaster and Palmdale. The community is adjacent to urbanized areas and is largely developed with a wide range of uses, but it retains a semi-rural character and residents wish to keep it an unincorporated community with a unique identity.

The community has a rural town center area along 50th Street West between Avenue L-6 and Avenue M-2. The town center area has been designated as Mixed Use – Rural (MU-R) and Light Industrial (IL) to serve the daily needs of residents and provide local employment opportunities. No other portions of the community have been designated for industrial use, and new industrial uses outside of the rural town center area are strongly discouraged, as they are incompatible with the community character. New buildings in the rural town center area should be limited to two stories in height, include Old West or Southwestern design elements with earth tone colors, and should be designed at a pedestrian-oriented scale, with primary building entries facing 50th Street West. In the MU-R designation, a vertical mix of commercial and residential uses is encouraged – for example, a building with commercial uses on the first floor and residential or office uses on the second floor. A horizontal mix of commercial and residential uses may also be appropriate – for example, a commercial building facing 50th Street West, with a residential building located towards the rear of the same lot.

The rural town center area should continue to be the focal point of the community and should be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. Streetscape improvements are recommended for 50th Street West, including native landscaping, "Western" street lights that meet dark sky objectives, and coordinated street furniture, such as benches,

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bus shelters, and bicycle racks. Other public amenities, such as plazas and community bulletin boards, are also encouraged in this area.

Some areas outside the rural town center area have also been designated as MU-R to provide additional commercial services and housing opportunities. These areas include the northwest corner of Avenue N and 50th Street West and the Avenue L corridor between 42nd Street West and 50th Street West. New buildings in these areas should also be limited to two stories in height, include Old West or Southwestern design elements with earth tone colors, and should be designed at a pedestrian-oriented scale with transportation links to surrounding rural town areas. A vertical or horizontal mix of commercial and residential uses may be appropriate in these areas. No other portions of the community have been designated for commercial use, and new commercial uses outside these MU-R designations, or outside the MU-R within the rural town center area, are strongly discouraged, as they are incompatible with the community character.

As the Avenue L corridor between 42nd Street West and 50th Street West develops over time, it will become a secondary rural town center area and should be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. Streetscape improvements are recommended for the Avenue L corridor between 42nd Street West and 50th Street West, including native landscaping, "Western" street lights that meet dark sky, and coordinated street furniture, such as benches, bus shelters, and bicycle racks. Other public amenities, such as plazas and community bulletin boards, are also encouraged in this corridor.

The remainder of the community is considered to be a rural town area. Two properties along Avenue M have been designated as Residential 30 (H30), with a maximum density of 30 residential units for each 1 net acre of land, in recognition of existing multi-family uses. Several parcels adjoining the rural town center area between Avenue L-8 and Columbia Way have been designated as Residential 18 (H18), with a maximum density of 18 residential units for each 1 net acre of land, recognizing existing multi-family units and providing additional housing opportunities. In addition, a property at the northwest corner of Avenue M and 70th Street West, and several parcels on the south side of Avenue L near 40th Street West, has been designated as H18. New multi-family buildings in the H18 designation should be limited to two stories in height and should be designed in a manner that is compatible with nearby single-family homes.

South of Avenue L, the remaining rural town area has been designated as Residential 5 (H5), with a maximum density of 5 residential units for each 1 net acre of land, or Residential 2 (H2), with a maximum density of 2 residential units for each 1 net acre of land. These designations are intended to reflect the area's existing density and are not intended to promote further land divisions, although properties along Columbia Way between 40th Street West and 45th Street West present some land division opportunities. Light agriculture, equestrian, and animal-keeping uses may be permitted in these areas, provided that lots meet Zoning Code requirements for those uses. Home-based businesses may also be permitted in these areas, provided that they meet Zoning Code requirements.

North of Avenue L, the remaining rural town area has been designated as Rural Land 1 (RL1), with a maximum density of 1 residential unit for each 1 gross acre of land. This designation is intended to reflect the area's existing density and is not intended to promote further land divisions. Light agriculture, equestrian, and animal-keeping uses are appropriate in this area, but heavy agriculture uses

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should be prohibited because of potential impacts to existing residents. Home-based businesses are also appropriate in this area, provided that they meet Zoning Code requirements.

Roosevelt

The community of Roosevelt is located in the northeastern portion of the Antelope Valley, north of the City of Lancaster. Community residents are concerned about the urbanization of the area and wish to remain an unincorporated rural community with a unique agricultural identity. Some portions of the community are partially developed with light agricultural uses and single-family homes on large lots, while some portions are in Agricultural Resource Areas and are partially undeveloped with farms and heavy agricultural uses. The remaining portions are largely undeveloped and contain environmental resources, such as Significant Ecological Areas.

The community has a rural town center area located at the intersection of Avenue J and 90th Street East. The rural town center area has been designated as Rural Commercial (CR) to serve the daily needs of the residents and provide local employment opportunities. New buildings in the rural town center area should be limited to one story in height and should be designed at a pedestrian-oriented scale, with primary building entries facing Avenue J or 90th Street East.

The rural town center area should continue to be the focal point of the communities and should be linked to the surrounding rural town area through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. Public amenities, such as community bulletin boards, are encouraged in this area.

Two parcels on 90th Street East have been designated as CR and Light Industrial (IL) in recognition of existing commercial and industrial uses. No other portions of the community have been designated for commercial or industrial use, and new commercial uses outside of this IL designation are strongly discouraged, as they are not compatible with the community character.

The community includes rural town areas that are generally bounded by Lancaster Boulevard to the north, 85th Street East to the west, Avenue J-12 and Avenue J to the south, and 90th Street East on the east. These areas have been designated as Rural Land 5 (RL5), with a maximum density of 1 residential unit for each 5 gross acres of land. This designation is intended to reflect the existing density of the rural town areas and is not intended to promote further land divisions. New land divisions in the rural town areas shall maintain a large minimum lot size to ensure consistency with the existing community character.

The majority of new residential development in Roosevelt should be directed to the rural town areas instead of the surrounding rural preserve area, provided that such development is consistent with existing community character and allows for light agriculture, equestrian, and animal-keeping uses. Heavy agriculture uses should be prohibited in these areas because of potential impacts on existing residents. Home-based businesses may also be permitted in these areas, provided that they meet Zoning Code requirements.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land, and Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. These very low densities reflect the underlying infrastructure constraints and environmental resources.

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Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate. Agricultural uses in Agricultural Resource Areas will be protected and promoted, as directed in the policies of the Conservation and Open Space Element.

Three Points

The community of Three Points is located in the far western portion of the Antelope Valley, south of Neenach and northwest of Lake Hughes. The community is largely undeveloped and is generally not served by existing infrastructure and public facilities, but it does contain some single-family homes on large lots and some agricultural uses. The community is adjacent to the National Forest, includes environmental resources, such as scenic hillsides and Significant Ecological Areas, and is subject to several safety hazards, including the San Andreas Fault and Very High Fire Hazard Severity Zones.

The community does not have a rural town center area but is served by the rural town center area in Lake Hughes. A parcel at the southwest corner of Three Points Road and Pine Canyon Road has been designated as Rural Commercial (CR) in recognition of an existing commercial use. No other portions of the community have been designated for commercial or industrial use, and new commercial uses outside of this CR designation and new industrial uses are strongly discouraged, as they are not compatible with the community character.

The entire community is considered to be a rural preserve area and has been designated as Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. This very low density reflects the underlying infrastructure constraints, environmental resources, and safety constraints. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Response to Submission 4451 (Jacqueline Ayer, Acton Town Council, December 1, 2022)

4451-9055

This is an overview of the commenter's subsequent comments, to which the Authority responds in detail, below. In general, the Authority has concluded that its technical analysis is correct, comprehensive, and compliant with the requirements of both CEQA and NEPA. No further response is needed.

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The commenter disputes the accuracy and methodology of the traffic analysis. The operations analysis of intersections, however, was conducted consistent with the Authority's approved methodology, which was based on the industry-standard Highway Capacity Manual (HCM) methodology (this is also the standard methodology for LA County Public Works Department). The comment seeks the LOS for every approach to every intersection. Consistent with the HCM, however, the Authority used a different, more conservative approach. For unsignalized intersections, the Draft EIR/EIS reports the level of service (LOS) differently for all-way and two-way stop-controlled intersections. At an all-way stop-controlled intersection, the Draft EIR/EIS reports the LOS on the intersection level, based on the weighted average control delay, considering all movements. At a two-way stop-controlled intersection, the uncontrolled approaches (i.e., those that do not have a stop sign) typically have minimal delays because they do not have to stop. Therefore, the Draft EIR/EIS reports the LOS for the intersection as the worst stop-controlled movement because that movement provides a conservative evaluation of entire intersection performance. In other words, for a two-way stop-controlled intersection, the Draft EIR/EIS reports the LOS as the worst LOS of the two approaches that have stop signs. In the case of the intersection of Antelope Woods Road and Crown Valley Road, the worst approach is presented in the Draft EIR/EIS. As shown in Table 3.2-23 of the Draft EIR/EIS, under the Existing plus Spoils Hauling Conditions SR14A, the results indicate LOS F (51.2 second/vehicle of delay), which is the result of the worst approach (eastbound). Conversely, the west approach would operate at LOS B and the north/south uncontrolled approaches would operate at LOS A. Therefore, the Draft EIR/EIS reports accurate LOS results that do not "mask" or "suppress" the construction trucks' impacts on intersection levels of service. The commenter suggests that the rural communities of Acton and Agua Dulce have "virtually all" unsignalized intersections, and the Draft EIR/EIS provides incorrect information on those intersections. As shown above, the traffic analysis followed the HCM and reported the results accurately. To be clear, the traffic method requires LOS analysis of potential construction-truck related impacts only for intersections that would have 17 or more construction trucks trips per day. The Authority completed that analysis consistent with the HCM. As discussed in Appendix 2-E and Section 3.2.4.2 of the Draft EIR/EIS, IAMFs and Mitigation Measures were identified to reduce the effect of construction vehicles on traffic circulation. In addition, the Authority would add traffic signals to affected unsignalized intersections to improve LOS and intersection operations. Other types of

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measures that could be applied to address school-related activities include restricted hours for construction activities to avoid drop-off and pick-up times of schools, stationing flaggers at intersections, upgrades to drop-off and pick-up locations and procedures, temporary fencing, and outreach and education. These measures would reduce congestion during peak hours so that large back-ups would not occur. For reference, automobile delay is not considered a significant environmental impact under CEQA; as such, mitigation is not required. No further analysis is required.

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Refer to Standard Response PB-Response-SOCIO-3: Health and Safety of Children.

The commenter is concerned about significant traffic impacts from construction of the SR14A Build Alternative at the intersection of Antelope Woods Road and Crown Valley, potential impacts to High Desert Middle School, and the results of the Draft EIR/EIS traffic analysis.

As documented in Section 3.2.6.3 of the Draft EIR/EIS, weekday AM and PM peak hour existing (no project) conditions were determined for year 2015 for all analysis locations, including the intersection of Crown Valley Road and Antelope Woods Road. These existing conditions were based on 2015 intersection and roadway counts, which reflected conditions before the COVID-19 pandemic. More information regarding the development of existing conditions is included in the Palmdale to Burbank Project Section: Transportation Technical Report. Electronic versions of the Technical Reports are available by submitting a request on the Authority's portal (available at: https://hsr-ca.nextrequest.com/). For more information about how to obtain a copy of this report, see Standard Response PB-Response-GEN-7: Access to Technical Reports.

As an important matter of clarification, the traffic study referenced in the comment (and in footnote 1) had incorrect geometry at the westbound approach: the intersection allows for two lanes (right and through-left), but the referenced study included only one lane. This would make the results of the study's operations analysis worse than actually occurs. The transportation analysis conducted for the project, and documented in the Transportation Technical Report, used the correct geometry at this location and, as a result, presents the most accurate results.

In response to the commenter's concerns regarding construction traffic near High Desert Middle School, based on the preliminary spoils generation site and haul routes, it is anticipated that construction spoils trucks would not pass directly in front of High Desert Middle School; instead, trucks would use the west leg of the intersection to access the spoils generation site. As such, they would be assigned to the southbound right-turn and eastbound left-turn movements, thus not using Antelope Woods Road east of the intersection with Crown Valley Road which is where High Desert Middle school is located. Thus, the SR14A Build Alternative would limit impacts associated with

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construction and no changes to the EIR/EIS are required. For additional information related to schools and safety, please refer to Standard Response PB-Response-SOCIO-3: Health and Safety of Children.

The commenter also identifies what they refer to as a "far less appropriate mitigation measure" to "delay all construction traffic during morning and afternoon time intervals when school children are being picked up and dropped off." As discussed in Section 3.2.4.2 of the Draft EIR/EIS, the Build Alternatives include several IAMFs that require the construction contractors to minimize traffic impacts during construction. These include TR-IAMF#2, which requires the development of a Construction Transportation Plan (CTP) that will, at a minimum, as it pertains to schools and school-aged children, include: "[p]rovisions for safe pedestrian and bicycle passage or convenient detour"; temporary bus stops away from construction and "[a]dequate measures...to separate students and parents walking to and from the temporary bus stop from the construction zone"; "[a]dvance notification to the local school district of construction activities and rigorously maintained traffic control at all school bus loading zones, to provide for the safety of schoolchildren" as well as a review of "existing or planned Safe Routes to Schools with school districts...to incorporate roadway modifications that maintain existing traffic patterns and fulfill response route and access needs during project construction and HSR operations"; the "[i]dentification and assessment of the potential safety risks of project construction to children, especially in areas where the project is located near...schools"; and the "[p]romotion of child safety within and near the project area. For example, crossing guards could be provided in areas where construction activities are located near schools...". TR-IAMF#6 is also included, which restricts construction and truck delivery hours to avoid peak traffic periods, and TR-IAMF#7 which limits trucks to the appropriate routes and away from schools wherever possible.

The types of measures that could be applied at key intersections along Crown Valley Road to address school-related activities as part of these IAMFs include, but are not limited to, the following:• Filling and queueing trucks during truck limitation periods, which leave en masse after drop-off/pick-up times.• Aligning schedules so that routes located near schools overlap as much as possible with summer breaks.• Pause construction for the afternoon pick-up period, but then extend a few hours later.• Restrict construction activities on a case-by-case basis (by location) to minimize conflicts with

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peak commute congestion, this typically occurs between 7:00-9:00 AM and 4:00-6:00 PM, or longer depending on which portion of the alignment.• Modify truck routes to avoid the most sensitive land uses, when they are active. As described above, the Authority has identified IAMFs that will, in effect, implement the commenter's suggestions of limiting construction traffic when school children are being picked up and dropped off.

Lastly, as to the commenter's concerns with traffic mitigation, as discussed in Draft EIR/EIS Appendix 2-E and Section 3.2.4.2 of the Draft EIR/EIS, IAMFs and Mitigation Measures were identified to reduce the effect of construction vehicles on traffic circulation. In particular, TR-MM#12 would reduce impacts associated with haul route traffic, including the scheduling of a majority of travel during off-peak hours, stationing traffic control officers, developing alternative routes to reduce trucks on sensitive facilities, and developing and implementing an outreach program. These elements would help address the effects of construction trucks on uses near the Antelope Woods Road and Crown Valley Road intersection. In addition, the contractor would be required to prepare and implement specific CMPs (congestion management practices) to ensure safe transit, pedestrian, and bicycle access during construction (TR-IAMF#4, TR-IAMF#5, TR-IAMF#11, and TR-IAMF#12).

The commenter suggested constructing temporary on- and/or off-ramps to and from SR 14 to accommodate construction spoils hauling trucks. This suggested measure would not be feasible because, for one reason, the Authority lacks the jurisdiction to execute this measure. Primarily, access to and from freeways is regulated by Caltrans, which has standards for interchange spacing, ramp grades, horizontal and vertical curves, sight distances, and other design and engineering factors. To provide access to these ramps, new roadways would need to be constructed. All these facilities would be located on property not owned by the Authority. In addition, these new facilities would need to be environmentally cleared and may result in significant impacts to the built and natural environment that would require supplemental mitigation.

Response to Submission 4451 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

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The commenter provides comments about the accuracy of the spoils analysis and the traffic assumptions. The spoils hauling analysis presents two scenarios: one with all of the spoils deposited in locations to the north of the study area (called Northbound Routing) and one with all of the spoils deposited in locations to the south of the study area (called Southbound Routing). Contrary to the assumptions of the comment, the different routing directions do not always result in the spoils haul-trucks traveling only in those directions. A Southbound Routing spoils haul-truck may initially travel north to reach a roadway that would allow it to travel faster and to reach its destination in less time.

As shown in Table 3.2-20 of the Draft EIR/EIS, the Existing (2015) conditions would sometimes be the same for both the Northbound Routing and Southbound Routing options. That results because, whether going north or going south, the spoils haul-trucks would often use the same freeway and the same path to the freeway from the construction site. In other words, for study locations that are located outside of the influence of the freeway ramps, traffic volumes would be the same for both the Refined SR14 and SR14A Build Alternatives. As an example, the volumes on Sierra Highway west of Pear Blossom Highway (Map ID B) would be the same for the Northbound Routing and Southbound Routing because trucks would use this section of Pear Blossom Highway from the spoils generation site to the freeway interchange with SR 14; at the interchange, trucks would either access the northbound ramp or the southbound ramp--depending on the routing. Table 3.2-23 shows the traffic effects at the interchanges that result from the different routing. It shows different intersection level of service results for the Northbound Routing and Southbound Routing.

As noted in the text, Table 3.2-20 only presents roadway segments where the Refined SR14 and SR14A Build Alternatives would result in unacceptable operating conditions. Other locations and time periods were also assessed; however, the project would not result in unacceptable conditions at these locations. As such, this information was not included in the Draft EIR/EIS but can be found in the background Transportation Technical Report. No changes to the analysis is required to address this comment.

4451-9059

The commenter raises concerns about the applicability of some traffic mitigation measures in the study area and asserts that they are inconsistent with the local plans. The Antelope Valley Area Plan, in particular, states, "[the term 'rural' is defined by the following characteristics: . . . An absence of infrastructure generally found in urban and suburban areas, including but not limited to . . . street lighting, and traffic signals." Moreover, it states, "[n]ew development in the rural town center that would require the installation of urban infrastructure, such as . . . street lights, and traffic signals, shall be strongly discouraged as this does not fit with the community's unique rural character and identity." In other words, it is a non-mandatory policy because it only discourages installing street lights and traffic signals, but does not preclude them, and is silent as to their temporary use. Details on the IAMFs and Mitigation Measures can be found at in Appendix 2-E, Section 3.2.4.2 and Section 3.2.7 of the Draft EIR/EIS. TR-MM#4 is one of many mitigation measures that were developed to reduce the effect of spoils hauling on local intersections. TR-MM#4 states that temporary traffic signals may be provided during construction to improve traffic flows at unsignalized intersections. The Authority will not temporarily install signals at intersections if they do not meet signal warrants. Any new traffic signal would need to occur within existing pavement or disturbed graded right-of-way and would involve minor physical disturbance that could cause secondary environmental effects. In areas like Acton where use of temporary signals may not be appropriate from a land use/rural character perspective, other measures that could be considered include employing flaggers, temporary intersection/roadway restriping, modifications to haul routes, and the development of detour routes. It is the Authority's intention to remove temporary traffic signals installed to address construction traffic generated by spoils haul-trucks after the construction period is over. However, regardless, because the Antelope Valley Area Plan only discourages installing street lights and traffic signals, but does not preclude them and is silent on the use of temporary ones, the project's use of temporary construction signals is not inconsistent with the Plan. A project cannot be inconsistent with a non-mandatory policy.

As suggested by the commenter, the construction of temporary on- and/or off-ramps to and from SR 14 would not be feasible to accommodate construction spoils haul-trucks. Primarily, access to and from freeways is regulated by Caltrans, which has standards for interchange spacing, ramp grades, horizontal and vertical curves, sight distances, and other design and engineering factors. To provide access to these ramps, new roadways

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would need to be constructed. All of these facilities would be located on property not owned by the Authority. In addition, these extensive new facilities would need to be environmentally cleared, and may result in significant impacts to the built and natural environment that would require supplemental mitigation.

4451-9060

The commenter addresses the Authority's required mitigation and also suggests that details of the mitigation measures are missing. Details on the IAMFs and Mitigation Measures can be found at in Appendix 2-E, Section 3.2.4.2 and Section 3.2.7 of the Draft EIR/EIS. IAMFs and Mitigation Measures were developed to address transit, pedestrian, and bicycle access during construction (TR-IAMF#4, TR-IAMF#5, TR-IAMF#11, and TR-IAMF#12). In particular, TR-IAMF#12 identifies the Authority's commitment to ensuring pedestrian and bicycle safety throughout construction. In addition, mitigation measures TR-MM#1 through TR-MM#8 identify improvements to intersections and roads, including modification of intersection configurations, addition of lanes, and the provision of temporary traffic signals. The analysis of safety hazards resulting from construction of the section is presented in Section 3.11.6.2.

The environmental analysis considers these IAMFs to be part of the project design. As such, the IAMFs are not deferred mitigation measures. The IAMFs reflect standard requirements for design and construction and standard procedures to be followed during construction. These will be incorporated into the project delivery specification and will result in a tangible avoidance or minimization of environmental impacts as described in the impact analysis sections. Additional information can be found under Impact TRA#7 in Section 3.2.6.3.

Section 3.2.6.3 presents the construction impacts and the spoils hauling effects on roadway segments, intersections, and on-ramps, including locations in the Town of Acton.

In Impact TRA#6, the Authority analyzed potential means to improve transit, bicycle, and pedestrian conditions during construction. Those may include modifications to haul routes, temporary relocation of bus stops and/or rerouting of bus routes, striping of improved bicycle facilities, temporary construction protection barriers, lighting enhancements, flaggers, intersection control modifications, and reduced speed limits. The Authority expects that mitigation measures like these will prevent hazardous conditions that would substantially interfere with pedestrian or bicycle movements or access during spoils hauling. That expectation provides the metric by which the Authority will measure the effectiveness of the mitigation measures.

Response to Submission 4451 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4451-9061

The commenter notes that some project spoils would be disposed of at the Vulcan Mine site but there are no specific agreements in place at this time for use of the Vulcan mine site. The Vulcan Mine site would be used for the deposition of spoils for both the Refined SR14 and the SR14A Build Alternatives. The Vulcan Mine site is located on ANF property within the boundaries of the SGMNM. The USFS, which manages the ANF and SGMNM, is a cooperating agency in the preparation of this EIR/EIS. The Authority and the USFS have discussed use of the Vulcan Mine for this purpose for many years and believe that use of the site, which would result in restoring much of it to a more natural topography, would be a beneficial use. As such, the Authority reasonably expects the necessary agreements will be obtained once the Preferred Alternative is selected and approved, and there is no evidence that necessary agreements cannot or will not be obtained. In the unexpected event that the Vulcan Mine cannot be used, the Authority would evaluate whether supplemental environmental review under CEQA and NEPA would be required.

4451-9062

The commenter raises a question about the location and presence of roadways in the Agua Dulce area. Burke Road is a private roadway that intersects with Agua Dulce Canyon Road about 600 feet to the south of the SR 14 eastbound on- and off-ramp intersection with Agua Dulce Canyon Road. Burke Road connects with Agua Dulce Canyon Road at the east side of Agua Dulce Canyon Road. Draft EIR/EIS Table 3.2-7 refers to the segment of Agua Dulce Canyon Road between that private road and Briggs Edison Road.

No changes are required to the technical analysis documented in the Draft EIR/EIS.

4451-9063

The commenter reiterates a statement from the Draft EIR/EIS that the Refined SR14 and SR14A Build Alternatives would degrade LOS to unacceptable levels for up to 6.4 years. The commenter also notes discrepancies that they provided in Comment #9061 (related to disposal at the Vulcan Mine Site) and Comment #9062 (related to the accuracy of the assumptions used about Burke Road). The commenter asks whether impacts would be more or less severe when the discrepancies noted in Comment #9061 and Comment #9062 are corrected. Please refer to Response to Comment #9061 and #9062, which describes why the assumptions used by the Authority are correct and why no revisions are needed to the Draft EIR/EIS in response to those comments. As such, there are no discrepancies that need to be addressed as part of Table 3.2-20 or in the relevant technical analysis. Since no changes are needed to the analysis, the impacts as identified will not be more or less severe and thus do not need to be modified in the EIR/EIS.

4451-9064

The commenter reiterates a statement from the Draft EIR/EIS that the E1 and E1A Build Alternatives spoils hauling would degrade LOS and V/C ratios to unacceptable levels. The commenter also notes discrepancies that they provided in Comment #9061 (related to disposal at the Vulcan Mine Site) and Comment #9062 (related to the accuracy of the assumptions used about Burke Road). The commenter asks whether impacts would be more or less severe when the discrepancies noted in Comment #9061 and Comment #9062 are corrected. Please refer to Response to Comment #9061 and #9062, which describes why the assumptions used by the Authority are correct and why no revisions are needed to the Draft EIR/EIS in response to those comments. As such, there are no discrepancies that needs to be addressed as part of Table 3.2-21 or Table 3-22, or in the relevant technical analysis. Since no changes are needed to the analysis, the impacts as identified will not be more or less severe and thus do not need to be modified in the EIR/EIS.

Response to Submission 4451 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4451-9065

The commenter states a concern regarding whether mitigation is deferred.

Mitigation Measures were identified to reduce the effect of construction vehicles on traffic circulation, pedestrians, bicyclists, and transit, as documented in Section 3.2.7 Mitigation Measures and Appendix 3.1-C: Standardized Mitigation Measures.

All mitigation measures would require documentation of implementation, monitoring and reporting, and subject to the Mitigation Monitoring and Enforcement Plan (MMEP). CEQA Guidelines Section 15126.4 (B) states: "formulation of mitigation measures shall not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will considered, analyzed, and potentially incorporated in the mitigation measure."

The Authority would commit to its mitigation through adoption of an MMEP. TR-MM#12 includes specific performance standards (i.e., maintaining the flow of traffic in and around the construction zone) as described in the Draft EIR/EIS. The Authority identifies the actions that can be achieved to meet performances standards (TR-MM#12 includes 9 bullet points of typical measures). In particular, TR-MM#12 intends to relocate spoils collection areas and to relocate access to minimize delays during peak hours. For these reasons, TR-MM#12 is not deferred.

4451-9066

The commenter questions whether restricting spoils truck-hauling hours to non-peak hours would disrupt the project timeline and schedule. As discussed in Section 3.2.4.2 of the Draft EIR/EIS, the Build Alternatives include several IAMFs that require the construction contractors to minimize traffic impacts during construction. These include TR-IAMF#2, which requires the development of a Construction Transportation Plan (CTP), TR-IAMF#6, which restricts construction and truck delivery hours to avoid peak traffic periods, and TR-IAMF#7, which limits trucks to the appropriate routes. In addition, other IAMFs address bicycle, pedestrian, transit, and rail access, off-street parking, and special events. In general, implementation of the IAMFs would reduce the potential for spoils hauling impacts by limiting the amount of trucks and construction workers during times when the use of the streets would be highest. Please note that the commenter states that "this seems a reasonable thing to do." If necessary, the contractor can apply the following measures at key intersections to address spoils hauling restrictions during peak periods: •Filling and queueing trucks during truck limitation periods, and leave *en masse* after peak periods. •Aligning schedules so that routes located near schools overlap as much as possible with summer breaks from school. •Pause construction for the afternoon peak period, but then extend a few hours later. •Restrict construction activities on a case-by-case basis (by location) to minimize conflicts with peak commute congestion, this typically occurs between 7:00-9:00 AM and 4:00-6:00 PM, or longer depending on which portion of the alignment. •Modify truck routes to avoid the most sensitive land uses, when they are active. Given the many options for avoidance and the different spoils hauling locations (i.e., some locations are not near school facilities and will not have restrictions and others are near school facilities), site-specific ways of managing trucks to stay out of the periods of importance to the local community would not affect the overall construction schedule.

Response to Submission 4451 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

4451-9067

This comment summarizes and recapitulates the commenter's prior assertions that data presented in the Traffic Analysis of the Draft EIR/EIS is unreliable and incorrect, and that there are other deficiencies and CEQA violations. Commenter requests the Traffic Impact section be revised and recirculated for public comment. This comment represents an overview of prior specific comments, to which the Authority has responded to with specificity as part of other comments on the Draft EIR/EIS. The Authority has concluded that its transportation analysis is comprehensive and accurately depicts the potential impacts from the construction and operation of the Build Alternatives and is in compliance with the requirements of CEQA and NEPA. The commenter has identified no new, significant impact that requires a supplemental environmental impact statement or recirculation.

4451-9068

The commenter is concerned about significant impacts with construction of either the Refined SR14 or SR14A Build Alternatives, in particular at the intersection of Antelope Woods Road and Crown Valley Road. Details of the assessment were included in response to Comment 9057.

In summary, the Authority analyzed weekday AM and PM peak hour existing (no project) conditions for year 2015 for all analysis locations, including the intersection of Crown Valley Road and Antelope Woods Road. More information regarding the development of existing conditions is included in the Transportation Technical Report. The Authority reviewed the Hall &Foreman traffic study submitted by the commenter as Attachment A. The Authority found that that study used incorrect geometry at the westbound approach to the intersection of Crown Valley Road and Antelope Woods Road: the intersection allows for two lanes (right and through-left), but the study included only one lane. This inaccuracy led the operations analysis to report worse LOS conditions than actually occur. The Authority's transportation evaluation conducted for the Draft EIR/EIS used the correct geometry at this location. No further response is needed.

4451-9069

The Authority has reviewed the attached excerpts of the Antelope Valley Area Plan. The Authority has also evaluated the Antelope Valley Area Plan in the Draft EIR/EIS, including in Section 3.13, and Appendix 2-H. It understands that the commenter provided these excerpts in support of Comment 9059. In responding to that comment, the Authority has referenced this plan, in particular.

Submission 4452 (Jacqueline Ayer, Acton Town Council, December 2, 2022)

Palmdale - Burbank - RECORD #4452 DETAIL

Status :	Delimited
Record Date :	12/2/2022
Interest As :	Business and/or Organization
First Name :	Jacqueline
Last Name :	Ayer
Attachments :	ATC Comment Letter on CHSRA DEIR-DEIS Traffic Section.pdf (171 kb) Final Transportation Comments.pdf (8 mb)

Stakeholder Comments/Issues :

resending transportation comments.

On Thu, Dec 1, 2022 at 3:26 PM Genoveva Arellano <
garellano@arellanoassociates.com> wrote:

> Jacki,
>
>
>
> Rick help me notice that an attachment was not received as part of this
> email. Can you check/re-send?
>
>
>
>
>
> [image: A picture containing vector graphics Description automatically
> generated] <https://arellanoassociates.com/>
>
> *Genoveva L. Arellano*
>
> *Principal*
>
> *Arellano Associates*
>
> *P •* 909.627.2974
>
> *E • *GArellano@arellanoassociates.com
>
>
>
>
>
> *From:* Acton Town Council <atc@actontowncouncil.org>
> *Sent:* Thursday, December 1, 2022 3:11 PM
> *To:* Palmdale_Burbank@hsr.ca.gov
> *Cc:* Genoveva Arellano <garellano@arellanoassociates.com>; Simon,
> Rick(PB)HSR <rick.simon@hsr.ca.gov>; Acton Town Council <
> atc@actontowncouncil.org>
> *Subject:* Comments submitted by the Acton Town Council on Section 3.2 of
> the Palmdale-Burbank Section of the High Speed Rail Project
>
>
>
> *PLEASE CONFIRM RECEIPT*
>
>
>
> To the California High Speed Rail Authority;
>
> Attached please find comments submitted by the Acton Town Council
> pertaining to the "Transportation" impact analysis (Section 3.2) of the
> Draft Environmental Impact Report/Environmental Impact Statement issued by
> the California High Speed Rail Authority for the Palmdale-Burbank Section
> of the High Speed Rail Project.
>
> Please contact the Acton Town Council at atc@actontowncouncil.org if you
> have difficulties opening the attached or require additional information.
>
>
>
> Sincerely,
>
> Jacqueline Ayer
>
> Correspondence Secretary
>

Submission 4452 (Jacqueline Ayer, Acton Town Council, December 2, 2022) - Continued

4452-10243

ACTON TOWN COUNCIL
P.O Box 810, Acton CA 93510

December 1, 2022

California High Speed Rail Authority
Southern California Regional Office
355 S. Grand Avenue, Suite 2050
Los Angeles, CA 90071
Electronic Transmission of 64 pages to
Palmdale_Burbank@hsr.ca.gov

Subject: Acton Town Council Comments on Section 3.2 of the Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement.

Reference: Notice of Notice of Availability/Notice of Public Hearing for the California High-Speed Rail – Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement Issued September 2, 2022.

To the California High Speed Rail Authority;

Attached please find comments submitted by the Acton Town Council on Section 3.2 of the Draft Environmental Impact Report/Environmental Impact Statement prepared for the Palmdale to Burbank Project Section of the California High Speed Rail Project. If you have any questions or require further information, please contact the Acton Town Council at atc@actontowncouncil.org.

Sincerely,

/S/ Jacqueline Ayer
Jacqueline Ayer, Correspondence Secretary
The Acton Town Council

cc: Rick Simon, Engineering Manager, Palmdale-Burbank Section [Rick.Simon@hsr.ca.gov]
Genoveva Arellano, Principal; Arellano & Associates [GArellano@arellanoassociates.com]

"Our lives begin to end the day we become silent about things that matter" Martin Luther King, Jr.

ANALYSIS OF THE "TRANSPORTATION" SECTION PRESENTED IN THE PALMDALE-BURBANK DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT.

1.0 INTRODUCTION

The "Transportation" impact assessment presented in Chapter 3.2 of the Draft Environmental Impact Report/Environmental Impact Statement (hereafter referred to as "the Draft") that was prepared by the California High Speed Rail Authority ("CHSRA") for the Palmdale-Burbank Segment of the High Speed Rail Project ("Project") has been evaluated and numerous factual errors and material deficiencies have been identified. These errors and deficiencies are set forth in the comments presented below; they demonstrate that the Draft does not comply with the California Environmental Quality Act ("CEQA"). Please note: These comments were prepared by a competent engineer with more than 35 years of environmental engineering experience and they present expert opinion supported by facts pertaining to the significant environmental effects that will be caused by the Project and which must be mitigated. Accordingly, the comments provided herein constitute "substantial evidence" as that term is defined by the CEQA Statute [California Public Resources Code §21080(e)(1)] and Guidelines [California Code of Regulations Section 15064(f)(5)]. These comments also demonstrate that CHSRA/FRA have failed to conduct a substantive 'hard look' review of the Project's environmental impacts as required by NEPA.

2.0 MAJOR DEFICIENCIES NOTED IN THE DRAFT.

2.1 The Draft Fails to Properly Report Traffic Impacts at Unsignalized Intersections.

It is appreciated that the Draft assesses traffic impacts at unsignalized intersections in a manner that is consistent with Chapters 19 and 20 of the "Highway Capacity Manual 2010" by using the "vehicle delay" methodology to assess "Level of Service" ("LOS") impacts rather than the "Volume to Capacity" or "v/c" methodology. However, the Draft fails to report the vehicle delay results properly. Specifically, at unsignalized intersections, vehicle delay values are supposed to be reported for all approaches to the intersection. For example, consider the intersection of Antelope Woods Road and Crown Valley Road in Acton; this intersection has 4 approaches (one each from the north, south, east, and west), thus Table 3.2-23 should report a separate LOS value for each of these four approaches. However, Table 3.2-23 reports only one; thus, it provides an incomplete and actually incorrect "picture" of the LOS at this location. Ironically, this omission will work to CHSRA's detriment because (as discussed below), the actual LOS that currently exists at the intersection of Antelope Woods Road and Crown Valley Road is "F" for westbound traffic and "E" for eastbound traffic, which means that that CHSRA's trucks exiting the "Acton Window" construction site will experience significant delays while trying to turn left to access the freeway and will become heavily "backed up" during peak morning hours. This problem that CHSRA trucks will experience is completely masked and arguably suppressed by the Draft because Table 3.2-23 only reports one value for the LOS at this intersection rather than 4 values representing the northbound, southbound, eastbound, and westbound approaches.

1

Submission 4452 (Jacqueline Ayer, Acton Town Council, December 2, 2022) - Continued

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The incomplete and incorrect LOS values reported for unsignalized intersections throughout the Project area render the results reported for both "existing" traffic conditions and "existing + Project" traffic conditions completely erroneous. This is of particular concern to the rural communities of Acton and Agua Dulce (where virtually all intersections are unsignalized) because it means that stakeholders have been provided incomplete and incorrect information regarding actual traffic impacts that will occur in our communities; this prevents us from providing meaningful comments on the Draft's traffic impact analysis.

To address this problem, the Draft must be revised to properly report LOS values at unsignalized intersections under both "existing" and "existing + project" conditions, and it should be recirculated for public comment and review to ensure that the robust public process guaranteed by CEQA and NEPA is achieved.

2.2 Traffic Impacts at the Intersection of Crown Valley Road and Antelope Woods Road will be much more Significant than What is Reported in the Draft.

It has been repeatedly pointed out in meetings with CHSRA engineers and staff that the intersection of Antelope Woods Road and Antelope Valley Road is the most sensitive traffic area in the Community of Acton and that the excessive truck traffic that will result at this intersection if the SR14A alternative is selected will be significantly adverse. This intersection already experiences significant traffic loads that pose safety risks to our residents because it is 1) adjacent to the High Desert Middle School where children from Acton and Agua Dulce congregate after school while they walk to the Park or the Library; 2) it is immediately adjacent to 14 Freeway intersection that are heavily used by freeway commuters in the morning and afternoon to access the freeway-serving fast food and service station businesses located at freeway intersections; ad 3) it is where traffic congestion is already significantly adverse, particularly in the morning during school drop-off events. Yet, the Draft indicated that there are no traffic problems at the intersection of Antelope Woods Road and Crown Valley; in fact, it assigns a current "Level of Service" ("LOS") condition of "B" to this intersection [Table 3.2-23]. It is not known where this result came from or whether the traffic study that resulted in these LOS values was conducted at a time that accurately represents typical traffic conditions in the area; however, it is suspected that any traffic analysis that was conducted at this intersection occurred during the COVID pandemic because that is when the SR14A route alternative was developed. Accordingly, it is certain that the existing traffic conditions at the intersection of Antelope Woods Road and Crown Valley under normal conditions are very congested and that the intersection does not operate at an LOS of "B". This is not conjecture; it is fact. A pre-pandemic traffic study conducted at this intersection in 2017 clearly shows that, during morning peak hours, the LOS at this intersection is "F"[1]. It is certain that current conditions are even worse now because the middle school has even more children than it did in 2017.

The Draft also fails to address the significant safety risks to school children and other pedestrians that will result from the increased construction traffic at this intersection if the SR14A route is selected. All of this renders the Draft deficient. The Draft must be revised to: 1) accurately report current traffic conditions at this intersection during Peak AM hours;

[1] See page 8 of the traffic study excerpt provided in Attachment 1; only an excerpt is provided because the traffic study itself is very lengthy; a complete copy of the traffic study can be provided upon request.

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2) disclose the actual traffic impacts that will result when construction traffic caused by the SR14A alternative is added to the existing traffic situation at this intersection (especially during peak AM hours); and 3) disclose the child safety and pedestrian risks that already exist at this intersection and the extent to which these risks will be magnified by the construction traffic that will be added by the Project.

Most importantly, the Draft must recommend mitigation measures to reduce the safety risks and terrible traffic impacts that will result at the intersection of Antelope Woods Road and Crown Valley if the SR14A route is selected. The best mitigation measure would be to construct a temporary, dedicated onramp and offramp to the northbound lanes of the 14 freeway from the "Acton Window" construction location; this would deconflict the normal traffic on Crown Valley Road and mitigate safety issues associated with the proximity of potential construction traffic to the High Desert Middle School. A far less appropriate mitigation measure would be to delay all construction traffic during the morning and afternoon time intervals when school children are being picked up and dropped off.

2.3 The Draft Reports Incorrect Peak Hour Traffic Levels on all Roadway Segments that are Analyzed and Also Omits Critical Data.

According to Table 3.2-20, the "northbound" traffic volumes, v/c values, and LOS levels are identical to the "southbound" traffic volumes, v/c values, and LOS levels for every single roadway segment that is evaluated. This is a mathematical impossibility because (for instance) southbound traffic on Sierra Highway near Red Rover Mine Road during peak morning hours is much heavier than southbound traffic because Sierra Highway is a commuter corridor that connects the Antelope Valley to the Los Angeles basin; therefore, southbound lanes are much more heavily used in the morning than northbound lanes. Similar discrepancies are noted in Tables 3.2-21 and 3.2-22 (particularly for the segment of Sierra Highway west of Pearblossom) Another deficiency noted in Table 3.2-20 is that it only reports AM traffic conditions and traffic impact results for Sierra Highway west of Red Rover Mine Road in Acton; it omits PM traffic conditions and traffic impacts for Sierra Highway at this location entirely. This is a substantial deficiency; Northbound traffic on Sierra Highway west of Red Rover Mine Road is significant because Sierra Highway is a critical commuter corridor (as discussed above). Accordingly, the Draft must be revised to consider impacts on this roadway segment at all hours and not just during the morning. The fact is, it appears that none of the results presented in Tables 3.2-20, 3.2-21., and 3.2-23 are accurate or reliable; these are substantial deficiencies which prevent the public from providing meaningful comments on the Draft's traffic impact analysis. The entire traffic analysis section of the Draft should be revised and recirculated for public comment and review to ensure that the robust public process guaranteed by CEQA and NEPA is achieved.

2.4 The Traffic Mitigation Measures Offered by the Draft are Not Appropriate in Rural Communities of Los Angeles County and are in Fact Precluded by Adopted Planning Policies.

Page 3.2-116 of the Draft identifies various traffic mitigation measures, and it specifically identifies the installation of traffic signals under mitigation measure TR-MM#4. This is entirely unacceptable to the residents of Acton because traffic signals are not appropriate in our rural community. The County of Los Angeles has adopted numerous policies in the County General Plan and the Antelope Valley Area Plan that make it explicitly clear that traffic signals and other

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urban infrastructure have no place in rural communities like Acton[2]. Thus, implementation of TR-MM#4 in the Community of Acton is contrary to every aspect of Acton's community profile and it utterly controverts many adopted plan policies and goals. It is understood that CHSRA's position is that it does not have to comply with local plans and policies [Page 3.2-12]; however, CEQA *does* compel CHSRA to ascertain whether the Project (or the Project's mitigation measure) is inconsistent with any general plan policies that were adopted for the purpose of avoiding or mitigating an environmental effect; if these inconsistencies result in significant environmental impacts, mitigation must be provided[3]. In other words, while the Project is not required to conform with local land use and zoning policies, CEQA nevertheless requires the Project to mitigate the significant environmental impacts that arise from non-conformance. There is no question that the installation of a traffic signal in Acton would be utterly inconsistent with environmental protection policies adopted by the County General Plan and AV Area Plan for the purpose of preserving Acton's rural profile by preventing the incursion of urban infrastructure; there is also no question that the installation of a traffic signal in Acton will result in unmitigable significant adverse impacts in the Community by advancing urbanization in a manner that is entirely contrary to our rural profile. Therefore, mitigation TR-MM#4 cannot be implemented in Acton and another solution must be found. For the SR14A route alternative in particular, it is recommended that CSHRA construct temporary onramps and offramps connecting to the 14 freeway directly from the "Acton Window" construction to avoid all construction traffic concerns in our community.

2.5 CHSRA May Not Be Required to Develop Mitigation Measures to Reduce LOS Transportation Impacts of Project Construction, but CHSRA is Required to Identify and Mitigate Transportation Safety Impacts.

The Draft points out several times that, because LOS is not an impact under CEQA, no mitigation measures are required to reduce LOS impacts. While LOS impacts may be "off the table", the traffic, pedestrian, bicycle, and equestrian safety concerns that arise from these LOS impacts are not "off the table", and CHSRA is mandated to address them. Yet, the Draft spends virtually no time discussing safety concerns; in fact, it does not even identify any particular safety concerns at any of the intersections and roadway segments that it analyzes! Worse yet, the Draft offers no mitigation measures for these (unidentified) safety concerns and instead offers vaguely described "Impact Avoidance and Minimization Features" ("IAMFs"). These IAMFs merely commit to the development of construction management plans; they incorporate no performance standards for mitigation and include no discussion on what level of mitigation will be achieved or whether the mitigation will fully address the significant safety impacts that the project will create. As discussed in more detail below, all of this violates CEQA's prohibition on deferring mitigation measures.

[2] Among other things, the AV Area Plan establishes "rural" as an area where traffic signals and other urban infrastructure is absent. See excerpts from the Antelope Valley Area Plan provided in Attachment 2. Also, Page 74 of the County General Plan defines "Rural" as "a way of life characterized by living in a non-urban or agricultural environment at low densities without typical urban services" and it explicitly identifies urban infrastructure as "curbs, gutters and sidewalks; street lighting, landscaping and traffic signalization; public solid waste disposal, integrated water and sewerage system; mass transit; and commercial facilities dependent upon large consumer volumes".

[3] California Code of Regulation, Title 14, Chapter 3, Appendix G.

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3.0 ADDITIONAL DEFICIENCIES NOTED IN THE DRAFT.

For simplicity and to facilitate review, the deficiencies and factual errors noted in the Draft are presented sequentially by page number below,

Page 3.2-15 states in part *disposal of spoils at the Vulcan Mine site would require an agreement with the mine owner and coordination with the USFS.* This would imply that, unlike the other planned disposal sites (Boulevard Mine and CalMat Mine), an agreement is not currently in place to dispose of spoils at this location. This means that the Vulcan Mine site may not be where the spoils are disposed of and a different site will be used that will have different impacts. If the Vulcan Mine site is not where Project spoils will ultimately be deposited and another location is selected, CHSRA will be required to prepare a supplemental EIR/EIS and circulate it for public comment to ensure compliance with both CEQA and NEPA.

Page 3.2-31, Table 3.2-7 defines a segment of Agua Dulce Canyon Road between Burke Road and Briggs Edison Road; however, Burke Road does not intersect Agua Dulce Canyon Road. Therefore, it is unclear what the actual endpoints are for this segment and if it was consistently used throughout the analysis of all impacts presented in the Draft. The Draft must be revised to correct this error not only in the "Transportation" section but also in all other sections of the Draft that rely on this incorrect information.

Page 3.2-63 states "Refined SR14 and SR14A Build Alternative spoils hauling would degrade LOS to unacceptable levels at the roadway segments listed in Table 3.2-20 for up to 6.4 years, depending on location and Build Alternative." Based on the discrepancy noted above, it is not clear how this conclusion was reached; it is also not clear whether, after Table 3.2-20 is corrected, the impact will be more severe or less severe.

Page 3.2-64 states "The E1 and E1A Build Alternatives spoils hauling would degrade LOS and V/C ratios to unacceptable levels at the roadway segments listed in Table 3.2-21. Roadway segments in the spoils hauling RSA are displayed on Figure 3.2-4 though Figure 3.2-6. The E2 and E2A Build Alternatives spoils hauling would degrade LOS and V/C ratios to unacceptable levels at the roadway segments listed in Table 3.2-22." Based on the discrepancy noted above, it is not clear how this conclusion was reached; it is also not clear whether, after Table 3.2-21 is corrected, the impact will be more severe or less severe.

Page 3.2-71 states "Refined SR14 and SR14A Build Alternative spoils hauling would degrade LOS to unacceptable levels at the intersections listed in Table 3.2-23 for up to 6.4 years depending on location and Build Alternative". In particular, the Crown Valley intersection to the SR14 EB and WB ramps will be severely impacted due to the proximity to the window that will be used to support tunnel boring operations. In order to mitigate these impacts, TR-MM#12 requires development of a transportation Congestion Management Plan to address circulation and connections for modes of travel during the construction duration. This "mitigation measure" is completely unacceptable and it impermissibly defers consideration of appropriate mitigation measures in a manner that utterly violates CEQA. Section 15126.4(a)(1)(B) of the CEQA Guidelines makes it clear that "Formulation of mitigation measures shall not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts

Submission 4452 (Jacqueline Ayer, Acton Town Council, December 2, 2022) - Continued

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specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will considered, analyzed, and potentially incorporated in the mitigation measure." Mitigation measure TR-MM#12 does not meet this standard[4]: it does not include performance standards and it does demonstrate that any of the measures it identifies can feasibly achieve anything. Therefore, CHSRA has absolutely no basis to conclude on page 3.2-71 that TR-MM#12 will be effective in reducing impacts associated with haul route traffic.

Page 3.2-80 indicates that a method for reducing traffic impacts will be to restrict construction/spoils hauling hours. While this seems a reasonable thing to do, it seems unlikely that such an approach will actually be implemented because it will interfere with the project schedule and interrupt the "work tempo" needed to achieve the project schedule. The Draft must be revised to explain how restricting construction hours were factored into the project timeline and completion schedule and thereby clearly demonstrate that this mitigation measure can be feasibly implemented.

4.0 CONCLUSION

Because so much of the data that is presented in the Traffic Analysis section of the Draft is unreliable and simply incorrect, and because so many of the measures proposed in the Draft are deficient and violate CEQA because they defer mitigation determinations, the public has been prevented from providing appropriately responsive comments on the Draft. Therefore, the Traffic Impact section should be completely revised and recirculated again for public comment.

[4] Mitigation Measure TR-#12 states "Prepare a Transportation Construction Management Plan—Prior to construction, the Authority will require the construction contractor to develop a plan to manage circulation and connections for modes of travel during the construction duration. Implementation of the transportation CMP will maintain the flow of traffic, bicyclists, pedestrians, and buses in and around the construction zones. Typical measures associated with a CMP include the following...."

6

ATTACHMENT 1

Traffic Study results conducted in 2017 for the intersection of Antelope Woods Road and Crown Valley Road.

7

Submission 4452 (Jacqueline Ayer, Acton Town Council, December 2, 2022) - Continued

TRAFFIC IMPACT STUDY

ACTON RETAIL CENTER PROJECT
ACTON, CA

TUSTIN
17782 17th Street
Suite 200
Tustin, CA 92780-1947
714.665.4500
Fax 714.665.4501

LOS ANGELES
145 S. Spring Street
Suite 120
Los Angeles, CA 90012
213.785.7887

SANTA CLARITA
25152 Springfield Court
Suite 350
Santa Clarita, CA 91355-1096
661.284.7400
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TEMECULA
41951 Remington Avenue
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Temecula, CA 92590-3745
951.294.9300
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14297 Cajon Avenue
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www.hfinc.com

County of Los Angeles

Prepared by:

Hall & Foreman
A Division of David Evans and Associates, Inc.

August 4, 2015

Hall & Foreman
A Division of David Evans and Associates, Inc.

August 4, 2015 Job No. VV.150135.0000

Robert H. Friedman, AIA
Friedman Architects & Contractors
2059 E. Foothill Blvd
Pasadena, CA 91107

RE: TRAFFIC IMPACT STUDY –ACTON RETAIL CENTER PROJECT - ACTON, CALIFORNIA, LOS ANGELES COUNTY

Dear Mr. Friedman;

Hall & Foreman, a Division of David Evans and Associates, Inc. is pleased to submit this Traffic Impact Study (TIS) for the proposed Acton Retail Center Project located in the unincorporated community of Acton, California, Los Angeles County. The project is comprised of a 6,000 square-foot retail building with a 1,600 square foot storage facility and a 3,300 square-foot restaurant, on an approximate 85,250 square foot parcel. The proposed project is located near the intersection of Sierra Highway and Crown Valley Road in the unincorporated community of Acton, California, Los Angeles County.

The report examines the traffic impacts specifically for the project and presents recommended traffic improvements. The report also addresses the impacts of overall growth within the area to assure that cumulative traffic mitigations can be addressed.

We are pleased to have been of assistance to you in processing and obtaining approval for the project. If you have any questions or comments, please feel free to contact me at 760-524-9115.

Respectfully submitted,

Hall & Foreman, a Division of David Evans and Associates, Inc.

REGISTERED PROFESSIONAL ENGINEER
ROBERT KILPATRICK
No. 1573
TRAFFIC
STATE OF CALIFORNIA

Robert A. Kilpatrick, P.E., T.E.
Senior Associate

i

Submission 4452 (Jacqueline Ayer, Acton Town Council, December 2, 2022) - Continued

Hall & Foreman
A Division of David Evans and Associates, Inc.

SUBJECT	BY	DATE	JOB NO	SHEET	OF
TURN MOVEMENTS	TM	10-Mar-15	VV.150135.0000	1	OF 2

E/W STREET : ANTELOPE WOODS ROAD
N/S STREET : CROWN VALLEY ROAD
CONDITION : AM PEAK HOUR
INTERSECTION : 5

CONDITION DIAGRAMS



EXISTING GEOMETRICS **PROPOSED GEOMETRICS**

TURN MOVEMENTS

CONDITION	EXISTING TRAFFIC	TRUCK PERCENTAGE	PROJECT TRIPS	EXISTING PLUS PROJECT TRAFFIC	RELATED PROJECT TRIPS	EXISTING PLUS PROJECT PLUS RELATED PROJECT TRAFFIC
SCENARIO #	1			3		6
ANTELOPE WOODS ROAD						
EB LEFT	5	0%	0	5	0	5
EB THRU	5	0%	0	5	0	5
EB RIGHT	5	0%	0	5	0	5
WB LEFT	55	0%	0	55	0	55
WB THRU	5	0%	0	5	0	5
WB RIGHT	120	0%	0	120	0	120
CROWN VALLEY ROAD						
NB LEFT	5	0%	0	5	0	5
NB THRU	120	15%	20	140	5	145
NB RIGHT	75	0%	0	75	0	75
SB LEFT	210	0%	0	210	0	210
SB THRU	140	15%	20	160	5	165
SB RIGHT	5	0%	0	5	0	5
TOTALS	760	0.3	40	800	10	810

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Santa Clarita Office: 661.284.7400 Tel/ 661.284.7401 Fax
Victorville Office: 760.524.9100 Tel/ 760.524.9101 Fax
Temecula Office: 951.294.9300 Tel/ 951.294.9301 Fax

SORT AR000386

Hall & Foreman
A Division of David Evans and Associates, Inc.

SUBJECT	BY	DATE	JOB NO	SHEET	OF
TURN VOLUME SUMMARY	TM	10-Mar-15	VV.150135.0000	2	OF 2

E/W STREET : ANTELOPE WOODS ROAD
CONDITION : AM PEAK HOUR
N/S STREET : CROWN VALLEY ROAD
PHF : 0.57

NORTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

SOUTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

EAST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

WEST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
1	22	40	18	41	0	36	0	0	0	0	0
0	32	124	42	22	0	67	3	32	0	0	0
0	43	32	9	23	0	31	1	17	0	0	0
0	43	14	3	33	0	3	0	2	0	0	0

	TRUCK TOTAL	AUTO VOLUMES	TOTALS	ROUNDED TOTALS	TRUCK PERCENTAGE
ANTELOPE WOODS ROAD					
EB LEFT	0	0	0	5	0%
EB THRU	0	0	0	5	0%
EB RIGHT	0	0	0	5	0%
WB LEFT	0	57	57	55	0%
WB THRU	0	4	4	5	0%
WB RIGHT	0	131	131	130	0%
CROWN VALLEY ROAD					
NB LEFT	0	0	0	5	0%
NB THRU	19	100	119	120	15%
NB RIGHT	0	73	73	75	0%
SB LEFT	0	210	210	210	0%
SB THRU	18	122	140	140	15%
SB RIGHT	0	1	1	5	0%

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Temecula Office: 951.294.9300 Tel/ 951.294.9301 Fax

SORT AR000387

Submission 4452 (Jacqueline Ayer, Acton Town Council, December 2, 2022) - Continued

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Acton
N/S: Crown Valley Road
E/W: Antelope Woods Road
Weather: Clear

File Name : ATNCVAWAM
Site Code : 20114476
Start Date : 11/18/2014
Page No : 1

Groups Printed- Total Volume

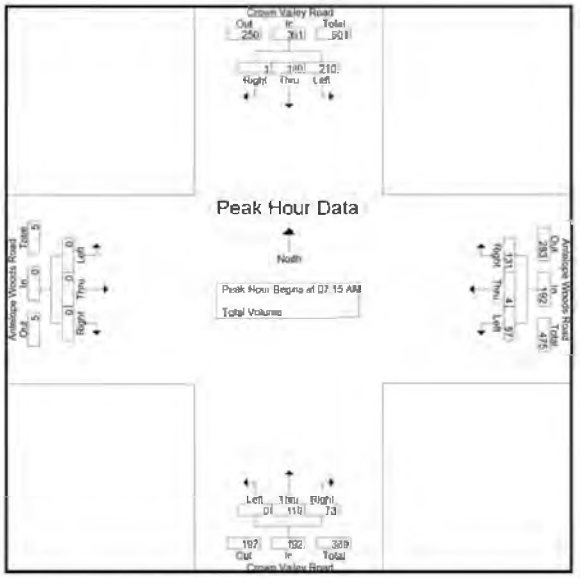
	Crown Valley Road Southbound				Antelope Woods Road Westbound				Crown Valley Road Northbound				Antelope Woods Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	18	21	0	39	1	0	6	7	0	30	4	34	0	0	0	0	80
07:15 AM	40	22	1	63	6	0	30	36	0	41	19	60	0	0	0	0	159
07:30 AM	124	32	0	156	32	3	67	102	0	22	42	64	0	0	0	0	322
07:45 AM	32	43	0	75	17	1	31	49	0	23	9	32	0	0	0	0	156
Total	214	118	1	333	56	4	134	194	0	116	74	190	0	0	0	0	717
08:00 AM	14	43	0	57	2	0	3	5	0	33	3	36	0	0	0	0	98
08:15 AM	20	34	0	54	4	0	7	11	0	51	5	56	0	0	0	0	121
08:30 AM	9	29	0	38	3	0	7	10	0	50	8	58	0	0	0	0	106
08:45 AM	14	20	0	34	2	0	9	11	0	36	2	38	0	0	0	0	83
Total	57	126	0	183	11	0	26	37	0	170	18	188	0	0	0	0	408
Grand Total	271	244	1	516	67	4	160	231	0	286	92	378	0	0	0	0	1125
Apprch %	52.5	47.3	0.2		29	1.7	69.3		0	75.7	24.3		0	0	0		
Total %	24.1	21.7	0.1	45.9	6	0.4	14.2	20.5	0	25.4	8.2	33.6	0	0	0	0	

	Crown Valley Road Southbound				Antelope Woods Road Westbound				Crown Valley Road Northbound				Antelope Woods Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	40	22	1	63	6	0	30	36	0	41	19	60	0	0	0	0	159
07:30 AM	124	32	0	156	32	3	67	102	0	22	42	64	0	0	0	0	322
07:45 AM	32	43	0	75	17	1	31	49	0	23	9	32	0	0	0	0	156
08:00 AM	14	43	0	57	2	0	3	5	0	33	3	36	0	0	0	0	98
Total Volume	210	140	1	351	57	4	131	192	0	119	73	192	0	0	0	0	735
% App. Total	59.8	39.9	0.3		29.7	2.1	68.2		0	62	38		0	0	0		
PHF	423	814	250	563	445	333	489	471	.000	726	435	750	000	000	000	000	571

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City of Acton
N/S: Crown Valley Road
E/W: Antelope Woods Road
Weather: Clear

File Name : ATNCVAWAM
Site Code : 20114476
Start Date : 11/18/2014
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:00 AM				07:15 AM				07:00 AM			
+0 mins.	40	22	1	63	1	0	6	7	0	41	19	60	0	0	0	0
+15 mins.	124	32	0	156	6	0	30	36	0	22	42	64	0	0	0	0
+30 mins.	32	43	0	75	32	3	67	102	0	23	9	32	0	0	0	0
+45 mins.	14	43	0	57	17	1	31	49	0	33	3	36	0	0	0	0
Total Volume	210	140	1	351	56	4	134	194	0	119	73	192	0	0	0	0
% App. Total	59.8	39.9	0.3		28.9	2.1	69.1		0	62	38		0	0	0	
PHF	423	814	250	563	438	333	500	475	000	726	435	750	000	000	000	000

Submission 4452 (Jacqueline Ayer, Acton Town Council, December 2, 2022) - Continued

Hall & Foreman
A Division of David Evans and Associates, Inc.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
INTERSECTION CAPACITY ANALYSIS	TM	10-Mar-15	VV.150135.0000	1	OF 3

E/W STREET : ANTELOPE WOODS ROAD
N/S STREET : CROWN VALLEY ROAD
CONDITION : EXISTING CONDITION, AM PEAK HOUR

INTERSECTION : 5

CONDITION DIAGRAMS



EXISTING GEOMETRICS

TURN MOVEMENTS

MOVEMENT	VOLUME	NUMBER OF LANES	CAPACITY	V/C RATIO	CRITIVAL V/C	TOTAL
EB LEFT	5	0	0	0	X	
EB THRU	5	1	1600	0.01		
EB RIGHT	5	0	0	0		
WB LEFT	55	0	0	0		
WB THRU	5	1	1600	0.12	X	
WB RIGHT	130	0	0	0		
NB LEFT	5	1	1600	0.00		
NB THRU	120	1	1600	0.12	X	
NB RIGHT	75	0	0	0		
SB LEFT	210	1	1600	0.13	X	
SB THRU	140	1	1600	0.09		
SB RIGHT	5	0	0	0		
SUM OF CRITICAL V/C RATIOS						0.372
ADJUSTMENT FOR LOST TIME						0.100
INTERSECTION CAPACITY UTILIZATION (ICU)						0.472
LEVEL OF SERVICE (LOS)						A

Victorville Office: 760.524.9100 Tel/ 760.524.9101 Fax

SORT AR000390

HCM 2010 TWSC
5: CROWN VALLEY RD & ANTELOPE WOODS RD 3/10/2015

Intersection	
Int Delay, s/veh	56.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	5	5	55	5	130	5	120	75	210	140	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	57	57	57	57	57	57	57	57	57	57	100
Heavy Vehicles, %	0	0	0	0	0	0	0	15	0	0	15	0
Mvmt Flow	9	9	9	96	9	228	9	211	132	368	246	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1397	1345	248	1288	1281	276	251	0	0	342	0	0
Stage 1	985	985	-	294	294	-	-	-	-	-	-	-
Stage 2	412	360	-	994	987	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	120	153	796	142	167	768	1326	-	-	1228	-	-
Stage 1	301	329	-	719	673	-	-	-	-	-	-	-
Stage 2	621	630	-	298	328	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	61	106	796	101	116	768	1326	-	-	1228	-	-
Mov Cap-2 Maneuver	61	106	-	101	116	-	-	-	-	-	-	-
Stage 1	299	230	-	714	668	-	-	-	-	-	-	-
Stage 2	428	626	-	199	230	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	47.2	211.5	0.2	5.5
HCM LOS	E	F		

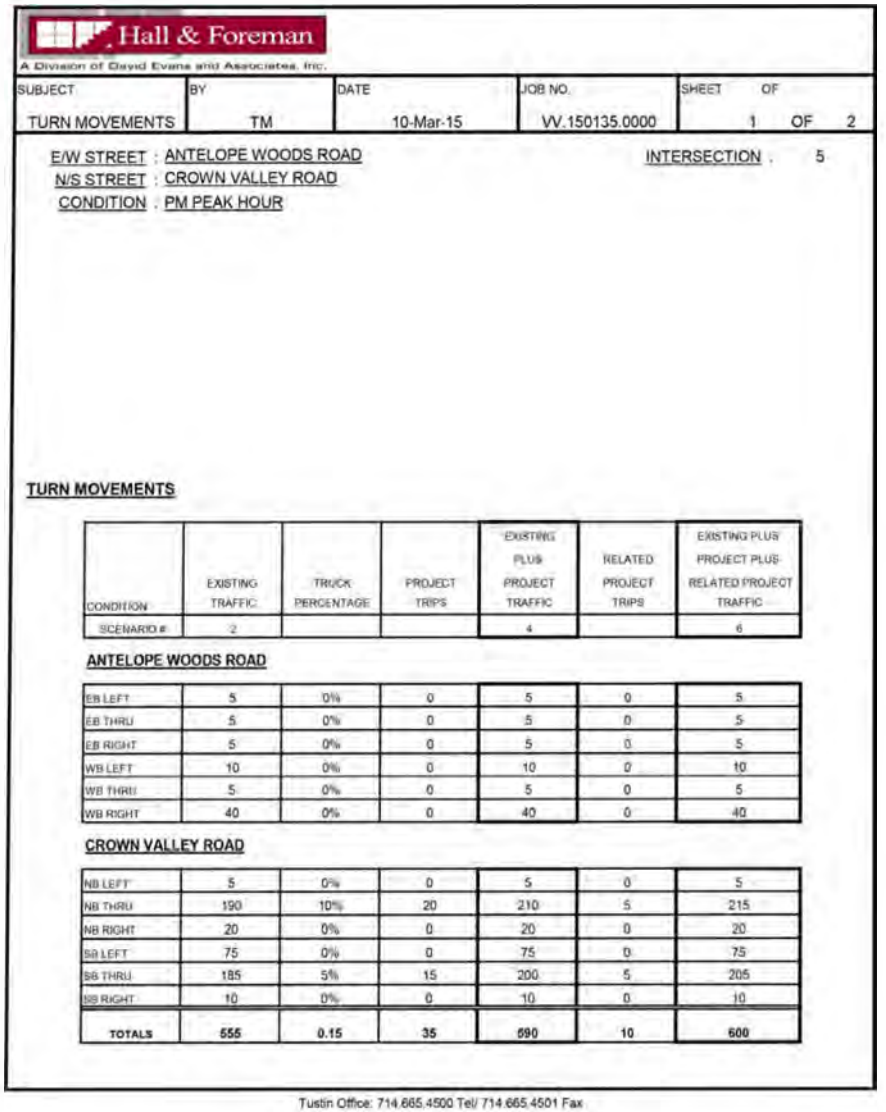
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1326	-	-	111	251	1228	-	-
HCM Lane V/C Ratio	0.007	-	-	0.237	1.328	0.3	-	-
HCM Control Delay (s)	7.7	-	-	47.2	211.5	9.2	-	-
HCM Lane LOS	A	-	-	E	F	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.9	17.5	1.3	-	-

Acton Retail Shopping Center 3/10/2015 Existing Condition, AM
Hall & Foreman, Inc., TM

Synchro 8 Report
Page 1

SORT AR000391

Submission 4452 (Jacqueline Ayer, Acton Town Council, December 2, 2022) - Continued



Hall & Foreman
A Division of David Evans and Associates, Inc.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN MOVEMENTS	TM	10-Mar-15	VV.150135.0000	1	OF 2

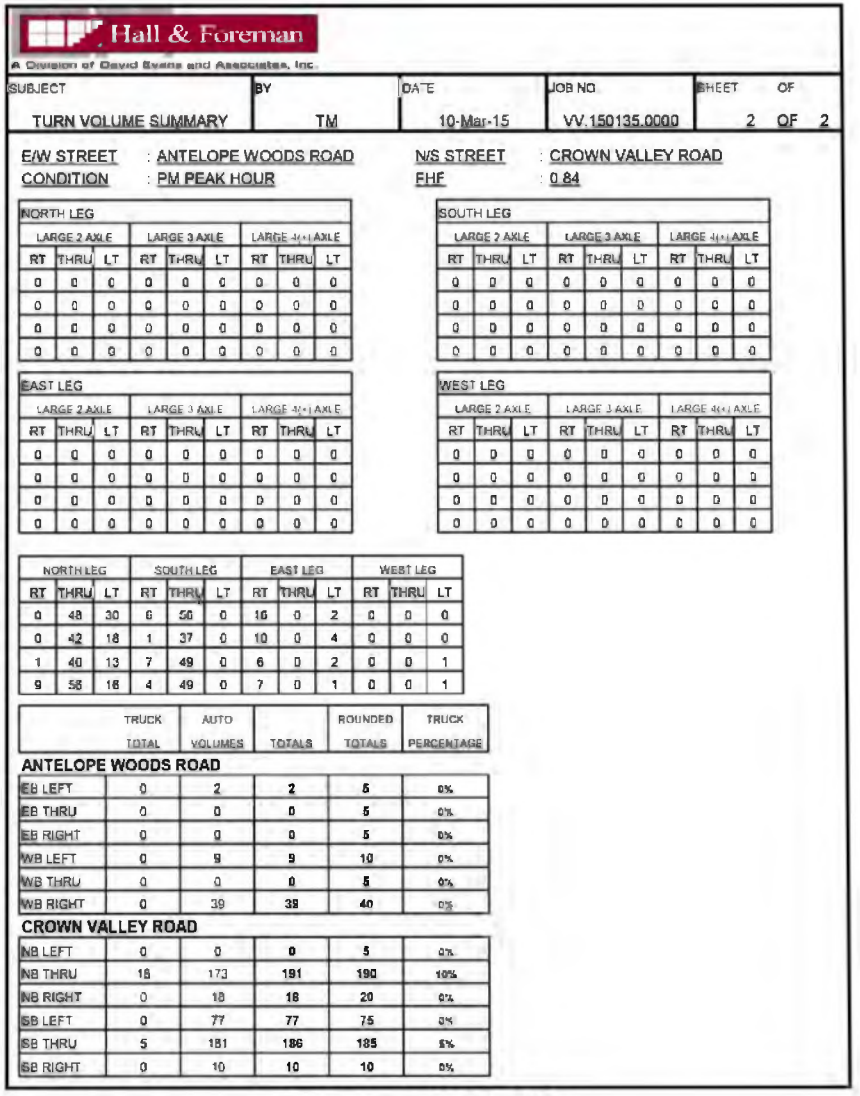
E/W STREET : ANTELOPE WOODS ROAD
N/S STREET : CROWN VALLEY ROAD
CONDITION : PM PEAK HOUR
INTERSECTION : 5

TURN MOVEMENTS

CONDITION	EXISTING TRAFFIC	TRUCK PERCENTAGE	PROJECT TRIPS	EXISTING PLUS PROJECT TRAFFIC	RELATED PROJECT TRIPS	EXISTING PLUS PROJECT PLUS RELATED PROJECT TRAFFIC
SCENARIO #	2			4		6
ANTELOPE WOODS ROAD						
EB LEFT	5	0%	0	5	0	5
EB THRU	5	0%	0	5	0	5
EB RIGHT	5	0%	0	5	0	5
WB LEFT	10	0%	0	10	0	10
WB THRU	5	0%	0	5	0	5
WB RIGHT	40	0%	0	40	0	40
CROWN VALLEY ROAD						
NB LEFT	5	0%	0	5	0	5
NB THRU	190	10%	20	210	5	215
NB RIGHT	20	0%	0	20	0	20
SB LEFT	75	0%	0	75	0	75
SB THRU	185	5%	15	200	5	205
SB RIGHT	10	0%	0	10	0	10
TOTALS	555	0.15	35	590	10	600

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Victorville Office: 760.524.9100 Tel/ 760.524.9101 Fax
Temecula Office: 951.294.9300 Tel/ 951.294.9301 Fax

SORT AR000396



Hall & Foreman
A Division of David Evans and Associates, Inc.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN VOLUME SUMMARY	TM	10-Mar-15	VV.150135.0000	2	OF 2

E/W STREET : ANTELOPE WOODS ROAD
CONDITION : PM PEAK HOUR
N/S STREET : CROWN VALLEY ROAD
PHF : 0.84

NORTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

SOUTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

EAST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

WEST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	48	30	6	56	0	16	0	2	0	0	0
0	42	18	1	37	0	10	0	4	0	0	0
1	40	13	7	49	0	6	0	2	0	0	1
9	56	18	4	49	0	7	0	1	0	0	1

	TRUCK TOTAL	AUTO VOLUMES	TOTALS	ROUNDED TOTALS	TRUCK PERCENTAGE
ANTELOPE WOODS ROAD					
EB LEFT	0	2	2	5	0%
EB THRU	0	0	0	5	0%
EB RIGHT	0	0	0	5	0%
WB LEFT	0	9	9	10	0%
WB THRU	0	0	0	5	0%
WB RIGHT	0	39	39	40	0%
CROWN VALLEY ROAD					
NB LEFT	0	0	0	5	0%
NB THRU	18	173	191	190	10%
NB RIGHT	0	18	18	20	0%
SB LEFT	0	77	77	75	0%
SB THRU	5	181	186	185	5%
SB RIGHT	0	10	10	10	0%

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SORT AR000397

Submission 4452 (Jacqueline Ayer, Acton Town Council, December 2, 2022) - Continued

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Acton
N/S: Crown Valley Road
E/W: Antelope Woods Road
Weather: Clear

File Name : ATNCVAWPM
Site Code : 20114476
Start Date : 11/18/2014
Page No : 1

Groups Printed- Total Volume

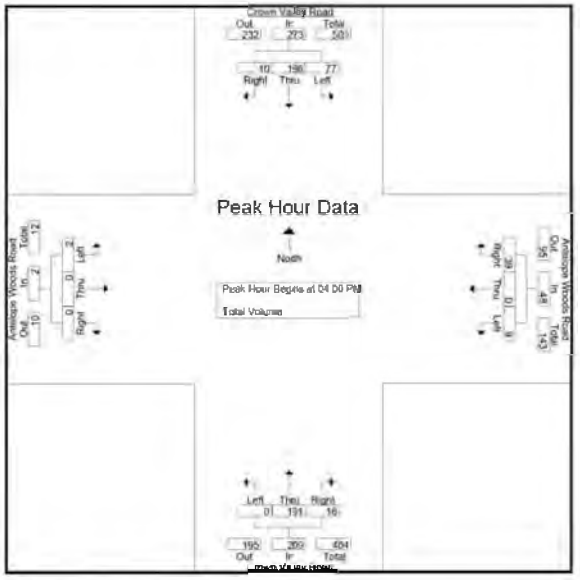
	Crown Valley Road Southbound				Antelope Woods Road Westbound				Crown Valley Road Northbound				Antelope Woods Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	30	48	0	78	2	0	16	18	0	56	6	62	0	0	0	0	158
04:15 PM	18	42	0	60	4	0	10	14	0	37	1	38	0	0	0	0	112
04:30 PM	13	40	1	54	2	0	6	8	0	49	7	56	1	0	0	1	119
04:45 PM	16	56	9	81	1	0	7	8	0	49	4	53	1	0	0	1	143
Total	77	186	10	273	9	0	39	48	0	191	18	209	2	0	0	2	532
05:00 PM	18	48	1	67	6	0	12	18	0	30	8	38	1	0	0	1	124
05:15 PM	16	61	0	77	1	0	11	12	0	45	3	48	0	0	0	0	138
05:30 PM	24	46	0	70	3	0	7	10	0	41	1	42	0	0	0	0	122
05:45 PM	20	37	0	57	2	0	11	13	0	33	1	34	0	0	0	0	104
Total	78	192	1	271	12	0	41	53	0	150	13	163	1	0	0	1	488
Grand Total	155	378	11	544	21	0	80	101	0	341	31	372	3	0	0	3	1020
Apprch %	28.5	69.5	2		20.8	0	79.2		0	91.7	8.3		100	0	0		
Total %	15.2	37.1	1.1	53.3	2.1	0	7.8	9.9	0	33.4	3	36.5	0.3	0	0	0.3	

	Crown Valley Road Southbound				Antelope Woods Road Westbound				Crown Valley Road Northbound				Antelope Woods Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	30	48	0	78	2	0	16	18	0	56	6	62	0	0	0	0	158
04:15 PM	18	42	0	60	4	0	10	14	0	37	1	38	0	0	0	0	112
04:30 PM	13	40	1	54	2	0	6	8	0	49	7	56	1	0	0	1	119
04:45 PM	16	56	9	81	1	0	7	8	0	49	4	53	1	0	0	1	143
Total Volume	77	186	10	273	9	0	39	48	0	191	18	209	2	0	0	2	532
% App. Total	28.2	68.1	3.7		18.8	0	81.2		0	91.4	8.6		100	0	0		
PHF	.642	.830	.278	.843	.563	.000	.609	.667	.000	.853	.643	.843	.500	.000	.000	.500	.842

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City of Acton
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Weather: Clear

File Name : ATNCVAWPM
Site Code : 20114476
Start Date : 11/18/2014
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:00 PM				04:00 PM				04:15 PM			
+0 mins.	16	56	9	81	6	0	12	18	0	56	6	62	0	0	0	0
+15 mins.	18	48	1	67	1	0	11	12	0	37	1	38	1	0	0	1
+30 mins.	16	61	0	77	3	0	7	10	0	49	7	56	1	0	0	1
+45 mins.	24	46	0	70	2	0	11	13	0	49	4	53	1	0	0	1
Total Volume	74	211	10	295	12	0	41	53	0	191	18	209	3	0	0	3
% App. Total	25.1	71.5	3.4		22.6	0	77.4		0	91.4	8.6		100	0	0	
PHF	.771	.865	.278	.910	.500	.000	.854	.736	.000	.853	.643	.843	.750	.000	.000	.750

Submission 4452 (Jacqueline Ayer, Acton Town Council, December 2, 2022) - Continued

Hall & Foreman
A Division of David Evans and Associates, Inc.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
INTERSECTION CAPACITY ANALYSIS	TM	10-Mar-15	VV 150135.0000	1	OF 3

E/W STREET : ANTELOPE WOODS ROAD
N/S STREET : CROWN VALLEY ROAD
CONDITION : EXISTING CONDITION, PM PEAK HOUR

INTERSECTION : 5

CONDITION DIAGRAMS



EXISTING GEOMETRICS

TURN MOVEMENTS

MOVEMENT	VOLUME	NUMBER OF LANES	CAPACITY	V/C RATIO	CRITIVAL V/C	TOTAL
EB LEFT	5	0	0	0	X	
EB THRU	5	1	1600	0.01		
EB RIGHT	5	0	0	0		
WB LEFT	10	0	0	0		
WB THRU	5	1	1600	0.03	X	
WB RIGHT	40	0	0	0		
NB LEFT	5	1	1600	0.00		
NB THRU	190	1	1600	0.13	X	
NB RIGHT	20	0	0	0		
SB LEFT	75	1	1600	0.05	X	
SB THRU	185	1	1600	0.12		
SB RIGHT	10	0	0	0		
SUM OF CRITICAL V/C RATIOS						0.213
ADJUSTMENT FOR LOST TIME						0.100
INTERSECTION CAPACITY UTILIZATION (ICU)						0.313
LEVEL OF SERVICE (LOS)						A

Victorville Office: 760.524.9100 Tel/ 760.524.9101 Fax

SORT AR000400

HCM 2010 TWSC
5: CROWN VALLEY RD & ANTELOPE WOODS RD 3/10/2015

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	5	5	10	5	40	5	190	20	75	185	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	0	0	0	10	0	0	5	0
Mvmt Flow	6	6	6	12	6	48	6	226	24	89	220	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	682	667	226	661	661	238	232	0	0	250	0	0
Stage 1	405	405	-	250	250	-	-	-	-	-	-	-
Stage 2	277	262	-	411	411	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	367	382	818	379	385	806	1348	-	-	1327	-	-
Stage 1	626	602	-	759	704	-	-	-	-	-	-	-
Stage 2	734	695	-	622	598	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	322	355	818	351	358	806	1348	-	-	1327	-	-
Mov Cap-2 Maneuver	322	355	-	351	358	-	-	-	-	-	-	-
Stage 1	623	562	-	756	701	-	-	-	-	-	-	-
Stage 2	682	692	-	570	558	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14	11.8	0.2	2.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1348	-	-	420	597	1327	-	-
HCM Lane V/C Ratio	0.004	-	-	0.043	0.11	0.067	-	-
HCM Control Delay (s)	7.7	-	-	14	11.8	7.9	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.2	-	-

Acton Retail Shopping Center 3/10/2015 Existing Condition, PM
Hall & Foreman, Inc., TM

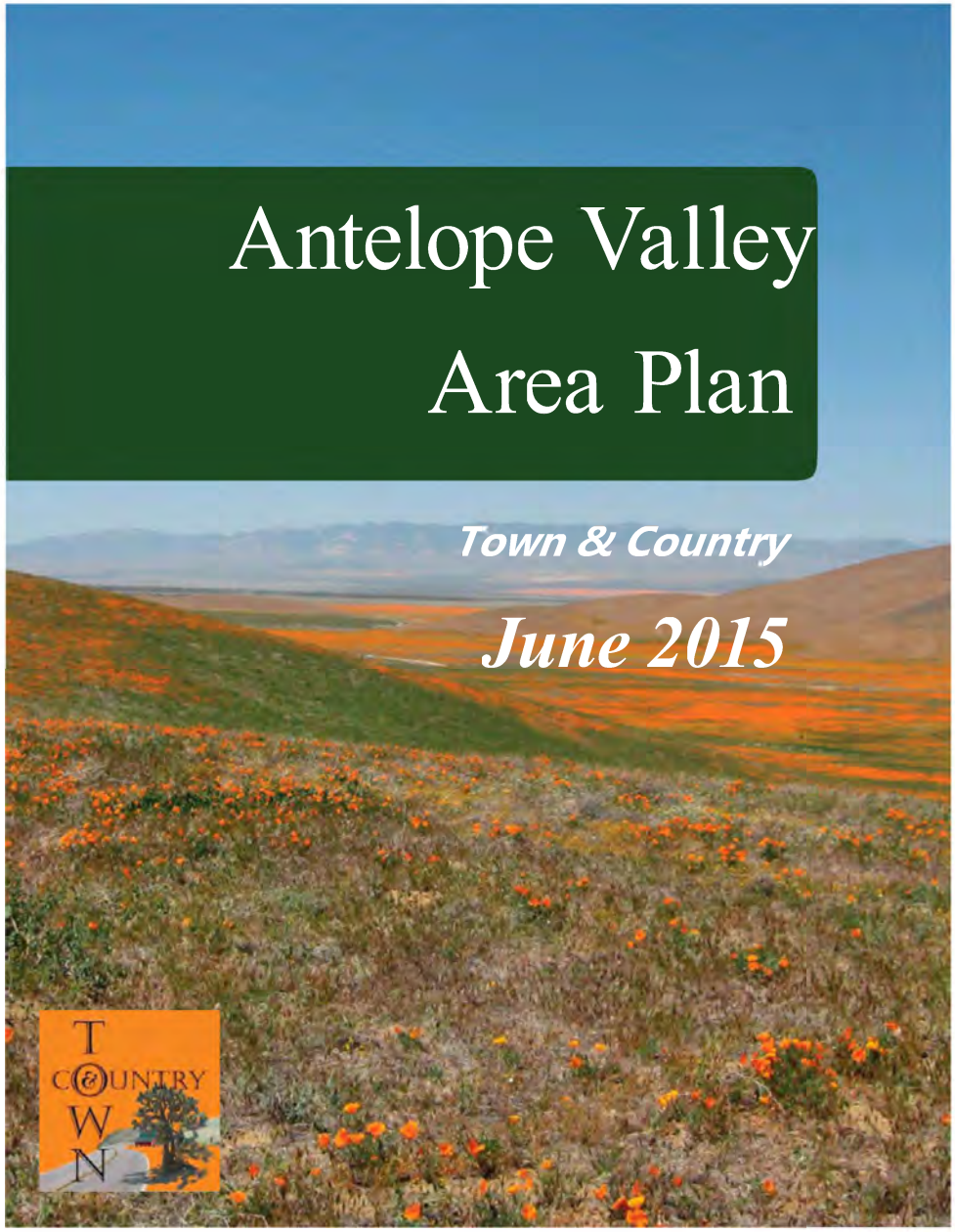
Synchro 8 Report
Page 1

SORT AR000401

Submission 4452 (Jacqueline Ayer, Acton Town Council, December 2, 2022) - Continued

ATTACHMENT 2

Excerpts from Antelope Valley Area Plan.



Submission 4452 (Jacqueline Ayer, Acton Town Council, December 2, 2022) - Continued

Los Angeles County Department of Regional Planning

Antelope Valley Area Plan

Town & Country

June 2015

"To enrich lives through effective

"To improve the quality of life through innovative and resourceful physical and environmental planning, balancing

ACKNOWLEDGEMENTS

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Special Thanks

Department of Public Works
Fire Department
Department of Parks and Recreation
Department of Public Health

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Los Angeles County Department of Regional Planning

Antelope Valley Area Plan

Town & Country

June 2015

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Chapter 1

Chapter 1: Introduction

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I. PURPOSE AND VALUES

Purpose

The purpose of the Antelope Valley Area Plan (Area Plan) is to achieve the communities' shared vision of the future through the development of specific goals, policies, land use and zoning maps, and other planning instruments. This shared vision is articulated in the Town and Country Vision Statement, which was developed by the Antelope Valley communities in various workshops in 2008. It goes:

> The Antelope Valley region is a wonderful place to live, work, play, and raise a family. The Valley is a mosaic of unique small towns in which rural lifestyles are cherished. These diverse towns are unified by an extraordinary environmental setting that includes agricultural lands, natural open spaces, expansive mountain views, diverse ecological habitats, and dark night skies. The Valley's network of trails, roads, and transit link these dispersed towns to each other and to a wide offering of local-serving businesses and quality social, educational, cultural, and recreational services and facilities.
>
> Residents, business owners, and property owners collaborate with a responsive local government to ensure that life in the Antelope Valley region will continue to be exciting, enjoyable, and rewarding. The growing population's need for additional housing and employment opportunities is balanced against the need to respect historical heritage and preserve the natural environment. Public improvements and private developments are sustainable, conserving available resources and relying on alternative energy sources, and complement the small scale of existing rural towns. A wide array of activities and opportunities for youth ensure that the Valley's high quality of life will be sustained for future generations.

The Area Plan is a blueprint for future development and conservation in the Antelope Valley that informs decision-making at all levels to help ensure that individual activities are consistent with, and supportive of, the communities' vision. It is a tool for residents, elected officials, planners, service providers, and developers. Each group will use the Area Plan in different ways, but all are guided by its vision, goals, and policies. Residents will use the Area Plan as a benchmark in attaining their aspirations for the development and preservation of their communities. Elected officials and planners will refer to the Area Plan when allocating resources to address residents' most important issues and priorities. Service providers will use the Area Plan as a guide for deciding which infrastructure and improvement projects should be undertaken and which programs should be established or improved. Developers will look to the Area Plan's goals and policies in deciding what to build, including location, character, and appearance.

As a component of the Los Angeles County General Plan, the Antelope Valley Area Plan refines the countywide goals and policies in the General Plan by addressing specific issues relevant to the Antelope Valley, such as community maintenance and appearance, and provides more specific guidance on

elements already found in the General Plan. The General Plan provides guidance on all issues not covered in the Area Plan.

The Area Plan also helps further the countywide objective of reducing greenhouse gases in order to meet the goals of the California Global Warming Solutions Act of 2006 (Assembly Bill 32) and California's Sustainable Communities and Climate Protection Act (Senate Bill 375), which aim to achieve reductions of greenhouse gases. Los Angeles County has undertaken countywide measures to address these mandates, including adoption of the Green Building, Drought Tolerant Landscaping, and Low Impact Development Ordinances in 2008. The Area Plan strengthens these efforts by including goals and policies to support local development practices and initiatives to reduce greenhouse gas emissions. Implementation of the Land Use, Mobility, and Conservation and Open Space Elements contained in this Area Plan cumulatively affect the future reduction of greenhouse gases both locally and regionally.

Values

All aspects of the Area Plan are informed by a set of core values that ground and guide the Area Plan. In order to best serve the common interests represented in this Area Plan, planning values outline the shared responsibilities of the many partners who will work together to transform goals and policies into a realized vision. The core values of the Antelope Valley Area Plan are:

1. **Collaboration**: The issues and actions identified in the Area Plan are multi-dimensional and complex. As such, it takes a collaborative effort to accomplish the Area Plan's goals. Working in partnership with individuals from public agencies, private organizations and throughout the community, participants in planning and implementation of the Area Plan can come together to achieve the community's vision.

2. **Participation:** The dedicated commitment and ongoing participation of community members, service providers and elected officials will ensure that the Area Plan's implementation over time remains in line with the communities' vision. Community participation also demonstrates to elected leaders and service providers that constituents support the implementation of the Area Plan and expect results.

3. **Accountability**: By adopting this Area Plan, elected leaders have expressed their commitment to achieving the communities' vision by adhering to the Area Plan's goals and policies and by using the implementation actions to guide their work. Land use decisions will be made to benefit the needs of the community as a whole and not individual interests. Accountability means that all stakeholders take responsibility for their respective components of the Area Plan.

4. **Stewardship**: In order for the Area Plan to be effective in achieving the community's goals, people who live, learn, work, and play in the Antelope Valley will have to take an active role in ensuring the Area Plan's timely and thorough implementation. Community members and service providers can and should provide feedback on the insights into the Area Plan's effectiveness.

5. **Balance**: As the diverse and sometimes conflicting needs of current and future stakeholders evolve, the tools within the Area Plan create a framework which allows for balanced decisions to be made. For residents of the Antelope Valley, achieving a balance will unfold gradually. This shall be achieved by encouraging growth and development in appropriate areas of the Antelope Valley and ensuring that these enhance the quality of life of the communities without compromising their rural character.

II. BACKGROUND

Setting

The Antelope Valley planning area is bounded by the Kern County border to the north, the Ventura County border to the west, the Angeles National Forest (inclusive) to the south, and the San Bernardino County border to the east. It excludes the Cities of Lancaster and Palmdale. This area covers approximately 1,800 square miles and includes over two dozen communities.

For a map of the Antelope Valley and the immediate vicinity, please see Map 1.1: Planning Area Boundary.

History

The historic development of the Antelope Valley started in 1876 with the completion of the Southern Pacific Railroad line from San Francisco to Los Angeles via the Antelope Valley. Many communities began to develop, including Lancaster, Palmdale, Rio del Llano and Littlerock, all dependent upon stock raising, dry farming and fruit orchards.

The World War II years brought the development of Edwards Air Force Base and a doubling of the Antelope Valley population. Military defense work expanded in the 1950s, and Palmdale Airport emerged as a national center for jet testing. The latter part of the decade saw the start of an economic downturn throughout the country that slowed military investments in Antelope Valley projects.

The final decades of the 20th century saw the Antelope Valley emerge with major new housing opportunities as vast acreages were subdivided for affordable tract homes. Lancaster and Palmdale incorporated as independent cities, and rural communities continued to grow. Farming regained its status as a productive employer, but the area continued to develop without balancing the growth in housing with a corresponding growth in jobs and investment in infrastructure. Today, many who live in the Antelope Valley commute to jobs in other parts of the Los Angeles Basin. New local commercial centers are expanding the shopping, entertainment and employment opportunities of Antelope Valley residents. For additional information on the setting and history of the Antelope Valley, please see Background Report.

Submission 4452 (Jacqueline Ayer, Acton Town Council, December 2, 2022) - Continued

Past and Current Planning Efforts

The previous Antelope Valley Areawide General Plan was adopted by the Los Angeles County Board of Supervisors on December 4, 1986. It contained Valleywide goals and policies pertaining to land use, housing, community revitalization, community design, human resources, circulation, public services and facilities, governmental services, environmental resource management, noise abatement, seismic safety, public safety, and energy conservation. This Area Plan replaces the previous Antelope Valley Areawide General Plan in its entirety.

This Area Plan covers issues that were important in 1986 and are still important to the communities; for example, managing growth, minimizing disruption of ecological resources, placing development away from natural hazards, and ensuring a variety of housing types and costs. This Area Plan also addresses new issues that have emerged in recent years; for example, maintaining agricultural uses, improving mobility, developing renewable energy resources, and curbing greenhouse gas emissions.

Community Participation

The Area Plan is the result of a highly inclusive and extensive community participation program launched in the fall of 2007. Through a series of 23 community meetings, residents and other stakeholders worked alongside planners to develop a shared vision of the future, identify community issues, draft proposals for the future, and prioritize their recommendations, forming the foundation of the Area Plan.

Building on the foundation laid by the communities, planners partnered with other County departments to explore the recommendations, refine the proposed goals and policies, plan for program implementation, and gather support to ensure success. Plan development is an iterative process, and in this case, the communities were included in the earliest steps of development and subsequent rounds of review. The Area Plan began with, and will be realized by, the dedicated residents and stakeholders who have committed, and will continue to commit their time, energy and interests to the Antelope Valley.

III. VISION AND STRATEGY

Vision Statement

At the heart of the County's approach to community planning is the idea that the Area Plan is an adopted version of the communities' aspirations for the future. Collectively, those aspirations amount to a community vision, based on shared values and common goals. The communities reached consensus on the following vision statement:

> The Antelope Valley region is a wonderful place to live, work, play, and raise a family. The Valley is a mosaic of unique small towns in which rural lifestyles are cherished. These diverse towns are unified by an extraordinary environmental setting that includes agricultural lands, natural open spaces, expansive mountain views, diverse ecological habitats, and dark night skies. The Valley's network of trails, roads, and transit link these dispersed towns to each other and to a wide offering of local-serving businesses and quality social, educational, cultural, and recreational services and facilities.
>
> Residents, business owners, and property owners collaborate with a responsive local government to ensure that life in the Antelope Valley region will continue to be exciting, enjoyable, and rewarding. The growing population's need for additional housing and employment opportunities is balanced against the need to respect historical heritage and preserve the natural environment. Public improvements and private developments are sustainable, conserving available resources and relying on alternative energy sources, and complement the small scale of existing rural towns. A wide array of activities and opportunities for youth ensure that the Valley's high quality of life will be sustained for future generations.

This vision of the Antelope Valley's future serves as a touchstone through the planning process, and it is reflected in the land use map, goals, and policies that comprise the Area Plan.

Issues

Through the planning and visioning process, the County identified issues of Valleywide significance that, it determined, were best addressed in a comprehensive and coordinated manner. In anticipation of future growth, the planning effort focused on ways to manage this growth and addressed the need for balance on the following issues:

1. Preservation and enhancement of each unique town's rural character, allowing for continued growth and development without compromising the rural lifestyle;
2. Preservation of open space around existing towns, in order to preserve hillside areas and significant ridgelines, conserve biological resources, provide opportunities for recreation, and make more efficient use of existing infrastructure in the core areas;
3. Planning for integrated circulation systems, including bikeways, walkways, and multi-purpose trails;
4. Conservation of significant resources, including agricultural lands, mineral resources, water supply, and scenic areas;
5. Preservation of public health, safety, and welfare, through identification of natural and environmental hazards, including noise, seismic, fire, and airborne emissions, and designation of land uses in an appropriate manner to mitigate these impacts; and
6. Coordination on enhancing public and community services such as law enforcement, fire protection, and parks.

Rural Preservation Strategy

The Area Plan's Rural Preservation Strategy addresses issues of Valleywide significance in a manner that builds upon the communities' vision statement. While each community in the Antelope Valley possesses its own identity, they are all unified in the pursuit of preserving the rural lifestyle and the rural

character of the region. This rural character is what makes the Antelope Valley so unique and valuable to the rest of Southern California.

The term "rural" is defined by the following characteristics:

- Living in a low density environment without high intensity land uses, such as regional commercial centers;
- A natural, peaceful, quiet setting, with the ability to find a sense of solitude;
- Views of adjacent natural areas by day, such as hillsides and ridgelines, and views of starry skies by night;
- Agricultural and equestrian uses that are sensitive to the land; and
- An absence of infrastructure generally found in urban and suburban areas, including but not limited to curbs, gutters, sidewalks, street lighting, and traffic signals.

The Rural Preservation Strategy is based on four types of environments – rural town center areas, rural town areas, rural preserve areas, economic opportunity areas – that serve different purposes. Collectively, these environments preserve the rural character of the region, conserve environmental resources, and protect residents from potential hazards while allowing for additional growth and development. For more information on these environments, please see Chapter 2: Land Use Element.

Rural town center areas are the focal points of rural communities, serving the daily needs of residents and providing local employment opportunities. The majority of new locally-oriented public facilities and new locally-oriented commercial uses should be directed to these areas. These areas will provide pleasant pedestrian environments and will be accessible by a range of transportation options to reduce vehicle trips. Some of these areas will allow for a mix of commercial and residential uses.

Rural town areas provide a transition between rural town center areas and rural preserve areas, as they are occupied by a mix of residential and light agricultural uses. Residents living in these areas are willing to forego urban infrastructure and services in order to live in a rural environment. The majority of new residential development should be directed to these areas, provided that such development is consistent with the existing community character and allows for light agricultural, equestrian, and animal-keeping uses where appropriate. These areas will provide transportation linkages to rural town center areas and other nearby destination points.

Rural preserve areas are areas outside of the Town Areas, which are largely undeveloped and generally not served by existing or planned infrastructure and public facilities. Many of these areas contain environmental resources, such as Significant Ecological Areas, Scenic Resource Areas, and Agricultural Resource Areas. In addition, many of these areas contain safety hazards, such as Seismic Zones, Very High Fire Hazard Severity Zones, and Flood Zones. The primary benefit of these areas is that they provide habitat for regionally significant biological species while simultaneously providing scenic value to residents. A secondary benefit of these areas is that they contain natural resources which provide economic opportunities. Development in these areas should be limited to single family homes at very low densities, light and heavy agricultural uses, including equestrian and animal-keeping uses, and other uses where appropriate.

Economic opportunity areas are defined clusters of land along the routes of two new proposed major infrastructure projects in the Antelope Valley, namely the High Desert Corridor and the Northwest 138 Corridor Improvement Project. These areas were identified as having tremendous potential for economic growth and development. Thus, any development induced by these two infrastructure projects should be guided to these areas so that the areas around them can be preserved and maintained at low density, or agricultural uses. This is intended to balance the growth and development which the two projects will undoubtedly bring, with the general intent of this Area Plan to preserve the ecological value and rural character of the Antelope Valley.

The Rural Preservation Strategy necessitates a "trade-off" between preserving rural character and developing additional infrastructure, as infrastructure improvements are typically funded by increased property tax revenues and developer fees. In rural town center areas and rural town areas, the amount of potential development allowed by this Area Plan will be equal to, or greater than, the amount of potential development allowed by the previous Area Plan. Therefore, those areas are likely to benefit from increased property tax revenues and developer fees, which can help fund additional infrastructure. In rural preserve areas, the amount of potential development allowed by this Area Plan will be far less than the amount of potential development allowed by the previous Area Plan. Therefore, rural preserve areas are unlikely to benefit from increased property tax revenues and developer fees, which may make it difficult to fund additional infrastructure. The Area Plan acknowledges this "trade-off" by directing additional infrastructure to rural town center areas and rural town areas, where the placement of additional infrastructure may be more cost-effective and environmentally sensitive, and not to rural preserve areas, where the placement of additional infrastructure may not be necessary. Residents of rural preserve areas should be prepared to forego additional infrastructure in order to live in a very remote rural environment and enjoy the benefits offered by such an environment. On the other hand, the economic opportunity areas provide an opportunity for the Area Plan to maximize the investment that state and regional agencies are bringing into the area, while still achieving the general goal of rural preservation in the Antelope Valley.

IV. HOW TO USE THE ANTELOPE VALLEY AREA PLAN

Definitions

The following definition shall apply only as it specifically appears in this Area Plan and shall not be used in any other context outside of this Area Plan.

> "Legal lot" means any lot created in compliance with the provisions of the Subdivision Map Act, or would qualify for a conditional certificate of compliance as provided in the Subdivision Map Act. Where a conditional certificate of compliance is reviewed by the County, the conditions imposed therein will be based on those required at the time the lot was created, including land use density and required area under the zoning code.

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Area Plan Format and Content

The Area Plan is organized into eight chapters. Chapter 1 (Introduction) presents the Area Plan's purpose and values, the geographic area, and the communities' vision statement. Chapter 2 (Land Use Element) discusses how the communities' vision translates into a development pattern through the concept of land use. Chapter 3 (Mobility Element) describes the multi-modal approach to moving around the Antelope Valley. Chapter 4 (Conservation and Open Space Element) describes conservation efforts to address potential threats to natural resources. Chapter 5 (Public Safety, Services and Facilities Element) provides measures to ensure services are in place to maintain the safety and welfare of residents. Chapter 6 (Economic Development Element) provides the blueprint for the planning area to build a healthy and sustainable economic base that will drive development and private-sector led conservation and preservation of open space in the area. Chapters 2 through 6 contain goals and policies specific to each chapter's respective topic but all work jointly to comprehensively implement the overall vision. Chapter 7 (Community-Specific Land Use Concepts) highlights each established town and describes its land use form in more detail. Finally, Chapter 8 (Plan Implementation) describes future planning activities that will be undertaken to further implement the goals and policies of this Area Plan. Appendix A includes descriptions of the Significant Ecological Areas within the Antelope Valley Area Plan.

Applicability

The following provisions shall apply to complete applications filed prior to the effective date of this Antelope Valley Area Plan.

The applicant can choose whether the application will be reviewed for consistency with the previously adopted Antelope Valley Areawide General Plan or this Antelope Valley Area Plan. In either case, approval of the application is not guaranteed.

If an application is reviewed for consistency with the previously adopted Antelope Valley Areawide General Plan, the applicant may modify the application prior to consideration by the Regional Planning Commission, Hearing Officer, or Director. The modification will be reviewed for consistency with the previously adopted Antelope Valley Areawide General Plan if it does not change the housing type (e.g., from single family to two family or multifamily) nor increase:

- The residential density;
- The floor area or lot coverage of non-residential space;
- The amount of grading; or
- The area of ground disturbance.

A modification may necessitate the submittal of revised, updated, or additional materials and reports, such as site plans, elevations, and oak tree reports. In addition, a modification may necessitate additional environmental review pursuant to the California Environmental Quality Act and the County's environmental review procedures.

Modification to an application that is already approved but not used, can be reviewed for consistency with the previously adopted Antelope Valley Areawide General Plan if it is found to be in substantial conformance with such application as determined by the Director. Otherwise a modification shall be considered a new application and shall be reviewed for consistency with this Antelope Valley Area Plan.

If an approval is used and has a grant term, the approved use may be maintained until the end of the grant term. At the end of the grant term, the use shall be subject to the Antelope Valley Area Plan policies in effect at that time. During the grant term, a modification to the approved use will be reviewed for consistency with the previously adopted Antelope Valley Areawide General Plan if the modification is found to be in substantial conformance with such application as determined by the Director. Otherwise, a modification to the approved use shall be subject to the Antelope Valley Area Plan policies in effect at that time.

If an approval is used and does not have a grant term, the approved use may be maintained in perpetuity unless a time limit is specified in the Zoning Code. In addition, all applicable non-conforming use provisions of the Zoning Code shall apply to the approved use. A modification to the approved use will be reviewed for consistency with the previously adopted Antelope Valley Areawide General Plan if the modification is found to be in substantial conformance with the use originally approved as determined by the Director. Otherwise, a modification to the approved use shall be subject to the Antelope Valley Area Plan policies in effect at that time.

Guidance

The Antelope Valley Area Plan is a component of the Los Angeles County General Plan. All of its maps, goals, policies, and implementing actions must be consistent with the elements of the Countywide General Plan. Users should be guided by the following:

- **General Plan Applicability**: Should any areas of conflicting interpretation arise, unless specifically noted, the provisions of the Countywide General Plan shall prevail.
- **Comprehensive Area Plan**: The Land Use Policy Map is never to be interpreted as a stand-alone document, but must be interpreted in light of applicable written policies in the Area Plan.
- **Equally Weighted Policies**: No policy, whether in written or diagram form, shall be given greater weight than any other policy in evaluating the policy intent of this Antelope Valley Area Plan.
- **Vision and Rural Preservation Strategy**: The interpretation of policy should be governed by the Vision and Rural Preservation Strategy of the Antelope Valley Area Plan.

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- **Established Town Descriptions**: Descriptions of established towns in Chapter 7 are intended to provide more detailed descriptions of existing land use patterns, local character, and desired local development patterns, and should be referred to in addition to the remainder of the Area Plan in planning for local projects.

- **Non-Conforming Uses**: All legally established uses in existence at the time of adoption of this Antelope Valley Area Plan are deemed to be consistent with this Area Plan, although Zoning Ordinance provisions regarding Non-Conforming Uses may apply.

- **Undersized Parcels**: Existing legal lots may be developed (following current development requirements) regardless of lot size. For example, a 10 acre parcel designated Rural Land 20 (1du/20ac) may still develop one home.

- **Pending Projects**: Completed applications filed prior to the effective date of this Area Plan shall be allowed to be reviewed for consistency with the previously adopted Area Plan. Projects may be maintained as originally approved provided the approval is still valid and has not expired. Any subsequent changes of use or intensity shall be subject to the policies of this Area Plan.

- **Community Standards Districts**: Community-specific zoning regulations shall be consistent with the goals and policies of this Area Plan. Such regulations shall be instituted only when a unique or detrimental condition exists within a community that prevents implementation of this Area Plan.

- **Regulatory Codes**: Title 21 (Subdivision) and 22 (Zoning) of the Los Angeles County Code provide detailed development guidelines that work to implement this Area Plan. Project applications shall refer to these codes, including Community Standards Districts, to ensure that development and land use activities are compatible with the zoning and to not threaten the health, safety, and welfare of the communities.

- **Staff Consultation**: While the Antelope Valley Area Plan is meant to be a guide for the public in determining allowable uses of private property, the public is encouraged to consult with members of the County's planning staff prior to investing in the preparation of development plans that might later prove to be inconsistent with the Antelope Valley Area Plan.

In addition to the direction provided by this Area Plan, new development and land use activities are regulated by many agencies other than the Department of Regional Planning. Obtaining approval for certain types of actions may require proof of the availability for public services, fair-share provisions for public facilities, and other permitting. The applicant for any such application is advised to consult with all applicable departments and agencies.

Chapter 7

COMMUNITY-SPECIFIC LAND USE CONCEPTS

Chapter 7: Community-Specific Land Use Concepts Element

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I. Background

Purpose

The previous Chapters of this Area Plan set forth general goals and policies that may be applied throughout the unincorporated Antelope Valley. However, each community varies in its nature, form, and character. The Community-Specific Land Use Concepts contained in this Chapter describe in greater detail how this Area Plan, particularly the Land Use Element, is to be implemented in each community within the unincorporated Antelope Valley.

The Land Use Concepts (Concepts) attempt to provide expectations for how each rural community may change and grow throughout the life of this Area Plan. The Concepts specify the desired land uses for each area and identify potentially incompatible land uses that would not be desirable. Residents, stakeholders, and decision-makers should refer to the Concepts to familiarize themselves with the setting and character of each community and should use this information when considering the appropriateness of land use development projects, infrastructure improvements, and consideration efforts.

The following communities are addressed in this Chapter:

- Acton
- Antelope Acres
- Crystalaire
- El Dorado and White Fence Farms
- Elizabeth Lake and Lake Hughes (The Lakes)
- Fairmont
- Gorman
- Green Valley
- Juniper Hills
- Lake Los Angeles
- Lakeview
- Leona Valley
- Littlerock and Sun Village (Southeast Antelope Valley)
- Llano
- Neenach
- Pearblossom
- Quartz Hill
- Roosevelt
- Three Points

Vision and Strategy

The Area Plan's Vision Statement acknowledges that the unincorporated Antelope Valley "is a mosaic of unique small towns" and the Community-Specific Land Use Concepts are intended to reflect each community's unique nature, form, and character, as well as each community's unique vision of the future. The Area Plan's Rural Preservation Strategy seeks to achieve the Area Plan's Vision Statement through a framework of rural town centers, rural town areas, rural preserve areas, and economic opportunity areas. The Community-Specific Land Use Concepts describe how this framework has been applied to each community and refines the framework in a manner that addresses each community's individual needs. Overall, this Chapter ensures that the Area Plan will serve as a living document that will shape future implementation efforts in a manner that is both complementary of the overall Vision Statement and Rural Preservation Strategy and relevant to, and appropriate for, each community within the unincorporated Antelope Valley.

Community Standards Districts

Some of the communities described in this Chapter are within Community Standards Districts (CSD's). CSD's are overlays in the Zoning Code that provide specific development standards with unique land use issues that are not adequately addressed by the County's Subdivision and Zoning Codes. CSD's, as well as other applicable County Code requirements, should be consulted when projects are being considered in a community.

II. Land Use Concepts

Acton

The community of Acton is located in the southwestern portion of the Antelope Valley, south of the City of Palmdale along State Route 14. The community is adjacent to the National Forest, and natural hillsides and significant ridgelines separate the community from the City of Palmdale and the remainder of the Antelope Valley. Community residents are concerned about urbanization of the area and wish to remain an unincorporated rural community with a unique identity. Some portions of the community are partially developed with a variety of agricultural uses and single-family homes on large lots. Other portions are largely undeveloped, are generally not served by existing infrastructure, contain environmental resources, such as Significant Ecological Areas and Hillside Management Areas, and are subject to safety constraints, such as Very High Hazard Severity Zones.

The community has a rural town center area along Crown Valley Road between Gillespie Avenue and Soledad Canyon Road. The rural town center area has been designated as Rural Commercial (CR) to serve the daily needs of residents and provide local employment opportunities. New buildings in the rural town center area shall be limited to two stories in height and shall include Old West design elements with earth tone colors at a pedestrian-oriented scale, with primary building entries facing Crown Valley Road or adjacent local streets. New development in the rural town center that would require the installation of urban infrastructure, such as concrete curbs and gutters, street lights, and traffic signals, shall be strongly discouraged as this does not fit with the community's unique rural character and identity.

The rural town centers shall continue to be the focal point of the community and shall be linked to the surrounding rural town area through trails and pedestrian routes. Pedestrian routes shall have permeable paving, consistent with rural community character, instead of concrete sidewalks. Public amenities, such as plazas and community bulletin boards, are encouraged in this area.

Some areas outside the rural town center area have also been designated as Rural Commercial (CR) to acknowledge existing uses and to provide additional commercial services and local employment opportunities. The intent of these designations is to allow low-intensity local commercial uses that

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serve community residents and to prohibit high-intensity regional commercial uses that serve travelers along State Route 14. Moving west to east through the community, areas with this designation include:

- Two parcels along Sierra Highway, generally between Sand Creek Drive and Wanstead Drive, north of State Route 14;
- A parcel along Sierra Highway, east of Red Rover Mine Road and north of State Route 14;
- Several parcels surrounding the intersection of Crown Valley Road and Sierra Highway and of Crown Valley Road and Antelope Woods Road, both of which are adjacent to State Route 14;
- A parcel at the northeast corner of Soledad Canyon Road and Santiago Road;
- Several parcels at the northwest and northeast corners of the intersection of Sierra Highway and Santiago Road, north of State Route 14;
- Several parcels along the south side of Sierra Highway between San Gabriel Avenue and State Route 14; and
- Several parcels along the north side of Sierra Highway, west of State Route 14.

New buildings in these CR designations shall also be limited to two stories in height, shall include Old West design elements with earth tone colors at a pedestrian-oriented scale, and shall be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes shall have permeable paving, consistent with rural community character, instead of concrete sidewalks. Development in these CR designations that would require the installation of urban infrastructure, such as concrete curbs and gutters, street lights and traffic signals, shall be discouraged as this does not fit with the community's unique rural character and identity. New commercial uses outside of these CR designations, or outside the CR designation within a rural town center area, are also strongly discouraged, as they are not compatible with the community character.

Some areas within the community have been designated as Light Industrial (IL) to acknowledge existing uses and to provide additional local employment opportunities. Moving west to east through the community, areas with this designation include:

- Several parcels at the northeast and southeast corners of Sierra Highway and Red Rover Mine Road;
- Several parcels along Soledad Canyon Road, south of the Crown Valley Road intersection and the rural town center area;
- Several parcels along Soledad Canyon Road, northeast of the Crown Valley Road intersection, and also along Syracuse Avenue and Gillespie Avenue, all east of the rural town center area;
- Several parcels along the south side of Soledad Canyon Road between Santiago Road and Malinta Avenue; and

- Several parcels along Sierra Highway, west and north of the Vincent Grade/Acton Metrolink Station.

New buildings in these IL designations shall be limited to two stories in height, shall include Old West design elements with earth tone colors at a pedestrian-oriented scale, and shall be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes shall have permeable paving, consistent with rural community character, instead of concrete sidewalks. Development in these IL designations that would require the installation of urban infrastructure, such as concrete curbs and gutters, street lights and traffic signals shall be strongly discouraged as this does not fit with the community's unique rural character and identity. New industrial uses outside of these IL designations are also strongly discouraged, as they are not compatible with the community character.

All advertising signs shall be limited to no more than 35 feet. More restrictions on the allowed Floor Area Ratio (FAR), drive-through services and other such regulations may be adopted by the community through their Community Standards District. Please see Chapter 8 (Plan Implementation) of this Area Plan for more details.

Most of the community is considered to be a rural town area. The rural town area has been designated as Rural Land 5 (RL5), with a maximum density of 1 residential unit for each 5 gross acres of land, Rural Land 2 (RL2), with a maximum density of 1 residential unit for each 2 gross acres of land, and Rural Land 1 (RL1), with a maximum density of 1 residential unit for each 1 gross acre of land. Small portions of the rural town area have other designations, as follows:

- The area generally bounded by Syracuse Avenue to the north, Bartlett Street and 1st Street to the west, Cory Avenue and 9th Street to the south, and 3rd Street to the east has been designated as Residential 5 (H5), with a maximum density of 5 residential units for each 1 net acre of land. In addition, a few parcels between Syracuse Avenue and Gillespie Avenue, east of Crown Valley Road, have been designated as H5; and
- The area surrounding the H5 designation, generally bounded by Sacramento Avenue to the north, 41st Street West and 40th Street West to the west, 9th Street and Spring Avenue to the south, and Crown Valley Road to the east, has been designated as Residential 2 (H2), with a maximum density of 2 residential units for each 1 net acre of land.
- The RL5, RL2, RL1, H2, and H5 designations are intended to reflect the existing densities within various parts of the rural town area, which are developed or partially developed as the result of previous land divisions. The RL5, RL2, RL1, H2, and H5 designations are not intended to promote further land divisions. New land divisions in the rural town area shall maintain a large minimum lot size to ensure consistency with the desired community character.

The majority of new residential development in Acton shall be directed to the rural town area instead of the surrounding rural preserve area, provided that such development is consistent with existing community character. New land divisions shall maintain a large minimum lot size. Various types of agriculture, equestrian, and animal-keeping uses should be allowed through the rural town area, provided that lots meet Zoning Code requirements for those uses. Home-based occupations may also be permitted throughout the rural town area, provided that they meet Zoning Code requirements.

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The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit per 10 gross acres of land, or Rural Land 20 (RL20), with a maximum density of 1 residential unit per 20 gross acres of land. These very low densities reflect the underlying infrastructure constraints, environmental resources, and safety constraints. Development in the rural preserve area shall be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Antelope Acres

The community of Antelope Acres is located in the northwestern portion of Antelope Valley, west of the City of Lancaster. Community residents are concerned about urbanization of the area and wish to remain an unincorporated rural community with a unique identity. Some portions of the community are partially developed with light agricultural uses and single-family homes on large lots, while other portions are largely undeveloped and contain environmental resources, such as Significant Ecological Areas and Agricultural Resource Areas.

The community has a rural town center area located along 90th Street West between Avenue E-4 and Avenue E-12. The rural town center area has been designated as Rural Commercial (CR) to serve the daily needs of residents and provide local employment opportunities. New buildings in the rural town center area should be limited to one story in height and should include Old West design elements at a pedestrian-oriented scale, with primary building entries facing 90th Street West. No other portions of the community have been designated for commercial or industrial use, and new commercial and industrial uses outside the rural town center area are strongly discouraged, as they are incompatible with the community character.

Over time, the rural town center areas should become the focal point of the Antelope Acres community and should be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. Public amenities, such as plazas and community bulletin boards, are encouraged in this area.

The community includes rural town areas that surround the rural town center area and are generally bounded by Avenue E and Avenue C to the north, 80th Street West to the east, Avenue F and Avenue F-8 to the south, and 95th Street West and 90th Street West to the west. These areas have been designated as Rural Land 2 (RL2), with a maximum density of 1 residential unit per 2 gross acres of land. This designation is intended to reflect the existing density of the rural town areas and is not intended to promote further land divisions. New land divisions in the rural town areas shall maintain a large minimum lot size to ensure consistency with the existing community character.

The majority of new residential development in Antelope Acres should be directed to the rural town areas instead of the surrounding rural preserve areas, provided that such development is consistent with the existing community character and allows for light agriculture, equestrian, and animal-keeping uses should be allowed through the rural town area, provided that lots meet Zoning Code requirements for those uses. Heavy agriculture uses should be discouraged in the rural town areas because of potential impacts on existing residents. Home-based occupations are also appropriate in the rural town areas, provided that they meet Zoning Code requirements.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land, or Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. These very low densities reflect the underlying infrastructure constraints and environmental resources. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Crystalaire

The community of Crystalaire is located in the southeastern portion of the Antelope Valley, south of Llano, and includes a golf course and a small airport which are described in more detail below. Some portions of the community are developed with single-family homes on large lots. Other portions are largely undeveloped and contain environmental resources, such as Significant Ecological Areas, and are subject to safety hazards, such as Flood Zones, particularly along Big Rock Creek and Big Rock Wash..

The community currently does not have a rural town center area but a stretch of 165th Street East between East Avenue W-12 and East Avenue X, in front of Crystalaire Airport has been designated Mixed Use – Rural (MU-R) in anticipation of a future town center to develop in this area. New commercial uses outside of this MU-R designation are strongly discouraged, as they are not compatible with the community character.

The community includes a rural town area that includes the existing subdivision near the Crystalaire Country Club and adjacent lands that are generally bounded by 165th Street East to the east and Avenue Y-4 to the south. This area has been designated as Residential 2 (H2), with a maximum density of 2 residential units for each 1 net acre of land. This designation is intended to reflect the existing density of the rural town area. New land divisions in this area shall have large lot sizes that are consistent with the existing subdivision near the Crystalaire Country Club.

The majority of new residential development in Crystalaire should be directed to the rural town area instead of the surrounding rural preserve areas, provided that such development is consistent with existing community character and allows for light agriculture, equestrian, and animal-keeping uses, provided that lots meet Zoning Code requirements for those uses. Heavy agriculture uses should be prohibited because of potential impacts on existing residents. Home-based occupations may also be permitted in this area, provided that they meet Zoning Code requirements.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land, or Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. These very low densities reflect the underlying infrastructure constraints, environmental resources, and safety constraints. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Crystalaire Airport

The Crystalaire Airport is a privately owned and operated aviation facility that occupies several parcels. These parcels have been designated as Public and Semi-Public (P) to acknowledge the existing airport use and to allow for its continued operation. However, the Area Plan acknowledges that these parcels

also contain commercial and industrial uses and are an appropriate location for such uses given its proximity to the communities of Crystalaire and Llano. Accordingly, at the time of this Area Plan's adoption, the parcels were zoned Rural Commercial – Mixed Use (MXD-RU) and Light Industrial (M-1). This Area Plan allows commercial mixed-use and industrial uses on these parcels without a Plan Amendment, provided that these are compatible with airport operations and that these do not restrict or prohibit the operations of the airport.

Crystalaire Golf Course

The Crystalaire Golf Course is a privately owned golf facility that occupies several parcels. These parcels have been designated as Open Space – Parks (OS-PR) and zoned Commercial – Recreation (C-R) to acknowledge the existing residential recreational use and its open space character on the property, and to allow for its continued operation. The Area Plan also acknowledges that some limited residential uses may be appropriate as accessory to the primary use as a golf course. Thus the Area Plan allows some limited residential uses on these parcels without a Plan Amendment, provided that the golf course is in continued operation and that the residential uses occupy not more than 10 percent of the total area. All requirements of the base zone shall apply, including but not limited to, an approved conditional use permit.

El Dorado and White Fence Farms

The communities of El Dorado and White Fence Farms are located in the central portion of the Antelope Valley and are surrounded by the cities of Lancaster and Palmdale. Although these communities are adjacent to urbanized areas, such as the Rancho Vista community and the Antelope Valley Mall, they have a distinctly rural character. The communities are partially developed with light agricultural uses and single-family homes on large lots.

These communities do not have a rural town center area, but they are served by the rural town center area in Quartz Hill and by commercial centers in the adjacent cities. Two parcels on 10th Street West and one parcel on Avenue N have been designated as Rural Commercial (CR) in recognition of existing commercial uses. No other portions of the communities have been designated for commercial or industrial use, and new commercial uses outside of these CR designations and new industrial uses are strongly discouraged, as they are not compatible with the communities' character.

The communities are considered to be a rural town area and have been designated as Rural Land 2 (RL2), with a maximum density of 1 residential unit for each 2 gross acres of land. This designation is intended to reflect the communities' existing density and is not intended to promote further land divisions. New land divisions shall maintain a large minimum lot size to ensure consistency with the existing character of the communities.

Light agriculture, equestrian, and animal-keeping uses are appropriate in these communities, but heavy agriculture uses should be discouraged because of potential impacts on existing residents. Home-based businesses are also appropriate in these communities, provided that they meet Zoning Code requirements.

Elizabeth Lake and Lake Hughes (The Lakes)

The communities of Elizabeth Lake and Lake Hughes are located in the southwestern portion of the Antelope Valley, northwest of Leona Valley, and are partially within the National Forest. Some portions of the community are developed or partially developed with single-family homes, light agricultural uses, and a limited amount of commercial and industrial uses. Other portions are largely undeveloped, are generally not served by existing infrastructure, contain environmental resources, such as Significant Ecological Areas and Hillside Management Areas, and are subject to safety constraints, such as the San Andreas Fault and Very High Fire Hazard Severity Zones.

The communities share one rural town center area in Lake Hughes, located along Elizabeth Lake Road between Trail I and Mountain View Road, west of the Lake Hughes Community Center. The rural town center area has been designated as Rural Commercial (CR) and Light Industrial (IL) to serve the daily needs of residents and provide local employment opportunities. New buildings in the rural town center area should be limited to two stories in height and should be designed at a pedestrian-oriented scale, with primary building entries facing Elizabeth Lake Road or adjacent local streets.

The rural town center area should continue to be the focal point of the communities and should be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. Public amenities, such as plazas and community bulletin boards, are encouraged in this area.

Some areas outside the rural town center area have been designated as Rural Commercial (CR) to acknowledge existing uses and to provide additional commercial services and local employment opportunities. Moving west to east through the communities, areas with this designation include:

- Several parcels along Lake Hughes Road between Elizabeth Lake Road and Desswood Road (Lake Hughes); and
- Two parcels at the southwest corner of Elizabeth Lake Road and Johnson Road (Elizabeth Lake).

New buildings in these CR designations should also be limited to two stories in height, should be designed at a pedestrian-oriented scale, and should be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. New commercial uses outside of these CR designations, or outside the CR designations within the rural town center area, are strongly discouraged, as they are not compatible with the communities' character.

Several parcels at the southwest corner of Elizabeth Lake Road and Lake Hughes Road have been designated as Light Industrial (IL) to acknowledge an existing use. New industrial uses outside of this IL designation, or outside the IL designation within the rural town center area, are strongly discouraged, as they are not compatible with the communities' character.

The community of Elizabeth Lake includes rural town areas. The primary rural town area surrounds the Elizabeth Lake water body. North of Elizabeth Lake Road, the primary rural town area is generally bounded by Hawk Drive, Gist Drive, and hillsides to the north, Munz Ranch Road to the west, and Pekaboo Road and hillsides to the east. South of Elizabeth Lake Road, the primary rural town area is generally bounded by Sandrock Drive, Ranch Club Road, and Elizabeth Lake Road to the north, the

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National Forest boundary to the west, the National Forest boundary, Ranch Club Road, and Kiptree Drive to the south, and Elizabeth Lake Road to the east. The primary rural town area has been designated as Residential 5 (H5), with a maximum density of 5 residential units for each 1 net acre of land. A few parcels north of Elizabeth Lake Road have been designated as Rural Land 2 (RL2), with a maximum density of 1 residential unit for each 2 gross acres of land. The H5 and RL2 designations are intended to reflect the existing densities within the primary rural town area, which resulted from previous land division activities. The H5 and RL2 designations are not intended to promote further land divisions. The privately owned portion of Elizabeth Lake water body is considered to be one of the communities' rural preserve areas, which are discussed below.

A secondary rural town area in Elizabeth Lake is located north of Johnson Road between Leadhill Drive and Limeridge Drive and is partially developed as the result of previous land division activities. The secondary rural town area has been designated as Residential 9 (H9), with a maximum density of 9 residential units for each 1 net acre of land. The H9 designation is intended to reflect the existing density of this area and is not intended to promote further land divisions.

The community of Lake Hughes also includes a rural town area. The rural town area extends west from the rural town center area and is generally bounded by Elizabeth Lake Road, Elderberry Street, High Trail, Lone Pine Trail, and hillsides to the north, Muir Drive and a line approximately 1,500 feet west of Lake Hughes Road to the west, Desswood Road, New View Drive, and South Shore Drive to the south, and Mountain View Road to the east. The rural town area has been designated as Residential 5 (H5), with a maximum density of 5 residential units for each 1 net acre of land. A few parcels west of Lake Hughes Road have been designated as Rural Land 5 (RL5), with a maximum density of 1 residential unit for each 5 gross acres of land. The H5 and RL5 designations are intended to reflect the existing densities within the rural town area, which resulted from previous land division activities. The H5 and RL5 designations are not intended to promote further land divisions.

The majority of new residential development in Elizabeth Lake and Lake Hughes (collectively known as The Lakes) should be directed to the rural town areas instead of the surrounding rural preserve areas, provided that such development is consistent with existing community character. New land divisions in the rural town area shall maintain a large minimum lot size to ensure consistency with the desired community character. Light agriculture, equestrian, and animal-keeping uses should be allowed throughout the rural town ares, provided that lots meet Zoning Code requirements for those uses. Heavy agriculture uses should be prohibited throughout the rural town areas because of potential impacts on existing residents. Home-based businesses may be permitted throughout the rural town areas, provided that they meet Zoning Code requirements.

The remaining lands in the communities are considered to be rural preserve areas and have been designated as Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. This very low density reflects the underlying infrastructure constraints, environmental resources, and safety constraints. Development in rural preserve areas should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate. The privately owned portion of the Elizabeth Lake water body has been designated as RL20 and the Area Plan supports efforts to acquire this area and preserve it as open space (see Conservation and Open Space Element, Policy COS 18.1).

Fairmont

The community of Fairmont is located in the northwestern portion of the Antelope Valley, west of Antelope Acres and near the Antelope Valley California Poppy Reserve. The community is largely undeveloped and is generally not served by existing infrastructure and public facilities, but it does contain some single-family homes on large lots and some agricultural uses. The community includes environmental resources, such as Significant Ecological Areas, and is subject to safety hazards, such as fault zones.

The community does not have a rural town center area. No portion of the community has been designated for commercial or industrial use, except for a parcel along Avenue D to reflect an existing use. New commercial or industrial uses are strongly discouraged, as they are not compatible with the community character.

The entire community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land, or Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. These very low densities reflect the underlying infrastructure constraints, environmental resources, and safety constraints. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Gorman

The community of Gorman is located in the far northwestern portion of Antelope Valley along the Golden State Freeway (Interstate 5). A portion of the community is partially developed with commercial uses that primarily serve travelers along the Freeway, along with some single-family homes and light agricultural uses. The remainder of the community is largely undeveloped, is generally not served by existing infrastructure, and contains environmental resources such as Hillside Management Areas and Significant Ecological Areas.

The community has a rural town center area surrounding the Golden State Freeway interchanges at Gorman School Road. The rural town center area has been designated as Major Commercial (CM) to serve the daily needs of residents and interstate travelers.

Some areas outside the rural town center area have also been designated Rural Commercial (CR) in recognition of existing commercial uses and future opportunities to serve interstate travelers. The existing Flying J Travel Plaza on Frazier Park Road and two parcels east of it also have been designated as Rural Commercial (CR). Several parcels surrounding Smokey Bear Road have been designated as Rural Commercial. No other portions of the community have been designated for commercial or industrial use, and new commercial uses outside these CR and CM designations and new industrial uses are strongly discouraged, as they are incompatible with the community character.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. This very low density reflects the underlying infrastructure constraints and environmental resources. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

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Green Valley

The community of Green Valley is located in the southwestern portion of the Antelope Valley, south of Elizabeth Lake, and is completely within the National Forest. A large portion of the community is developed with single-family homes and commercial uses, while the remaining portion is largely undeveloped and contains scenic hillsides that are located in a Very High Fire Hazard Severity Zone.

The community does not have a rural town center area but is served by the rural town center areas in Lake Hughes Road and Leona Valley. Two areas, generally located at the intersections of Spunky Canyon Road and San Francisquito Canyon Road and of Spunky Canyon Road and Calle Olivera, have been designated as Rural Commercial (CR), recognizing existing uses that serve the daily needs of residents and provide local employment opportunities. New buildings in these areas should be limited to one story in height and should be designed at a pedestrian-oriented scale. No other portions of the community have been designated for commercial or industrial use, and new commercial uses outside these CR designations and new industrial uses are strongly discouraged, as they are incompatible with the community character.

The community includes rural town areas which are developed or partially developed as the result of previous land division activities. These areas generally extend southeast from San Francisquito Canyon Road and generally extend both north and south from Spunky Canyon Road, and are bounded by hillsides. These areas have been designated as Residential 9 (H9), with a maximum density of 9 residential units for each 1 net acre of land. The H9 designation is intended to reflect these areas' existing densities and development pattern, and is not intended to promote further land divisions.

The majority of new residential development in Green Valley should be directed to the rural town areas instead of the surrounding rural preserve area, provided that such development is consistent with existing community character. Light agriculture, equestrian and animal-keeping uses should be allowed in these areas, provided that lots meet Zoning Code requirements for those uses. Heavy agriculture uses should be prohibited in these areas because of potential impacts on existing residents. Home-based occupations may also be permitted in these areas, provided that they meet Zoning Code requirements.

The remainder of the privately-owned land in the community is considered to be a rural preserve area and has been designated as Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. This very low density reflects the underlying infrastructure constraints, environmental resources, and safety constraints. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Juniper Hills

The community of Juniper Hills is located in the southern portion of the Antelope Valley, south of Littlerock and Pearblossom. The community is largely developed and is generally not served by existing infrastructure and public facilities, but it does contain many single-family homes on large lots and some agricultural uses. The community is adjacent to the National Forest, includes scenic hillside areas, and is subject to several safety hazards, including the San Andreas Fault and Very High Fire Hazard Severity Zones.

The community does not have a rural town center area but is served by the rural town center areas in Littlerock and Pearblossom. The Juniper Hills Community Center on 106th Street East serves as a community meeting place, in lieu of a rural town center area, and residents have expressed a desire for a Post Office. No portion of the community has been designated for commercial or industrial use, and new commercial or industrial uses are strongly discouraged, as they are not compatible with the community character.

The entire community is considered to be a rural town area and has been designated as Rural Land 5 (RL5), with a maximum density of 1 residential unit for each 5 gross acres of land. This very low density reflects the underlying infrastructure constraints, environmental resources, and safety constraints. Development in the rural town area should be limited to single-family homes on large lots, light agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Lake Los Angeles

The community of Lake Los Angeles is in the eastern portion of the Antelope Valley. As of the 2000 Census, it had the largest population of any unincorporated community in the Valley. Many portions of the community are developed or partially developed with a wide range of uses and a distinctly rural character. The remaining portions are largely undeveloped and generally not served by existing infrastructure, include environmental resources, such as buttes and Significant Ecological Areas, and are subject to safety hazards, such as Flood Zones.

The community has a rural center area along Avenue O between 167th Street East and 172nd Street East, and along 170th Street East between Avenue O and Glenfall Avenue. The rural town center area has been designated as Rural Commercial (CR) to serve the daily needs of residents and provide local employment opportunities. New buildings in the rural town center area should be limited to two stories in height and include Old West or Southwestern design elements at a pedestrian-scale, with primary building entries facing Avenue O or 170th Street East. New development in the rural town center area should not require the installation of urban infrastructure, such as concrete curbs and gutters and traffic signals.

The rural town center area should continue to be the focal point of the community and should be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. Streetscape improvements are recommended for Avenue O and 170th Street East, including native landscaping, "Old West" style street lights that meet dark sky objectives (only where necessary for public safety), and coordinated street furniture, such as benches, bus shelters, and bicycle racks. Other public amenities, such as plazas and community bulletin boards, are also encouraged in this area.

Some areas outside of the rural town center area have also been designated as Rural Commercial (CR) to provide additional commercial services, such as feed and tack stores. These areas include the intersection of Avenue P and 170th Street East and the northwest and northeast corners of the intersection of Avenue) and 175th Street East. New buildings in these areas should also be limited to two stories in height and include Old West or Southwestern design elements at a pedestrian-oriented scale with transportation links to surrounding rural town areas. No other portions of the community have been designated for commercial or industrial use, and new commercial uses outside these CR

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designations and new industrial uses are strongly discouraged, as they are incompatible with the community character.

The community includes several rural town areas. One area is generally bounded by Avenue Q to the north, 150th Street East to the west, Palmdale Boulevard to the south, and 160th Street East to the east. This area has been designated as Rural Land 1 (RL1), with a maximum density of 1 residential unit per 1 gross acre of land. This designation is intended to reflect the area's existing density and is not intended to promote further land divisions. Another similar area is generally bounded by Avenue M-8, Penfield Avenue, and Avenue N to the north, 155th Street East, 150th Street East, and 152nd Street East to the west, Avenue N and Avenue O to the south, and 160th Street East and 165th Street East to the east. This area has also been designated as RL1, and this designation is also intended to reflect the area's existing density and is not intended to promote further land divisions.

Another rural town area is generally bounded by Avenue M, Avenue M-4, and Avenue M-12 to the north, 160th Street East to the west, Avenue N to the south, and 170th Street East, 175th Street East, and 180th Street East to the east. This area has been designated as Rural Land 5 (RL5), with a maximum density of 1 residential unit per 5 gross acres of land. This designation is intended to reflect the area's existing density and is not intended to promote further land divisions. The final rural town area is generally bounded by Avenue O and Avenue N to the north, 165th Street East and 160th Street East to the west, Avenue Q, Avenue P-12, Rawhide Avenue, and Avenue P to the south, and 165th Street East, 170th Street East, 175th Street East, and 180th Street East to the east. This area has been designated as Residential 2 (H2), with a maximum density of 2 residential units per 1 net acre of land. This designation is intended to reflect the area's existing density and is not intended to promote further land divisions. However, the buttes east of 170th Street East have been designated as RL5, acknowledging the need to limit development in scenic resource areas. The buttes west of 170th Street East, which are in a Significant Ecological Area, are considered to be in the rural preserve area, which is discussed below.

The majority of new residential development in Lake Los Angeles should be directed to the rural town areas instead of the surrounding rural preserve area, provided that such development is consistent with existing community character and allows for light agriculture, equestrian, and animal-keeping uses, provided that lots meet Zoning Code requirements for those uses. Heavy agriculture uses should be prohibited because of potential impacts on existing residents. Home-based businesses may also be permitted in the rural town areas, provided that they meet Zoning Code requirements. New land divisions in the rural town areas shall maintain a large minimum lot size to ensure consistency with the existing community character.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land or Rural Land 20 (RL20, with a maximum density of 1 residential unit for each 20 gross acres of land. These very low densities reflect the underlying infrastructure and safety constraints. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Lakeview

The community of Lakeview is located in the southern central portion of the Antelope Valley, adjoining the City of Palmdale to the north and east, and includes Lake Palmdale. Although this community is adjacent to urbanized areas, it has a distinctly rural character. Some portions of the community are partially developed with light agricultural uses and single-family homes on large lots. Other portions are largely undeveloped and generally not served by existing infrastructure, include environmental resources such as Hillside Management Areas, and are subject to safety hazards, such as Very High Fire Hazard Severity Zones.

The community does not have a rural town center area but is served by commercial centers in the adjacent City of Palmdale. A few parcels at the intersection of the State Route 14 and Avenue S, and two parcels along Sierra Highway between Pearblossom Highway and Barrel Springs Road, have been designated as Rural Commercial (CR). In addition, several parcels at the intersection of Pearblossom Highway and Sierra Highway, and a parcel on Avenue S west of State Route 14 have been designated as Light Industrial (IL). These designations recognize existing uses and opportunities for additional local services and employments. No other portions of the community have been designated for commercial or industrial use, and new commercial or industrial uses outside of these CR and IL designations are strongly discouraged, as they are not compatible with the community character.

The community includes a rural town area that is generally bounded by the City of Palmdale boundary to the north, the City of Palmdale boundary, Farnborough Avenue and Tovey Avenue to the west, a line approximately 1,300 feet south of Lakeview Drive and Barrel Springs Road to the south, and the City of Palmdale boundary to the east. North of Avenue S, this area has been designated as Rural Land 2 (RL2), with a maximum density of 1 residential unit for each 2 gross acres of land. South of Avenue S, this area has been designated as Rural Land 1 (RL1), with a maximum density of 1 residential unit for each 1 gross acre of land, with the following exceptions:

- West of Tovey Avenue – RL2; and
- South of Lakeview Drive and west of El Camino Drive – RL2.

The RL1 and RL2 designations are intended to reflect this area's existing densities. New land divisions in this area shall maintain large lot sizes that are compatible with the community character.

The majority of new residential development in Lakeview should be directed to the rural town area instead of the surrounding rural preserve area, provided that such development is consistent with existing community character and allows for light agriculture, equestrian, and animal-keeping uses, provided that lots meet Zoning Code requirements for those uses. Heavy agriculture uses should be prohibited because of potential impacts on existing residents. Home-based businesses may also be permitted in this area, provided that they meet Zoning Code requirements.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land, or Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. This very low density reflects the underlying infrastructure constraints, environmental resources, and safety hazards. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Leona Valley

The community of Leona Valley is located in the southwestern portion of the Antelope Valley, adjacent to the National Forest, and is bounded by the City of Palmdale to the north and east. Community residents are concerned about urbanization of the area and wish to remain in an unincorporated rural

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community with a unique identity. Some portions of the community are partially developed with light agricultural uses and single-family homes on large lots. Other portions are largely undeveloped, are generally not served by existing infrastructure, contain environmental resources, such as Significant Ecological Areas and Hillside Management Areas, and are subject to safety constraints, such as the San Andreas Fault and Very High Fire Hazard Severity Zones.

The community has a rural town center located at the intersection of Elizabeth Lake Road and 90th Street West. The rural town center area has been designated as Rural Commercial (CR) to serve the daily needs of residents and provide local employment opportunities. New buildings in the rural town center area should be limited to one story in height and should be designed at a pedestrian-oriented scale, with primary building entries facing Elizabeth Lake Road or 90th Street West. No other portions of the community have been designated for commercial or industrial use, and new commercial uses outside of this CR designation and new industrial uses are strongly discouraged, as they are incompatible with community character.

The rural town center area should continue to be the focal point of the community and should be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. Public amenities, such as community bulletin boards, are encouraged in this area.

The community includes a rural town area that surrounds the rural town center. North of Elizabeth Lake Road, the rural town area is generally bounded by North Side Drive, Babia Street, and Penhaven Lane to the north, 100th Street West to the west, Elizabeth Lake Road to the south, and 86th Street West to the east. South of Elizabeth Lake Road, the rural town area is generally bounded by Leona Avenue and Elizabeth Lake Road to the north, 107th Street West, 98th Street West, and 92nd Street West to the west, hillsides and Odd Road to the south, and 86th Street West to the east. The rural town area has been designated as Rural Land 2 (RL2), with a maximum density of 1 residential unit for each 2 gross acres of land. This designation is intended to reflect the existing density of the rural town area and is not intended to promote further land divisions.

The majority of new residential development in Leona Valley should be directed to the rural town area instead of the surrounding rural preserve area, provided that such development is consistent with existing community character. New land divisions shall maintain a large minimum lot size to ensure compatibility with the community character. Each new home should have a unique architectural design. Light agriculture, equestrian, and animal-keeping uses should be allowed throughout the rural town area, provided that lots meet Zoning Code requirements for those uses. Heavy agriculture should be prohibited throughout the rural town area because of potential impacts on existing residents. Home-based businesses may also be permitted throughout the rural town area, provided that they meet Zoning Code requirements.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. This very low density reflects the underlying infrastructure constraints, environmental resources, and safety constraints. Development in the rural preserve area should be limited to single-family homes on very large lots (2.5 net acres or greater), light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Littlerock and Sun Village (Southeast Antelope Valley)

The communities of Littlerock and Sun Village are located in the southeastern portion of the Antelope Valley, east of the City of Palmdale. Residents of the communities are concerned about urbanization of the area and wish to remain as unincorporated rural communities with unique identities. Many portions of the communities are developed or partially developed with a wide range of uses and a distinctly rural character. The remaining portions are largely undeveloped and generally not served by existing infrastructure, include environmental resources such as Significant Ecological Areas, and are subject to safety hazards, such as Flood Zones.

Each community has a rural town center area. The Littlerock rural town center area is located along Pearblossom Highway between Little Rock Wash and 90th Street East. This rural town center area has been designated as Rural Commercial (CR), and Light Industrial (IL) to serve the daily needs of residents and provide local employment opportunities. This rural town center area also serves travelers along Pearblossom Highway. A possible expansion of the town center has also been identified further to the east where additional parcels have been designated Rural Commercial (CR) and Light Industrial (IL). New buildings in this rural town center area should be limited to two stories in height and include Old West or Southwestern design elements with earth tone colors at a pedestrian-oriented scale, with primary building entries facing Pearblossom Highway. The industrial designations in this rural town center have been expanded to accommodate light industrial uses appropriate for rural areas, such as truck storage facilities.

The Sun Village rural town center area is located along Palmdale Boulevard between Little Rock Wash and 95th Street East, and along 90th Street East between Palmdale Boulevard and Avenue Q-14. This rural town center area has been designated as Rural Commercial (CR) to serve the daily needs of residents and provide local employment opportunities. New buildings in this rural town center area should be limited to three stories in height and include Southwestern, Spanish Mission, or Mediterranean design elements with earth tone colors at a pedestrian-oriented scale, with primary building entries facing Palmdale Boulevard or 90th Street East.

The two rural town center areas should continue to be the focal point of their respective communities and should be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. Streetscape improvements are recommended for Palmdale Boulevard and 90th Street East in the Sun Village rural town center area, including native landscaping, "Southwestern" style street lights that meet dark sky objectives (only where necessary for public safety), and coordinated street furniture, such as benches, bus shelters, and bicycle racks. If Pearblossom Highway is relinquished by the State of California (Caltrans), similar streetscape improvements are recommended in the Littlerock rural town center area. Other public amenities, such as plazas and community bulletin boards, are encouraged in both rural town center areas.

Some areas outside the two town center areas have also been designated as Rural Commercial (CR) to provide additional commercial services and local employment. These areas include the intersection of Avenue T and 87th Street East and the northeast corner of Avenue S and 90th Street East. New buildings in these areas should also be limited to two stories in height and include Old West or Southwestern design elements with a pedestrian-oriented scale and transportation links to surrounding rural town areas. New commercial uses outside of these CR designations, are strongly discouraged, as they are not compatible with the communities' character.

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Several parcels near the intersection of Avenue R-8 and 90th Street East and a parcel at the northwest corner of Avenue T-8 and 80th Street East have been designated as Heavy Industrial (IH), recognizing existing uses appropriate for rural areas, such as truck storage facilities. New industrial uses outside of these IH designations, or outside the IL designations within the Littlerock rural town center area, are strongly discouraged, as they are not compatible with the communities' character.

The community includes several rural town areas. The first rural town area surrounds the Littlerock rural town center area and is generally bounded by Avenue U to the north, the Little Rock Wash to the west, the California Aqueduct and Avenue U-4 to the south, and 89th Street East and 94th Street East to the east. This area has been designated as Rural Land 5 (RL5), with a maximum density of 1 residential unit for each 5 gross acres of land, with the following exceptions:

- The area generally bounded by Avenue U to the north, the Littlerock Wash to the west, Pearblossom Highway to the south, and 75th Street East to the east, has been designated as Residential 5 (H5), with a maximum density of 5 residential units for each 1 net acre of land.

A second rural town area surrounds the Sun Village rural town center area and is generally bounded by Avenue Q to the north, the Little Rock Wash to the west, Avenue R to the south, and 115th Street East to the east. This rural town area has been designated as Rural Land 1 (RL1), with a maximum density of 1 residential unit for each 1 gross acre of land; and Rural Land 2 (RL2), with a maximum density of 1 residential unit for each 2 gross acres of land.

A third rural town area is generally bounded by Avenue R to the north, the Little Rock Wash and 87th Street East to the west, Avenue U to the south, and 106th Street East, 116th Street East and 120th Street East to the east. This rural town area has been designated as RL1-and RL2.

The RL1, RL2, RL5 and H5 designations are intended to reflect the rural town area's existing densities and are not intended to promote further land divisions. All future land divisions must comply with any minimum lot sizes as set forth in the Southeast Antelope Valley Community Standards District.

The majority of new residential development in Littlerock and Sun Village (collectively known as Southeast Antelope Valley) should be directed to rural town areas instead of the surrounding rural preserve area, provided that such development is consistent with existing community character and allows for light agriculture, equestrian, and animal-keeping uses, provided that lots meet Zoning Code requirements for those uses. Heavy agriculture uses should be prohibited in the rural town areas because of potential impacts on existing residents. Home-based businesses may also be permitted in the rural town areas, provided that they meet Zoning Code requirements. New land divisions in the rural town areas shall maintain a large minimum lot size to ensure consistency with the desired community character.

The remainder of the communities is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land or Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. These very low densities reflect the underlying infrastructure constraints, environmental resources, and safety constraints. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Llano

The community of Llano is located in the southeastern portion of the Antelope Valley, along Pearblossom Highway (State Route 138). Some portions of the community are partially developed with light agricultural uses and single-family homes on large lots, while other portions are largely undeveloped, generally not served by existing infrastructure, and contain environmental resources, such as Significant Ecological Areas.

The community does not have a rural town center area but is served by the rural town center area in Pearblossom. A few parcels along Pearblossom Highway have been designated as Rural Commercial (CR) or Light Industrial (IL), recognizing existing uses and opportunities for additional local services and employment. No other portions of the community have been designated for commercial or industrial use, and new commercial or industrial uses outside these CR and IL designations are strongly discouraged, as they are not compatible with the community character.

The community includes a rural town area that is generally bounded by Pearblossom Highway to the north, 170th Street East and 172nd Street East to the west, Avenue W-14 to the south, and 175th Street East on the east. This area has been designated as Rural Land 5 (RL5), with a maximum density of 1 residential unit for each 5 gross acres of land. This designation is intended to reflect the existing density of the rural town area and is not intended to promote further land divisions.

The majority of new residential development in Llano should be directed to the rural town area instead the surrounding rural preserve area, provided that such development is consistent with existing community character and allows for light agriculture, equestrian, and animal-keeping uses. Heavy agriculture uses should be prohibited in this area because of potential impacts on existing residents. Home-based businesses may also be permitted in this area, provided that they meet Zoning Code requirements.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land, or Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. These very low densities reflect the underlying infrastructure constraints and environmental resources. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Neenach

The community of Neenach is located in the far western portion of the Antelope Valley, along Avenue D (State Route 138). Some portions of the community are partially developed with light agricultural uses and single-family homes on large lots, while other portions are largely undeveloped and contain environmental resources, such as Significant Ecological Areas and Agricultural Resource Areas.

The community does not have a rural town center area but is served by the rural town center areas in Antelope Acres and Lake Hughes. A few parcels on Avenue D have been designated as Rural Commercial (CR) or Light Industrial (IL) in recognition of existing and/or planned commercial and industrial uses. No other portions of the community have been designated for commercial or industrial use, and new

commercial and industrial uses outside of these CR and IL designations are strongly discouraged, as they may not be compatible with the community character.

The community includes rural town areas that are generally bounded by Avenue B to the north, 270th Street West and 260th Street West to the west, Avenue D to the south, and 250th Street West on the east. These areas have been designated as Rural Land 5 (RL5), with a maximum density of 1 residential unit for each 5 gross acres of land. This designation is intended to reflect the existing density of the rural town areas and is not intended to promote further land divisions.

The majority of new residential development in Neenach should be directed to the rural town areas instead of the surrounding rural preserve areas, provided that such development is consistent with existing community character and allows for light agriculture, equestrian, and animal-keeping uses. Heavy agriculture uses should be prohibited in rural town areas because of potential impacts on existing residents. Home-based businesses are also appropriate in the rural town areas, provided that they meet Zoning Code requirements.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land, or Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. These very low densities reflect the underlying infrastructure constraints and environmental resources. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Pearblossom

The community of Pearblossom is located in the southeastern portion of the Antelope Valley, along Pearblossom Highway between Littlerock and Llano. Some portions of the community are developed with a wide range of uses and a distinctly rural character, while other portions are largely undeveloped, generally not served by existing infrastructure, and subject to safety hazards, such as Seismic Zones and Flood Zones.

The community has a rural town center area along Pearblossom Highway between 121st Street East and 133rd Street East. The rural town center area has been designated as Rural Commercial (CR) or Light Industrial (IL) to serve the daily needs of the residents and provide local employment opportunities. New buildings in the rural town center area should be limited to two stories in height and include Old West or Southwestern design elements at a pedestrian-oriented scale, with primary building entries facing Pearblossom Highway. No other portions of the community have been designated for commercial or industrial use, and new commercial and industrial uses outside of the rural town center area are strongly discouraged, as they are incompatible with the community character.

The rural town center area should continue to be the focal point of the communities and should be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. Public amenities, such as plazas and community bulletin boards, are encouraged in this area.

The community includes rural town areas that are generally bounded by Pearblossom Highway to the north, 121st Street East to the west, Avenue W, the California Aqueduct, and Avenue W-11 to the south, and 135th Street East on the east. North of Avenue W, these areas have been designated as Residential 2 (H2), with a maximum density of 2 residential units for each 1 net acre of land or Residential 18 (H18), with a maximum density of 18 residential units for each 1 net acres of land. South of Avenue W and west of 128th Street East, these areas have been designated as Rural Land 5 (RL5), with a maximum density of 1 residential unit for each 5 gross acres of land. South of Avenue WE and east of 128th Street East, these areas have been designated as Rural Land 1 (RL1), with a maximum density of 1 residential unit for each 1 gross acre of land. These designations are intended to reflect existing densities of the area and are not intended to promote further land divisions.

The majority of new residential development in Pearblossom should be directed to the rural town areas instead of the surrounding rural preserve area, provided that such development is consistent with existing community character and allows for light agriculture, equestrian, and animal-keeping uses. Heavy agriculture uses should be prohibited in these areas because of potential impacts on existing residents. Home-based businesses may also be permitted in these areas, provided that they meet Zoning Code requirements.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land, or Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. These very low densities reflect the underlying infrastructure and safety resources. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Quartz Hill

The community of Quartz Hill is located in the central portion of the Antelope Valley and is surrounded by the cities of Lancaster and Palmdale. The community is adjacent to urbanized areas and is largely developed with a wide range of uses, but it retains a semi-rural character and residents wish to keep it an unincorporated community with a unique identity.

The community has a rural town center area along 50th Street West between Avenue L-6 and Avenue M-2. The town center area has been designated as Mixed Use – Rural (MU-R) and Light Industrial (IL) to serve the daily needs of residents and provide local employment opportunities. No other portions of the community have been designated for industrial use, and new industrial uses outside of the rural town center area are strongly discouraged, as they are incompatible with the community character. New buildings in the rural town center area should be limited to two stories in height, include Old West or Southwestern design elements with earth tone colors, and should be designed at a pedestrian-oriented scale, with primary building entries facing 50th Street West. In the MU-R designation, a vertical mix of commercial and residential uses is encouraged – for example, a building with commercial uses on the first floor and residential or office uses on the second floor. A horizontal mix of commercial and residential uses may also be appropriate – for example, a commercial building facing 50th Street West, with a residential building located towards the rear of the same lot.

The rural town center area should continue to be the focal point of the community and should be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. Streetscape improvements are recommended for 50th Street West, including native landscaping, "Western" street lights that meet dark sky objectives, and coordinated street furniture, such as benches,

Submission 4452 (Jacqueline Ayer, Acton Town Council, December 2, 2022) - Continued

bus shelters, and bicycle racks. Other public amenities, such as plazas and community bulletin boards, are also encouraged in this area.

Some areas outside the rural town center area have also been designated as MU-R to provide additional commercial services and housing opportunities. These areas include the northwest corner of Avenue N and 50th Street West and the Avenue L corridor between 42nd Street West and 50th Street West. New buildings in these areas should also be limited to two stories in height, include Old West or Southwestern design elements with earth tone colors, and should be designed at a pedestrian-oriented scale with transportation links to surrounding rural town areas. A vertical or horizontal mix of commercial and residential uses may be appropriate in these areas. No other portions of the community have been designated for commercial use, and new commercial uses outside these MU-R designations, or outside the MU-R within the rural town center area, are strongly discouraged, as they are incompatible with the community character.

As the Avenue L corridor between 42nd Street West and 50th Street West develops over time, it will become a secondary rural town center area and should be linked to surrounding rural town areas through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. Streetscape improvements are recommended for the Avenue L corridor between 42nd Street West and 50th Street West, including native landscaping, "Western" street lights that meet dark sky, and coordinated street furniture, such as benches, bus shelters, and bicycle racks. Other public amenities, such as plazas and community bulletin boards, are also encouraged in this corridor.

The remainder of the community is considered to be a rural town area. Two properties along Avenue M have been designated as Residential 30 (H30), with a maximum density of 30 residential units for each 1 net acre of land, in recognition of existing multi-family uses. Several parcels adjoining the rural town center area between Avenue L-8 and Columbia Way have been designated as Residential 18 (H18), with a maximum density of 18 residential units for each 1 net acre of land, recognizing existing multi-family units and providing additional housing opportunities. In addition, a property at the northwest corner of Avenue M and 70th Street West, and several parcels on the south side of Avenue L near 40th Street West, has been designated as H18. New multi-family buildings in the H18 designation should be limited to two stories in height and should be designed in a manner that is compatible with nearby single-family homes.

South of Avenue L, the remaining rural town area has been designated as Residential 5 (H5), with a maximum density of 5 residential units for each 1 net acre of land, or Residential 2 (H2), with a maximum density of 2 residential units for each 1 net acre of land. These designations are intended to reflect the area's existing density and are not intended to promote further land divisions, although properties along Columbia Way between 40th Street West and 45th Street West present some land division opportunities. Light agriculture, equestrian, and animal-keeping uses may be permitted in these areas, provided that lots meet Zoning Code requirements for those uses. Home-based businesses may also be permitted in these areas, provided that they meet Zoning Code requirements.

North of Avenue L, the remaining rural town area has been designated as Rural Land 1 (RL1), with a maximum density of 1 residential unit for each 1 gross acre of land. This designation is intended to reflect the area's existing density and is not intended to promote further land divisions. Light agriculture, equestrian, and animal-keeping uses are appropriate in this area, but heavy agriculture uses should be prohibited because of potential impacts to existing residents. Home-based businesses are also appropriate in this area, provided that they meet Zoning Code requirements.

Roosevelt

The community of Roosevelt is located in the northeastern portion of the Antelope Valley, north of the City of Lancaster. Community residents are concerned about the urbanization of the area and wish to remain an unincorporated rural community with a unique agricultural identity. Some portions of the community are partially developed with light agricultural uses and single-family homes on large lots, while some portions are in Agricultural Resource Areas and are partially undeveloped with farms and heavy agricultural uses. The remaining portions are largely undeveloped and contain environmental resources, such as Significant Ecological Areas.

The community has a rural town center area located at the intersection of Avenue J and 90th Street East. The rural town center area has been designated as Rural Commercial (CR) to serve the daily needs of the residents and provide local employment opportunities. New buildings in the rural town center area should be limited to one story in height and should be designed at a pedestrian-oriented scale, with primary building entries facing Avenue J or 90th Street East.

The rural town center area should continue to be the focal point of the communities and should be linked to the surrounding rural town area through trails and pedestrian routes. Pedestrian routes should have permeable paving, consistent with rural community character, instead of concrete sidewalks. Public amenities, such as community bulletin boards, are encouraged in this area.

Two parcels on 90th Street East have been designated as CR and Light Industrial (IL) in recognition of existing commercial and industrial uses. No other portions of the community have been designated for commercial or industrial use, and new commercial uses outside of this IL designation are strongly discouraged, as they are not compatible with the community character.

The community includes rural town areas that are generally bounded by Lancaster Boulevard to the north, 85th Street East to the west, Avenue J-12 and Avenue J to the south, and 90th Street East on the east. These areas have been designated as Rural Land 5 (RL5), with a maximum density of 1 residential unit for each 5 gross acres of land. This designation is intended to reflect the existing density of the rural town areas and is not intended to promote further land divisions. New land divisions in the rural town areas shall maintain a large minimum lot size to ensure consistency with the existing community character.

The majority of new residential development in Roosevelt should be directed to the rural town areas instead of the surrounding rural preserve area, provided that such development is consistent with existing community character and allows for light agriculture, equestrian, and animal-keeping uses. Heavy agriculture uses should be prohibited in these areas because of potential impacts on existing residents. Home-based businesses may also be permitted in these areas, provided that they meet Zoning Code requirements.

The remainder of the community is considered to be a rural preserve area and has been designated as Rural Land 10 (RL10), with a maximum density of 1 residential unit for each 10 gross acres of land, and Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. These very low densities reflect the underlying infrastructure constraints and environmental resources.

Submission 4452 (Jacqueline Ayer, Acton Town Council, December 2, 2022) - Continued

Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate. Agricultural uses in Agricultural Resource Areas will be protected and promoted, as directed in the policies of the Conservation and Open Space Element.

Three Points

The community of Three Points is located in the far western portion of the Antelope Valley, south of Neenach and northwest of Lake Hughes. The community is largely undeveloped and is generally not served by existing infrastructure and public facilities, but it does contain some single-family homes on large lots and some agricultural uses. The community is adjacent to the National Forest, includes environmental resources, such as scenic hillsides and Significant Ecological Areas, and is subject to several safety hazards, including the San Andreas Fault and Very High Fire Hazard Severity Zones.

The community does not have a rural town center area but is served by the rural town center area in Lake Hughes. A parcel at the southwest corner of Three Points Road and Pine Canyon Road has been designated as Rural Commercial (CR) in recognition of an existing commercial use. No other portions of the community have been designated for commercial or industrial use, and new commercial uses outside of this CR designation and new industrial uses are strongly discouraged, as they are not compatible with the community character.

The entire community is considered to be a rural preserve area and has been designated as Rural Land 20 (RL20), with a maximum density of 1 residential unit for each 20 gross acres of land. This very low density reflects the underlying infrastructure constraints, environmental resources, and safety constraints. Development in the rural preserve area should be limited to single-family homes on very large lots, light and heavy agriculture, equestrian and animal-keeping uses, and other uses where appropriate.

Response to Submission 4452 (Jacqueline Ayer, Acton Town Council, December 2, 2022)

4452-10243

This comment is a duplicate of submission PB-4451. Please refer to Submission PB-4451.

Submission 4453 (Jacqueline Ayers, Acton Town Council, December 1, 2022)

Palmdale - Burbank - RECORD #4453 DETAIL

Status :	Delimited
Record Date :	12/2/2022
Interest As :	Business and/or Organization
First Name :	Jacqueline
Last Name :	Ayers
Attachments :	Final comments on Cultural Resources section.pdf (138 kb) ATC_Comment_Letter_on_CHSRA_DEIRDEIS_Cultural_Resources_section.pdf (170 kb)

Stakeholder Comments/Issues :

[*PLEASE CONFIRM RECEIPT*

To the California High Speed Rail Authority;
Attached please find comments submitted by the Acton Town Council pertaining to the "Cultural Resources" impact analysis (Section 3.17) of the Draft Environmental Impact Report/Environmental Impact Statement issued by the California High Speed Rail Authority for the Palmdale-Burbank Section of the High Speed Rail Project.
Please contact the Acton Town Council at atc@actontowncouncil.org if you have difficulties opening the attached or require additional information.

Sincerely,
Jacqueline Ayer
Correspondence Secretary

ACTON TOWN COUNCIL
1887
P.O. Box 810, Acton CA 93510

December 1, 2022

California High Speed Rail Authority
Southern California Regional Office
355 S. Grand Avenue, Suite 2050
Los Angeles, CA 90071
Electronic Transmission of 3 pages to
Palmdale_Burbank@hsr.ca.gov

Subject: Acton Town Council Comments on Section 3.17 of the Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement.

Reference: Notice of Notice of Availability/Notice of Public Hearing for the California High-Speed Rail – Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement Issued September 2, 2022.

To the California High Speed Rail Authority;

Attached please find comments submitted by the Acton Town Council on Section 3.17 of the Draft Environmental Impact Report/Environmental Impact Statement prepared for the Palmdale to Burbank Project Section of the California High Speed Rail Project. If you have any questions or require further information, please contact the Acton Town Council at atc@actontowncouncil.org.

Sincerely,

/S/ Jacqueline Ayer
Jacqueline Ayer, Correspondence Secretary
The Acton Town Council

cc: Rick Simon, Engineering Manager, Palmdale-Burbank Section [Rick.Simon@hsr.ca.gov]
Genoveva Arellano, Principal; Arellano & Associates [GArellano@arellanoassociates.com]

"Our lives begin to end the day we become silent about things that matter" Martin Luther King, Jr.

ANALYSIS OF THE "CULTURAL RESOURCES" SECTION OF THE PALMDALE-BURBANK DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT.

1.0 INTRODUCTION

4453-10518

The "Cultural Resources" impact assessment presented in Chapter 3.17 of the Draft Environmental Impact Report/Environmental Impact Statement (hereafter referred to as "the Draft") that was prepared by the California High Speed Rail Authority ("CHSRA") for the Palmdale-Burbank Segment of the High Speed Rail Project ("Project") has been evaluated and numerous concerns and irregularities have been identified. As set forth in the comments below, these irregularities suggest that the Draft's analysis of Cultural Resources do not comply with the California Environmental Quality Act ("CEQA"). These comments were prepared by Acton Residents who have resided in the Community for more than 30 years and know it well; this expertise lends significant credibility to, and provides a substantial foundation for, the comments submitted herein.

2.0 DEFICIENCIES AND CONCERNS NOTED IN THE DRAFT'S CULTURAL RESOURCES ANALYSIS

The Draft's analysis of cultural resources raises the concerns set forth below.

4453-10519

2.1 The Draft Fails to Mention the Aliso Arrastre Special Interest Area

All of the proposed "E" Routes proceed above ground and transition underground in an area designated by the U.S. Forest Service ("USFS") as the "Aliso-Arrastre Special Interest Area"[1] ("SIA") within the San Gabriel Mountains National Monument portion of the Angeles National Forest; this designation was applied because, among other things, it contains extensive and irreplaceable heritage resources. The U.S. Department of Agriculture ("USDA") Land Management Plan ("LMP") adopted for the Angeles Forest requires that sites like the Aliso Arrastre SIA be protected to the same extent as properties deemed eligible for the National Register of Historic Places. Yet, the Draft makes no mention of the Aliso Arrastre Special Interest Area at all and it certainly does not clarify how the project will ensure the area is protected to the same extent as if it were eligible for the National Register of Historic Places. This constitutes a significant deficiency that can only be corrected by expanding the Draft to specifically address matters pertaining to the Aliso Arrastre SIA or, in the alternative, selecting the SR14A route rather than any of the "E" Routes.

4453-10520

2.2 The Draft Appears to Defer the Development of Mitigation Measures in a Manner that Does not Comply with CEQA.

The Draft asserts on Page 3.17-79 and Page 3.17-83 and elsewhere that "Due to limited access for archaeological surveying during environmental phase, the identification of archaeological sites will be conducted in phases as access to parcels is gained during design-build activities.

[1] https://www.fs.usda.gov/detailfull/r5/forest-grasslandhealth/?cid=fsbdev3_047946&width=full

4453-10520

Therefore, specific impacts on known and as-of-yet unknown archeological sites will be determined during phased investigation." This indicates that CHSRA will assess the cultural resource impacts of the Project and develop mitigation measures for the Project *after* the Final EIR/EIS is certified. These "post EIR/EIS certification" environmental assessments and mitigation plans will be developed without public review and comment, and will remain as internal documents accessible only by CHSRA and CHSRA's agents, contractors and representatives. CEQA does not permit a Lead Agencies to certify an EIR first and then assess project impacts second; yet, according to the Draft, that is precisely what CHSRA plans to do. This whole approach effectively turns CEQA on its head and is therefore completely unacceptable.

It is further noted that the Draft clearly asserts on page 3.17-87 "though implementation of CUL-IAMF#3 would avoid or minimize impacts on unknown or previously undiscovered archeological resources, various resource sites would remain susceptible to construction impacts, with the potential to cause a substantial change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines." In other words, not only does the Draft indicate that CHSRA intends to assess cultural resource impacts and develop mitigation measures after the Final EIR/EIS is certified; it further indicates that, whatever mitigation methods are developed, they may not work! All of this is completely unacceptable; the Draft must be revised to properly identify the cultural resources that may be significantly affected by the Project and identify mitigation measures which actually *address* these impacts. Fortunately, these concerns can be largely eliminated if CHSRA selects the SR14A Route rather than any of the other routes.

4453-10521

2.3 Historic Blum Ranch Will be Significantly Impacted if CHSRA Selects Any of the "E" Route Alternatives.

Page 3.17-80 of the Draft states "As with other sections, the Palmdale to Burbank Project section would have the greatest significant impacts on historic architectural properties in the urbanized areas, and the greatest significant impacts on undisturbed prehistoric archaeological sites in rural/undeveloped areas." This is inaccurate; the Project *will* result in significant impacts on historical architectural properties in Acton if any of the "E" route alternatives are selected. Specifically, Blum Ranch is a living Historic Resource that is also a working ranch which is visited every year by thousands of people, and all of the "E" route alternatives will cause significant adverse aesthetic and noise impacts on this historic property. Most areas of the farm and ranch house will have a direct line of site to the elevated tracks as they cross over Aliso Canyon Road; thus, Blum Ranch will experience significantly adverse aesthetic and noise impacts if any of the "E" Routes are approved. For instance, each time the train goes by, the noise level at the ranch will exceed 87 dBA; this will occur more than 460 times per day, and will require employees working at the Ranch to wear hearing protection[2]. In other words, the significant noise and visual impacts resulting from Project operation will make historic Blum Ranch unvisitable.

[2] As indicated in comments that the Acton Town Council submitted on December 1, 2022 in response to Section 3.4 of the Draft, the Sound Exposure Level 2,000 feet from the tracks will exceed 85 dBA; thus, hearing protection is required per Federal OSHA regulations.

4453-10521

Blum Ranch is an Historic Homestead built in 1891 by the Blum Family. Their orchards started off with pears and apples along with beehives for local-made honey. They later added lilacs and then peaches. The ranch and store were continuously operated by the decedents of the original homesteaders until it the property was recently sold. The new owners continue to maintain the property as a family-owned ranch and store; they changed the name to Bloom Ranch as an "homage" to the original homesteading family name. They now have peaches and lilacs and run the store with other items that are locally grown or made. Thousands of people visit Bloom Ranch every year, but the noise and aesthetic impacts of the Project will greatly diminish visitorship to the property; this in turn will cause the new owners to experience significant economic hardships that may even force them to close the ranch down. If that happens, the historic Blum Ranch will fall into decay and ruin. Yet, the Draft fails to account for any of these impacts; in fact, the Draft dismisses these concerns because it declares on page 3.17-91 that "a quiet setting is not a character-defining feature of the resource". Nothing could be further from the truth; the noise impacts of train operation will drive Bloom Ranch customers away and this will threaten the very financial foundation of the ranch. Once the customers leave, support for the Ranch will disappear and it will fall to ruin. The Draft must be revised to property address the extent to which the very existence of historic Blum Ranch is threatened by the Project. Or, in the alternative, CHSRA can simply approve the SR14A route alternative.

4453-10522

2.4 The Draft Concludes Cultural Resource Impacts Will be Mitigated Based on Insubstantial and Groundless Assumptions.

Page 3.17-95 asserts that, to mitigate impacts, CHSRA will consult with MOA signatories and tribal consulting parties, but what is not clear is how mitigation will be achieved if the MOA signatories and tribal consulting parties conclude that a resource cannot be moved; such circumstances would render the cultural resource impact to be very significant, yet no solution is offered. In other words, the Draft appears to adopt a groundless assumption that any solution it develops will be acceptable to MOA signatories and tribal consulting parties when in fact, this may not be the case.

4453-10523

2.5 The Lack of Data Regarding Many Resources Makes It Difficult for the Public to Provide Substantive Comments.

All alternative routes for the proposed project will involve significant effects on the Cultural Resources found along the route; these comments pertain to those resources located in Acton. According to Table 3.17-6, there are ten resources that have USFS numbers and nine of these are in the vicinity of all the "E" routes; one is in the vicinity of the refined SR14 route. The other 26 resources have no USFS number which suggests that these resources are on private property and may be in the path of one of the HSR route alternatives (which, it is understood, are firmly fixed). The mitigation measures proposed by the Draft are vague and nonspecific, thus it is not clear whether these 26 "non-USFS" resources will indeed be adequately protected especially if they are in the path of the railway tracks. The best path towards protecting and securing these resources is to forego all route alternatives other than the SR14A.

3.0 CONCLUSION

4453-10524

For the reasons set forth below, CHSRA is urged to forego all route alternatives except the SR14A.

Response to Submission 4453 (Jacqueline Ayers, Acton Town Council, December 1, 2022)

4453-10518

The commenter notes that their submission letter contains comments from Acton residents on the cultural resources analysis in Section 3.17, Cultural Resources, of the Draft EIR/EIS and asserts that the Draft EIR/EIS is not in compliance with CEQA. These comments are acknowledged. Refer to the subsequent comment responses to this submission letter (comment responses 4453-10519, 4453-10520, and 4453-10521) which address the commenter's more detailed concerns regarding the Aliso-Arrastre Special Interest Area; the identification of known and unknown archaeological resources and associated identification procedures, impact avoidance and minimization features, and mitigation measures; and noise and visual impacts to Blum Ranch.

4453-10519

The commenter notes that the Draft EIR/EIS fails to mention the Aliso Arrastre Special Interest Area (SIA) within the San Gabriel Mountains National Monument (SGMNM) of the Angeles National Forest (ANF), which intersects with the E1/E1A and E2/E2A Build Alternatives. The commenter asserts that the U.S. Department of Agriculture (USDA) Land Management Plan (LMP) adopted for the ANF requires that sites like the SIA be protected to the same extent as properties deemed eligible for the National Register of Historic Places (NRHP). The discussion of the SIA on page 85 of the USFS LMP Part 2 ANF Strategy (www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5166877.pdf) does not assert that USFS policy is to treat the SIA as NRHP-eligible. Although the LMP indicates that the SIA contains important archaeological sites, it does not state that the entire area is NRHP-eligible nor that it should be treated as such. Moreover, the SIA discussion in the LMP does not suggest that the important archaeological sites within the SIA are thematically linked consistent with the presence of a historic district. Additionally, a "special interest area" is not a historic property type typically used for NRHP nominations or determinations of eligibility. Nevertheless, Section 3.17.11.2, United States Forest Service Resource Analysis in Section 3.17, Cultural Resources has been updated in the Final EIR/EIS by providing a description of the SIA. In addition, Table 3.17-20 (Archaeological Resources within the ANF, including the SGMNM) in Section 3.17, Cultural Resources has been updated in the Final EIR/EIS to provide clarity on the resources located within the SIA by identifying the 9 archaeological resources that are located within the SIA. As with all unevaluated cultural resources in the Project area, cultural resources in this SIA would be assumed eligible until (a) phased identification and evaluation could be completed and (b) determinations of eligibility/treatment measures for adversely affected resources could be developed in consultation with the ANF, Native American Tribes, and other consulting parties. This update does not affect the CEQA and NEPA conclusions presented in the Draft EIR/EIS because the resources were already analyzed for potential impacts in Section 3.17.7.5, Environmental Consequences. The new information added to Section 3.17 of the Final EIR/EIS does not add any new significant impacts or increase the severity of previously disclosed impacts to cultural resources located within the SIA. The USFS is a Section 106 consulting party; consultation with the USFS and other Section 106 consulting parties has remained ongoing throughout the environmental document preparation process, as described in Section 3.17.4.2, Agency, Native American, Interested Parties, and Public Outreach Efforts. The Authority will continue consultation with the USFS and

Response to Submission 4453 (Jacqueline Ayers, Acton Town Council, December 1, 2022) - Continued

4453-10519

other consulting parties through the construction phase of the Palmdale to Burbank Project Section during implementation of the MOA and treatment plans.

4453-10520

The commenter states the opinion that the Draft EIR/EIS defers mitigation measures for archaeological resources, in conflict with CEQA, and that the mitigation is insufficient to reduce identified impacts. The commenter also expresses concern that mitigation plans will be accessible only to the Authority and its agents, contractors, and representatives.

The analysis of impacts to archaeological resources is provided in Section 3.17.7 of the Draft EIR/EIS, specifically Impact CUL#1 (Effects on Known Archaeological Resources Caused by Construction Activities) and Impact CUL#2 (Effects on Unknown Archaeological Resources Caused by Construction Activities). Although implementation of CUL-IAMF#1, CUL-IAMF#2, and CUL-IAMF#5 will avoid and minimize impacts on known archaeological resources, various resource sites would remain susceptible to construction impacts, with the potential to cause a substantial change in the significance of an archaeological resource, pursuant to Section 15064.5 of the CEQA Guidelines. Therefore, mitigation measures are required. This includes CUL-MM#1, which requires mitigation of adverse effects to archaeological resources identified during phased identification, including through preservation in place, or data recovery if necessary. CUL-MM#2 further requires that, in the event of an unanticipated archaeological discovery, the contractor will cease work in the immediate vicinity of the find. The contractor's qualified archaeologist will assess the potential significance of the find and make recommendations for further evaluation and treatment as necessary, which must be followed. Finally, CUL-MM#3 addresses impacts on as-of-yet-unidentified significant archaeological resources, and requires that protocols for identification, evaluation, treatment, and data recover mitigation of these resources be addressed in the Memorandum of Agreement (MOA) and Archaeological Treatment Plan (ATP). Contrary to the commenter's assertion, cultural resource impacts are addressed in the Draft EIR/EIS and mitigation measures have been developed.

All mitigation measures would require documentation of implementation, monitoring and reporting, and subject to the Mitigation Monitoring and Enforcement Plan (MMEP). CEQA Guidelines Section 15126.4 (B) states: "formulation of mitigation measures shall not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the

Response to Submission 4453 (Jacqueline Ayers, Acton Town Council, December 1, 2022) - Continued

4453-10520

mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will considered, analyzed, and potentially incorporated in the mitigation measure."

The Programmatic Agreement Among the FRA, the ACHP, the SHPO, and the Authority Regarding Compliance with Section 106 of the NHPA, as it Pertains to the California High-Speed Train Project executed in 2011 (FRA et al. 2011) and amended in 2021 (Authority et al. 2021) (PA) sets forth the Authority's systemwide cultural resources approach. The Archaeological Treatment Plan (ATP), Built Environment Treatment Plan (BETP), Memorandum of Agreement (MOA) to provide specific details regarding the Palmdale to Burbank Project Section. The ATP, BETP, and MOA provide additional detail regarding the implementation of CUL-MM#1. The PA, ATP, BETP, and MOA were developed in consultation with federal agencies, the State Historic Preservation Officer, tribes, local government officials, the Advisory Council on Historic Preservation, other interested parties, and the general public. The PA and MOA set forth provisions for consultation with these parties at each step of the phased identification process, ensuring public input and access. The mitigation plans will therefore be more accessible than suggested by the commenter.

The Authority would commit to its mitigation through adoption of an MMEP. CUL-MM#1 through CUL-MM#3 include specific performance standards [i.e., complying with the PA, MOA, and ATP; the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716-42); and Guidelines for the Implementation of CEQA, as amended (Title 14 CCR Chapter 3, Article 9, Sections 15120-15132), among others], as described in the Draft EIR/EIS. The Authority identifies the actions that can be achieved to meet performances standards [e.g., preparation of a data recovery plan as required under CEQA Guidelines §15126.4(b)(3)(C), the MOA, and ATP]. For these reasons, CR-MM#1 through CR-MM#3 are not deferred.

4453-10521

The commenter asserts that selection of the E1, E1A, E2, and E2A Build Alternatives would significantly alter the Blum Ranch.

This was also the conclusion of the Section 106 Finding of Effects (FOE), which SHPO concurred with on September 3, 2021. The FOE identified the potential for adverse visual effects during construction and operation of the E1, E1A, E2, and E2A Build Alternatives of the HSR Palmdale to Burbank Section. For the E1, E1A, E2, and E2A Build Alternatives, the project would be above ground outside of the historic property boundary of both the Blum Ranch Historic District and the Blum Ranch Farmhouse and the HSR structure would be highly noticeable intermittently. Blum Ranch Historic District is a rural historic landscape and would be highly sensitive to such large-scale visual changes within its viewshed. This is discussed in Section 3.17, Cultural Resources of the Draft EIR/EIS (see Impact CUL#4).

Furthermore, the effects analysis included review and incorporation of findings from other technical studies. These studies included assessments of visual, noise, and vibration impacts, as reported in the Noise and Vibration Technical Report, the Aesthetics and Visual Quality Technical Report, the Right-of-Way Analysis, and the Draft Preliminary Engineering/Project Definition. (Authority 2018 and 2017) (Authority and FRA 2017a, 2017b). The adverse effects analysis for historic properties also considered the FRA guidance manual regarding assessment of high-speed train noise and vibration effects (FRA 2012). Historically significant sites are considered noise-sensitive, for example, depending on their land use activities, with some being more sensitive to changes in noise levels than others. (FRA 2012: 3-8). Although the effects analysis acknowledged that the Farmhouse was noise-sensitive, it concluded that historically, the Blum Ranch Historic District as a whole was not.

In addition to the existing ambient sound levels, the effects analysis took into account the nature of the setting of the historic rural cultural landscape and historic farmhouse from multiple locations and times of day on the property, including the existing noise levels associated with farming, the road and nearby commercial industrial properties, as well as noise and disruption associated with visitors and deliveries to the farm store. The effects analysis compared these existing noise levels to the expected intermittent noise and vibration from the construction of the train alignment and the operation of the HSR

Response to Submission 4453 (Jacqueline Ayers, Acton Town Council, December 1, 2022) - Continued

4453-10521

Palmdale to Burbank Section. Noise measurements were conducted in the immediate area of the adit where the train would emerge south of the historic properties. Within 250 feet of Noise Measurement Location 9, the dBA would not be more than 57 dBA. The southern border of the Blum Ranch Historic District (excluding the irrigation pipeline) is the "flatlands," located approximately 1,000 feet to the north of the proposed adit. The Blum Ranch Farmhouse is approximately 1,900 feet to the north of the proposed adit. As such, neither the Blum Ranch Historic District nor the Blum Ranch Farmhouse would experience noise levels that exceed 87 dBA, as suggested by the commenter. The irrigation pipeline, which is mostly below the surface, extends the historic district boundary south along its alignment towards the proposed adit. It is unknown how much of the original 1908-1912 water line is in situ, how much of the original water line is still in use, and what has been abandoned or relocated. The irrigation pipeline has not been identified as a noise-sensitive receptor and is unlikely to be adversely affected by a change or increase in noise as a result of the Build Alternatives.

As a matter of clarification, the commenter's statement that there would be 460 daily trains is not accurate. As explained in the "Operating Conditions" subheading in Section 3.4, Noise and Vibration of the Final EIR/EIS: "For the Palmdale to Burbank Project Section, it is assumed that there would be a total of 189 trains in both directions combined during the daytime hours (7:00 a.m. to 10:00 p.m.), and a total of 28 trains in both directions during the nighttime hours (10:00 p.m. to 7:00 a.m.), for a total of 217 trains per day in both directions combined. There would be a total of 14 trains per hour in both directions combined during the peak hours, and these 14 trains per hour during the peak hours are a subset of the number of daytime trains, and not an additional set of trains to be added to the total." The Blum Ranch Farmhouse would be subject to moderate, but not severe, residential noise impacts as analyzed in the Palmdale to Burbank Project Section Noise and Vibration Technical Report. Intermittent noise from the train could be audible at the Blum Ranch Farmhouse. The FOE determined that the integrity of the Blum Ranch Farmhouse under Criterion C (architecture) would be adversely affected by the moderate noise impacts.

Significant attention in both the 2019 Historic Architectural Survey Report (HASR) and the FOE to both the historic residence and historic farmstead property was made to establish the historic context, the period of significance, the NRHP criteria under which

4453-10521

they were found NRHP-eligible, the historic boundary and the character-defining features of the Blum Ranch rural cultural landscape and the historic farmhouse. SHPO concurred with the Authority's determination of eligibility for both on August 30, 2019.

The FOE determined that no adverse effects to the Blum Ranch Historic District or Blum Ranch Farmhouse would occur as a result of the SR14 Build Alternative or the Refined SR14 Build Alternative. The Authority has identified the SR14A Build Alternative as the preferred alternative, which avoids Blum Ranch Historic District and the Blum Ranch Farmhouse and therefore avoids adverse effects to both historic properties. The Draft EIR/EIS draws from both the identification and evaluation of properties in the HASR and potential for project effects on NRHP-listed/eligible historic properties in the FOE. An adverse effect on historic properties is found when an undertaking such as the HSR Palmdale to Burbank Section may alter, directly or indirectly, any of the characteristics that qualify that property for inclusion in the National Register of Historic Places (NRHP) (36 CFR.800.5[1]).

In summary, in its Draft EIR/EIS the Authority has disclosed the significant and unavoidable impacts and the adverse effects on the Blum Ranch Historic District and the Blum Ranch Farmhouse due to the E1, E1A, E2, and E2A Build Alternatives. The Refined SR14 Build Alternative would result in no adverse effect to the Blum Ranch Historic District or the Blum Ranch Farmhouse. In addition, the Authority has identified that its preferred alternative, the SR14A Build Alternative would not result in an adverse effect on the Blum Ranch Historic District and the Blum Ranch Farmhouse.

Response to Submission 4453 (Jacqueline Ayers, Acton Town Council, December 1, 2022) - Continued

4453-10522

The comment states that the conclusion that cultural resources will be mitigated is based on insubstantial and groundless assumptions, and states that it is not clear how mitigation will be achieved if a conclusion is reached that a cultural resource cannot be moved or of the solutions developed in the future are not acceptable to the signatories of the Memoranda of Agreement (MOA). Section 106 and CEQA mandate that identification and effects assessment of historic properties/historical resources occurs and treatment of adverse effects on significant cultural resources that cannot be avoided. Mitigation measures CUL-MM#1 through CUL-MM#6 described in Section 3.17.8 of the Draft EIR/EIS are considered the most effective and feasible mitigations to resolve adverse effects to Section 106 (NEPA) eligible properties or to mitigate impacts to less than significant levels to California Register of Historic Resources or CEQA eligible historical resources. However, while individual circumstances may not allow for the reduction of significance to less than significant level (for example, if a resource cannot be moved or protected in place), implementation of the mitigation will reduce or compensate for the loss of a property or resource. Under CEQA, the destruction of a historical resource cannot be mitigated to a less than significant level. In accordance with the PA, a Built Environment Treatment Plan and an Archaeological Treatment Plan are being prepared and will be implemented, subject to approval of the State Historic Preservation Officer, to resolve any potential adverse effects to NRHP-listed or -eligible historic and archaeological properties or potential impacts to CEQA historical resources (including archaeological resources). These treatment plans describe detailed requirements for the treatment of resources affected by the project, site monitoring during construction, handling of unanticipated discoveries, data recovery, and curation of artifacts, among other things. In accordance with the PA, the mitigation of impacts to historic properties (and the development of Memoranda of Agreement) and historical resources is being developed with input from consulting parties, which include local city and county jurisdictions, as well as local Native American representatives. Combined, these mitigation measures would mitigate for impacts to both known and unknown archaeological resources as well as historic built resources affected by the project.

4453-10523

The commenter states that the mitigation measures in the Draft EIR/EIS are vague and non-specific and states that it is not clear whether 26 resources without USFS numbers will be adequately protected. The identification of known archaeological resources reflected in the Archaeological Survey Report (ASR) and EIR/EIS represents the most accurate data available at the time of the NOP, which established the existing conditions baseline for the Draft EIR/EIS. The 26 resources referred to in the comment consist of five historic period sites (1 landfill, 2 foundations, 2 refuse deposits) and 21 precontact sites (15 lithic scatters, 1 lithic quarry, 2 habitation sites, 2 rock shelters, and the Vasquez Rocks Archaeological District). Two of these resources (P-19-000360 and the Vasquez Rocks Archaeological District) are listed on the National Register of Historic Places (NRHP). All archaeological resources that were not previously evaluated for NRHP eligibility were assumed to be eligible for the NRHP in the EIR/EIS (Table 3.17-6). Not all resources, including the 26 resources in question, were accessible at the time of the ASR and EIR/EIS, and both documents propose phased identification once the project design is finalized. As stated in Section 3.17.7.3, page 3.17-81 of the EIR/EIS, three of these resources (3 precontact lithic scatters) would not be affected by the project. The remaining 23 resource may be affected by project construction, as shown in Tables 3.17-9, 3.17-12, and 3.17-15 of the EIR/EIS. Section 106 and CEQA do not require protection of historic properties. They mandate that identification and effects assessment of historic properties/historical resources occurs and that the agency consult on adverse effects on significant cultural resources that cannot be avoided. Mitigation measures CUL-MM#1 through CUL-MM#4 described in Section 3.17.18 of the EIR/EIS apply to all historic properties, including the 26 resources referred to in the comment, regardless of their location on public or private lands. CUL-MM#1 calls for the treatment of archaeological resources in accordance with the stipulations provided in the Section 106 Programmatic Agreement (PA) and Memorandum of Agreement (MOA). The PA stipulates the development of an Archaeological Treatment Plan (ATP) for the investigation and treatment of both known (including the 23 sites on private land that may be affected by project construction) and unknown archaeological resources. CUL-MM#2 calls for adherence to the MOA, PA, and ATP in the event of a new archaeological discovery. CUL-MM#3 provides for the mitigation for effects to precontact archaeological resources, which would apply to 20 of the 26 sites mentioned by the commentor (18 of the 21 precontact sites), and any other precontact site identified during implementation of the PA and MOA. the development of meaningful mitigation

Response to Submission 4453 (Jacqueline Ayers, Acton Town Council, December 1, 2022) - Continued

4453-10523

measures for effects on as-of-yet-unidentified Native American archaeological resources that cannot be avoided would be negotiated with the tribal consulting parties. CUL-MM#4 provides for protection-in-place through implementation of BMPs for standard practice maintenance and utility connections to reduce ground disturbance activities, which would apply to all 26 sites mentioned in the comment. These processes will be carried out in consultation with Section 106 consulting parties. Combined, these mitigation measures would mitigate for impacts to both known and unknown archaeological resources on federal and private lands.

4453-10524

The commenter expresses a preference for the SR14A Build Alternative over any other HSR Build Alternatives. The Authority has identified the SR14A Build Alternative as the preferred Build Alternative for the Project. See Chapter 8: Preferred Alternative and Station Site(s), for more information regarding the preferred alternative. For a response to comments on how the Preferred Alternative was selected, refer to PB-Response-GEN-1.

Submission 4456 (Darrell Clarke, Sierra Club, December 1, 2022)

Palmdale - Burbank - RECORD #4456 DETAIL

Status :	Ready for Delimiting
Record Date :	12/2/2022
Interest As :	Business and/or Organization
First Name :	Darrell
Last Name :	Clarke
Attachments :	Sierra Club CHSR Palmdale-Burbank Comments.pdf (165 kb)

Stakeholder Comments/Issues :

Please find attached the Sierra Club's comments on the Palmdale to Burbank Project Section Draft EIR/EIS.

Thank you,

Darrell Clarke

Sierra Club Angeles Chapter Transportation Chair

Angeles Chapter
3250 Wilshire Blvd. #1106
Los Angeles, CA 90010
(213) 387-4287
angeles.sierraclub.org

December 1, 2022

California High Speed Rail Authority

Via email: Palmdale_Burbank@hsr.ca.gov

Subject: Palmdale to Burbank Project Section Draft EIR/EIS Comment

4456-9070

The **Sierra Club endorsed Proposition 1A** in 2008 for California High Speed Rail, as an alternative to fossil fuel use, criteria pollutants, and greenhouse gas emissions from long car drives and intra-state plane flights, and to reduce highway and airport expansion.

Construction is now well underway between Bakersfield and Merced, and electrification for initial operations there is funded.

Palmdale to Burbank is the final section's Draft EIR/EIS for the San Francisco to Los Angeles main line, and this section is obviously required to complete the route. Due to necessary mountain crossings, it will be will be mostly tunneled.

We commend CHSRA's extensive environmental study from 2010 to 2022 of a comprehensive set of route alternatives between Palmdale and Burbank, and **agree with CHSRA's selection of SR14A** as the preferred Build Alternative to minimize environmental impacts.

4456-9071

We are also submitting these specific comments on the Draft EIR/EIS:

Wildlife corridors and riparian habitats

We note the discussion of SR14A's at-grade impermeability of the wildlife corridor near Bee Canyon, beginning on page 3.7-190, but seek more mitigation for this vital wildlife corridor north of the Angeles National Forest than only citing the adjacent SR14 freeway as a barrier. We appreciate the discussion of riparian habitat, but remain concerned about their degradation.

Submission 4456 (Darrell Clarke, Sierra Club, December 1, 2022) - Continued

4456-9072

Geology / seismic

We note discussion of seismic risks on pages 3.9-101, 3.9-109, 3.9-112, and GEO-IAMF#6, GEO-IAMF#7, and GEO-IAMF#8, but remain concerned about tunnel integrity both from slow geologic uplift and during earthquakes, and safely evacuating passengers from a train stopped during a seismic event.

It is necessary for the planners to consult the formal peer-reviewed research papers that discuss the geologic hazards of the area. A distinguished geologist, who has spent his life mapping the proposed rail line area, has spoken at numerous High Speed Rail meetings only to have his research and maps ignored. The DEIR lists no independent research sources, and provides only topographic maps – many of which are not up-to-date by the standards of local geologists who have published papers on the geology of this area.

4456-9073

Water supply

We note that water demand for construction would exceed supply in dry years (page 3.6-76), with no clear solution.

Thank you,



Darrell Clarke
Sierra Club Angeles Chapter Transportation Chair

Response to Submission 4456 (Darrell Clarke, Sierra Club, December 1, 2022)

4456-9070

The commenter provided background of the commenter's (Sierra Club) support for Proposition 1A, as well as the extensive environmental study conducted by the Authority between 2010 and 2022. The Sierra Club agrees with the Authority's selection of the Preferred Alternative SR14A identified in the Draft EIR/EIS.

The Authority has not made any changes to the document in response to this comment.

4456-9071

Refer to Standard Response PB-Response-BIO-3: Wildlife Movement Corridors.

The commenter expresses concerns related to wildlife connectivity and wildlife crossing opportunities. Please refer to PB-Response-BIO-3: Wildlife Movement Corridors. Further, the commenter is specifically concerned about the impermeability of wildlife movement north of the Angeles National Forest adjacent to the SR 14 freeway and also adjacent to Bee Canyon described beginning on page 3.7-190 in the EIR/EIS.

The primary barrier to wildlife access along Bee Canyon is the SR 14 freeway. As described in the Wildlife Corridor Assessment (WCA) Report, movement opportunities across the SR 14 freeway are generally limited to several bridge undercrossings. Potential crossing opportunities across the SR 14 freeway are listed below with photographs provided in Appendix C in the WCA. Potential crossings include:

- California Aqueduct undercrossing of the SR 14 freeway
- SR 14 undercrossing south of California Aqueduct
- Sierra Highway-SR 14 undercrossing
- Mountain Springs Road-SR 14 overcrossing
- Sierra Highway-SR 14 overcrossing
- Santiago Road-SR 14 undercrossing
- Crown Valley Road-SR 14 undercrossing
- Red Rover Mine Road-SR 14 undercrossing
- Culvert under SR 14 near Red Rover Mine Road
- Ward Road-SR 14 undercrossing
- Culvert under SR 14 near Ward Road
- Puritan Mine Road-SR 14 undercrossing
- Escondido Canyon Road-SR 14 overcrossing
- Pacific Crest Trail SR 14 undercrossing
- Culvert under SR 14 near Vasquez Rocks
- Agua Dulce Canyon Road-SR 14 undercrossing
- Culvert under SR 14 near Agua Dulce Canyon Road
- Stone Crest Road-SR 14 undercrossing
- Soledad Canyon Road-SR 14 undercrossing

Response to Submission 4456 (Darrell Clarke, Sierra Club, December 1, 2022) - Continued

4456-9071

The primary crossing opportunities under the SR 14 freeway in the vicinity of Bee Canyon include Agua Dulce Canyon Road to the northeast and Stone Crest Road to the southwest. Furthermore, Figure 4-5 in the WCA shows the spatial relationship between these wildlife crossing opportunities at the existing bridges on the SR 14 freeway and the tunnel and viaduct segments of the alignment and how the existing wildlife movement opportunities are maintained as a result. Attached Figures 1 and 2 below further illustrate how existing wildlife movement opportunities across the SR 14 freeway line up with the adjacent permeable tunnel and viaduct segments for the SR14A Build Alternative to maintain wildlife movement and gene flow.

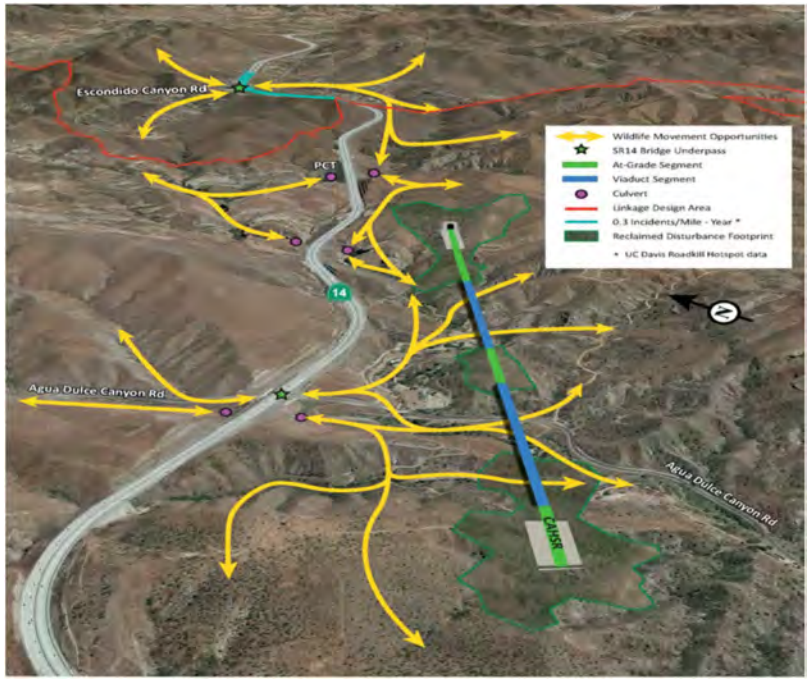


Figure 1 –Aerial photograph showing wildlife movement opportunities, looking north from

4456-9071

Agua Dulce Canyon Road, through the Linkage Design, across the SR 14 freeway corridor with UC Davis Wildlife-Vehicle Conflict Hotspots identified.



Figure 2 –Aerial photograph showing wildlife movement opportunities, looking north from Stonecrest Road, through the Linkage Design, across the SR 14 freeway corridor with UC Davis Wildlife-Vehicle Conflict Hotspots identified.

Subsequent to the development of the WCA, the University of California Davis, Road Ecology Center, created the Real-time Deer Incidents &Wildlife-Vehicle Conflict (WVC) Hotspot maps The mapping includes California Highway Incident Processing System (CHIPS) data collected by the California Highway Patrol (CHP) combined with carcass

Response to Submission 4456 (Darrell Clarke, Sierra Club, December 1, 2022) - Continued

4456-9071

data from the California Roadkill Observation System (CROS) (2023). The data was used to illustrate high use wildlife movement areas on the map ranging in color from blue, yellow, orange, red, and dark red based on the number of vehicle collisions per mile per year (Attached Figure 3). The hotspot map Areas identified as high wildlife use areas align with permeable sections of the Refined SR14 and SR14A Alternatives (illustrated in Figures 1 and 2). The steep roadcuts and adjacent ridgelines along the stretch of the SR 14 freeway adjacent to Bee Canyon may also deter wildlife use (Attached Figures 4 and 5). Those areas that are not permeable were reviewed for crossing opportunities where wildlife could move across the existing landscape. Please refer to Graphs 6-1 through 6-15 of the WCA that illustrate the relative comparison of existing and project permeability for each of the focal species. The WCA determined the effect on wildlife movement was less than significant because of the extensive network of permeable tunnels and viaducts that align with the existing SR 14 freeway bridge undercrossings and wildlife roadkill hotspots, maintaining wildlife movement.

The Draft EIR/EIS identified several mitigation measures to reduce impacts to wildlife movement, such as BIO-MM#64 (Establish Wildlife Crossings), which would require installation of one wildlife crossing south of the California Aqueduct (Soledad Siphon) and one wildlife crossing east of Una Lake to improve the permeability of SR14A and Refined SR14. Other mitigation measures were also developed to further reduce impacts, including: preparation and implementation of a restoration and revegetation plan (BIO-MM#6 (Prepare and Implement a Restoration and Revegetation Plan)); installation of aprons or barriers within security fencing (BIO-MM#36 (Install Aprons or Barriers within Security Fencing)); minimize effects on wildlife movement corridors during construction (BIO-MM#37 (Minimize Effects on Wildlife Movement Corridors During Construction)); establish environmentally sensitive areas (BIO-MM#58 (Establish Environmentally Sensitive Areas and Nondisturbance Zones)); limit vehicle traffic and construction site speeds (BIO-MM#60 (Limit Vehicle Traffic and Construction Site Speeds)); implement wildlife height requirements for enhanced security fencing (BIO-MM#77 (Implement Wildlife Height Requirements for Enhanced Security Fencing)); install wildlife jump-outs (BIO-MM#78 (Install Wildlife Jump-outs)); and implementation of measures intended to reduce, avoid and minimize effects on wildlife movement (BIO-MM#83 (Measures Intended to Reduce, Avoid, and Minimize Effects on Animal Movement)).

4456-9071

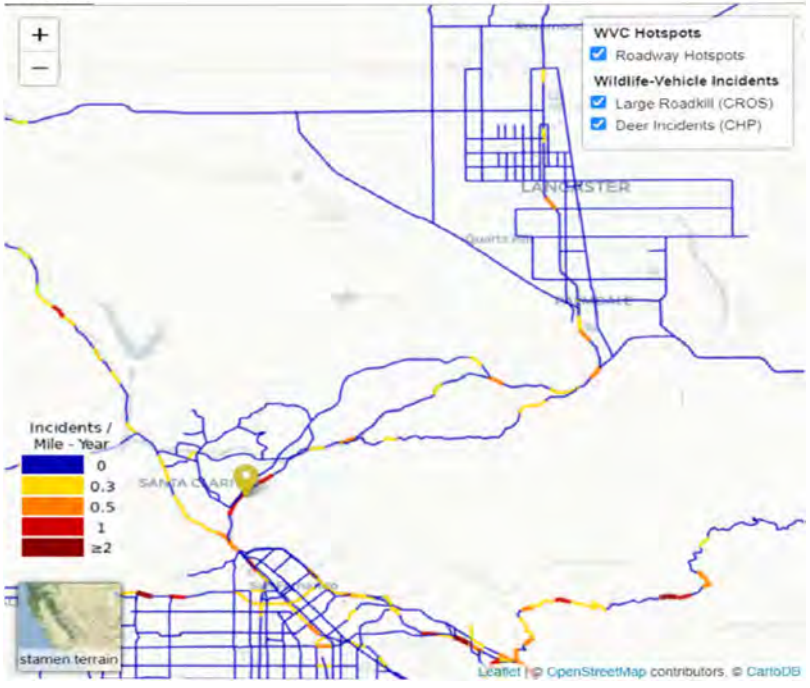


Figure 3 –UC Davis' Real-time Deer Incidents &Wildlife-Vehicle Conflict (WVC) Hotspots map, September 16, 2023

Response to Submission 4456 (Darrell Clarke, Sierra Club, December 1, 2022) - Continued

4456-9071



Figure 4. Looking northwest at the steep cut slopes along the SR 14 freeway adjacent to Bee Canyon.

4456-9071



Figure 5. Looking northwest at the steep natural terrain and steep road cuts along the SR 14 freeway adjacent to Bee Canyon.

The commenter also appreciated the discussion of riparian habitat, but remains concerned about habitat degradation. Implementation of BIO-MM#32 (Restore Temporary Riparian Habitat Impacts) would involve restoration and revegetation of riparian habitat in temporary impact areas, while implementation of BIO-MM#6 (Prepare and Implement a Restoration and Revegetation Plan) would ensure that vegetation surrounding wildlife movement corridors is restored in order to provide appropriate cover for wildlife species. BIO-MM#46 (Provide Compensatory Mitigation for Permanent Impacts on Riparian Habitat) would also offset permanent impacts to permanently

Response to Submission 4456 (Darrell Clarke, Sierra Club, December 1, 2022) - Continued

4456-9071

disturbed riparian habitat, including areas with wildlife movement. As a result, impacts on wildlife movement corridors would be reduced.

4456-9072

The commenter is concerned with construction and operational impacts associated with earthquakes, seismicity and the effectiveness of the Early Earthquake Detection System (EEDS) affecting all of the alignments. It suggests the Authority did not review formal, peer-reviewed papers on the area's geologic hazards. It states that the Authority ignored a geologist who spoke at several HSR meetings. The Authority understands that there are risks associated with undergoing construction in a seismically active area such as southern California. All of the alignment alternatives would be constructed in compliance with building code requirements for application of engineering design features to address and minimize these risks. These risks and impacts are analyzed in detail in Section 3.9, Geology, Soils, Seismicity and Paleontological Resources, specifically in Impact GSSP#7 (Fault Rupture and Seismic Ground Shaking Could Endanger People or Structures During Construction) and Impact GSSP#16 (Effects of Geologic Hazards During Operations). These risks and impacts are addressed by GEO-IAMF#7 that requires an evaluation of fault rupture potential and GEO-IAMF#10 that will implement engineering and safety protocols to limit fault rupture and ground shaking hazards during construction and operation. The HSR system project design also includes several components that minimize the effects from seismic events and the potential safety risks from seismic events (GEO-IAMF#6). These include a train control system with earthquake early warning detection systems; operational responses to notification of a seismic event including stopping or slowing of trains and inspection of infrastructure. GEO-IAMF#6 recognizes that damage to infrastructure from fault creep can be mitigated with routine maintenance including minor realignment. These measures would help identify situations where fault rupture has the potential to damage facilities and enable control of trains in a manner that would reduce the potential for accidents. The project's design will require the preparation of a Construction Management Plan (IAMF#1) that requires a topographic survey and an assessment of geotechnical conditions prior to construction. Other features set specific standards that the project must comply with to promote safety during construction and operations, such as an Early Earthquake Detection System (EEDS). EEDS lead times will depend on the location of the epicenter of the seismic event with respect to the train. The project design includes emergency exits and notification systems, consistent with the requirements of the NFPA Safety Code and Standard for Fixed Guideway Transit and Passenger Rail Systems, the California Building Standards Code, and the International Building Code. The Authority has developed an emergency access plan for operation of the California HSR System

Response to Submission 4456 (Darrell Clarke, Sierra Club, December 1, 2022) - Continued

4456-9072

pursuant to NFPA Standard 130: Standard for Fixed Guideway Transit and Passenger Rail Systems, the principal guidance document. The plan includes emergency access provisions with regard to fire and safety for stations, tunnels, ventilation systems, procedures, control systems, communication, and vehicles. That standard also includes requirements for egress and evacuation. Because of the effectiveness of these design features, there would be no significant impacts on geology, soils, seismicity, or paleontological resources under CEQA under any of the project alternatives. Formal, peer-reviewed research papers on the geology, hydrogeology, seismicity and geologic hazards of the area were reviewed, cited, and referenced in the "Palmdale to Burbank Project Section Geology, Soils, and Seismicity Technical Report." The Technical Report is cited in and supports the Draft EIR/EIS and is available from the Authority upon request by calling the Authority office, as described in the Draft EIR/EIS Notice of Availability. Finally, the Authority did not ignore any public commenter. It considered all substantive comments during this process. In response to the commenter's statement that the Authority ignored a particular geologist, the Authority notes that the commenter did not identify that geologist, or it would have provided more responsive information here.

4456-9073

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter notes that project water demand for construction would exceed water supply in dry years with no clear solution. Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which provides additional information about water supplies for the project, including in the scenario of dry and multiple dry years.

Submission 4459 (Susan Bolan, Crescenta Valley Community Association, December 1, 2022)

Palmdale - Burbank - RECORD #4459 DETAIL

Status :	Ready for Delimiting
Record Date :	12/2/2022
Interest As :	Business and/or Organization
First Name :	Susan
Last Name :	Bolan
Attachments :	CVCA Letter to CAHSRA 11-30-22 FINAL.pdf (152 kb)

Stakeholder Comments/Issues :

To CAHSRA,
Please find attached comments for Palmdale to Burbank Project Section Draft EIR/EIS.
Susan Bolan, Steering Committee MemberCrescenta Valley Community Association

November 30, 2022

California High-Speed Rail Authority
ATTN: Palmdale to Burbank Draft EIR/EIS Comment
355 South Grand Avenue, Suite 2050
Los Angeles, CA 90071

4459-9074

The Crescenta Valley Community Association (CVCA) is a cross-jurisdictional, volunteer organization that represents the valley with one voice in matters of preserving our historical structures, monitoring and encouraging thoughtful building design, and promoting open space to maintain and enhance our suburban quality of life. Our main objectives as an association are to protect our limited resources and infrastructures through responsible growth policies; to encourage development that is compatible, preserves our historic structures and our rural community; and to ensure open space is protected and valued as a necessity for the quality of life in the Crescenta Valley area. The CVCA welcomes participation from all stakeholders in Sunland-Tujunga, Glendale, La Crescenta, Montrose and La Cañada Flintridge.

Thank you for the opportunity to comment on the draft EIR/EIS for the Palmdale to Burbank section of the California High-Speed Rail. The CVCA has great concern about CAHSR and the project's inherent risk to the Angeles National Forest landscape and wildlife, the foothill communities, and the severe impact to the Greater Los Angeles area. The proposal has so little benefit weighed against huge cost, burden on the electric grid, neighborhood disruption, traffic woes, and safety issues. After reviewing the comprehensive environment document, the CVCA recommends the No Project alternative in order to continue our main objectives.

4459-9075

Project Cost Estimates were Misrepresented in Proposition 1A

The "Safe, Reliable High-Speed Passenger Train Bond Act" was promoted to voters in 2008 as a 2-1/2-hour train ride from San Francisco to Los Angeles for only $50. The proposed bond measure for $9.95 billion was blatantly deceptive as the full cost estimate for the bullet train at the time was approximately $30-45 billion. Now known as California High-Speed Rail, the project has grown exponentially from its original cost projections. In February 2022, the estimate rose to $105 billion for Phase I, San Francisco to Los Angeles with more money to be added for the extension to Anaheim and Phase 2 to San Diego and Oakland. Based on the history of megaprojects in the U.S. and other countries, the full and final cost will continue to grow at a tremendous rate and taxpayers will likely be subsidizing future operations and ridership. If the price tag was the only factor determining whether the CAHSR should get built or not, the voters would certainly not support it today.

Submission 4459 (Susan Bolan, Crescenta Valley Community Association, December 1, 2022) - Continued

4459-9076

CAHSR will Require Significant Upgrade to Power Systems in Multiple Jurisdictions

High-Speed Rail uses a substantial level of electrical power along routes in order to move the trains forward to their destinations and to balance the power load. The proposed system will need traction power substations at 30-mile intervals; switching stations every 15 miles; and paralleling stations every 5 miles; as well as a considerable amount of additional new equipment and upgrades to the existing infrastructure. Not only will the new electric buildings, equipment and transmission lines look ugly across the beautiful landscape and in our communities, the new complex system would compete with other power needs such home appliances and electric vehicles during peak demand or when power is less available. Governor Gavin Newsom, who was recently criticized for asking Californians to avoid charging electric cars during a heat wave while approving legislation for electric vehicle mandates, may have inadvertently disclosed that our current sources of power cannot handle any additional strain.

4459-9077

Tunnels in the San Gabriel Mountains and Angeles National Forest will have Inherent Risk

All Build Alternatives in the study area from Palmdale to Burbank will utilize a series of twin tunnels to traverse the areas of the Angeles National Forest and the suburban corridors. This presents a whole host of issues beside environmental concerns. The tunnels will be bored/mined underground as little as 100 feet below the surface to a depth as much as 2,670 feet or more due to the varying terrain of the San Gabriel mountains. The route would be exposed to a number of fault lines, both known and unknown, some with the capability for substantial earth movement like the San Andreas fault.

4459-9078

While modern tunnels are designed to flex and bend during earthquakes, trains and people are not. A large and sustained earthquake has the potential to trap passengers deep underground to await rescue services. During a scoping meeting for the project and later during an online informational meeting a question was asked, 'What is the plan for evacuation during an emergency such as earthquake or fire?" The answer was shocking. The CAHSRA consultant stated that if a tunnel was damaged, the train would stop. Passengers would then disembark, find a cross passage to the other parallel tunnel, and await rescue by emergency equipment and personnel.

A review of the draft EIR/EIS report confirms that passenger walkways and crossings with fire doors are indeed built into the Safety plan with emergency staging space outside at the portals. However, there is no mention that the planned tunnels will be as long as 16.6 miles and that highly specialized equipment and training would be needed for firefighting or rescue operations in areas that are difficult to access with non-able-bodied victims. The CVCA is not confident that the tunnel proposals and emergency procedures have been thoroughly vetted. The environmental report fell short in considering evacuation protocols due to fire, earthquake, collision, or other emergency. The Safety and Security portion of the environmental document definitely needs further study.

4459-9079

The Towns of Lake View Terrace and Shadow Hills will be destroyed by the E2/E2A Alternative

Within the City of Los Angeles are two rural towns – Lake View Terrace and Shadow Hills. They are established communities built during the 1950s that have maintained a recreational and equestrian lifestyle. The homes in these communities will be divided by the E2/E2A route

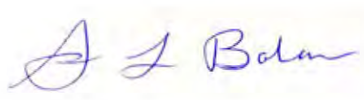
4459-9079

with tracks planned to be built in place of and next to houses and through the middle of equestrian trails. In reviewing the environmental report, the draft EIR/EIS summary states, "Although the E2 and E2A Build Alternatives would largely be built underground, project infrastructure would contrast with the natural harmony of some views near the portals such as near Lake View Terrace and Big Tujunga Wash." This is an understatement by any definition. The E2/E2A route should be removed from consideration before the CEQA process is finalized.

4459-9080

Thank you for considering these comments of the Crescenta Valley Community Association as part of the draft environmental review for the California High-Speed Rail. Palmdale to Burbank section. Please include them in the final document and provide response to our concerns.

Sincerely,



Susan Bolan, Steering Committee Member
Crescenta Valley Community Association
crescentavalleycommunityassn@gmail.com

Response to Submission 4459 (Susan Bolan, Crescenta Valley Community Association, December 1, 2022)

4459-9074

Refer to Standard Response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife, PB-Response-GEN-2: Project Costs and Funding, PB-Response-GEN-4: General Opinions, Opposition or Support, PB-Response-PUE-1: Energy Use and Consumption, PB-Response-S&S-3: Effects on Local and Regional Evacuation Plans, PB-Response-SOCIO-1: Parcel Acquisitions and Relocations, PB-Response-TRA-1: Temporary Traffic Associated with Construction.

The commenter provides a description of their organization and their goals and membership. They express concern about potential impacts to the ANF, communities, and the greater Los Angeles area. Lastly, they state the opinion that project costs outweigh its potential benefits and express support the No Project Alternative. Regarding opposition to the proposed project, refer to Standard Response PB-Response-GEN-4: General Opinions, Opposition or Support. Regarding comments about environmental impacts, refer to Standard Response PB-Response-GEN-2: Project Costs and Funding, PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife, PB-Response-PUE-1: Energy Use and Consumption, PB-Response-S&S-3: Effects on Local and Regional Evacuation Plans, PB-Response-SOCIO-1: Parcel Acquisitions and Relocations, PB-Response-TRA-1: Temporary Traffic Associated with Construction, and PB-Response-S&S-3: Effects on Local and Regional Evacuation Plans, which address these issues. Note that there would be many offsetting benefits within all communities within the HSR Palmdale to Burbank Project Section footprint. These include regional and statewide improvements in LOS and VMT metrics, improvements in regional air quality and health risks, reductions in vehicular, cycling and pedestrian accidents, economic revitalization of both communities in Burbank and Sun Valley, and the generation of 80,000 to 85,000 construction jobs and 5,400 permanent jobs.

4459-9075

Refer to Standard Response PB-Response-GEN-2: Project Costs and Funding.

The commenter expressed concern with the funding of the project. Please refer to Standard Response PB-Response-GEN-2: Project Cost and Funding which provides information relating to the project's funding and costs. This information can also be found in Chapter 6, Project Costs and Operations, of the Final EIR/EIS. The comment does not address technical analysis in the Draft EIR/EIS or suggest edits to the document.

Response to Submission 4459 (Susan Bolan, Crescenta Valley Community Association, December 1, 2022) - Continued

4459-9076

The comment notes that substantial electrical power infrastructure would be required to power the project.

The project's need for electrical power infrastructure is included in both the project design as well as the EIR/EIS analysis. Please refer to Appendix 2-D Design Baseline Report (Section 2.2.2.4) in the Draft EIR/EIS, which describes Traction Power Distribution. As clarified in this Appendix, the Authority has coordinated with Pacific Gas and Electric Company and SCE and determined that network upgrades would be required to meet the projected power demands of the 345-mile portion of the California HSR System within the two utilities' respective service territories. Detailed engineering of electrical interconnections and network upgrade components has not been undertaken, and will not be completed until closer to the time of construction. Network upgrades could include modifications to existing infrastructure such as expansion of existing substations and reconductoring of existing electrical lines (i.e., replacement of power structures [poles and lattice steel towers] and electrical conductors with taller structures and more efficient electrical wires or new electrical lines). Anticipated network upgrades are included in the Build Alternative footprint and would be implemented pursuant to California Public Utilities Commission General Order 131-D.

Please refer to PUE-IAMF#1 of Section 3.6, Public Utilities, which requires the Authority's commitment to energy-efficient and green design. As described in Impact PUE#11: Permanent Operations Energy Demand, the Palmdale to Burbank Project Section would not place a substantial demand on regional energy supply, require significant additional capacity, or significantly increase peak- and base-period electricity demand, nor would it conflict with or obstruct a state or local plan for renewable energy or energy efficiency. In addition, the project would overall result in net energy savings.

Regarding the comment that "the new electric buildings, equipment and transmission lines" would "look ugly", please refer to Impact AVQ#4 in the Draft EIR/EIS, which discusses the potential impacts on aesthetics from the project, including electrical infrastructure.

4459-9077

Refer to Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events.

The commenter expresses concern related to seismicity due to the HSR Palmdale to Burbank Section crossing fault lines. Please refer to Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events, which addresses concerns related to seismicity.

Response to Submission 4459 (Susan Bolan, Crescenta Valley Community Association, December 1, 2022) - Continued

4459-9078

The commenter expressed concern on emergency and evacuation plans for the project in the case of emergencies (such as fire, seismic events, and train collisions/derailment).

As described under Impact S&S#3, each of the Build Alternatives will include provisions for emergency service access to the access-controlled right-of-way, including passenger walkways to allow emergency access and evacuation routes for tracks in trenches and tunnels. Passenger walkways would be located along the trench/tunnel walls on the same side as the access/egress points and would be illuminated to provide safe passage in the event of an emergency. Tunnel design would also include a central, fire-rated dividing wall that would separate the two tracks of each single tunnel into two independently ventilated railways to allow access in the event of an emergency, where the two tracks would be in a single tunnel such as in the Burbank area; safety egress would be achieved via fire-rated doorways through the tunnel dividing wall. Emergency egress for long, twin-bore tunnels is expected to be done by the passengers and crew from one tunnel to the other, through the cross passages, which will be located every 800 feet. These cross passages will serve as safe zones too, as they will be equipped with self-closing fire protected doors (rated for 1.5 hours), ventilation, communications, and other facilities. The typical procedure will be to wait inside these cross passages until a rescue train is able to reach the incident section, or at least until the traffic on the other tunnel has been confirmed to have stopped and to perform a self-rescue walking along the tunnel to the nearest portal as defined in TM 2.8.1: Safety and Security Design Requirements for Infrastructure Elements, Section 3.2 Access/Egress (available at: https://hsr.ca.gov/wp-content/uploads/docs/programs/eir_memos/TM%202.8.1%20Safety%20and%20Security%20Design%20Requirements%20R0%20120312no%20sigs.pdf). These procedures will be detailed in the Emergency Response Plan in later stages of the project. Additionally, regarding specialized equipment and training, note that SS-IAMF#2: Safety and Security Management Plan states that, "Rail systems must comply with FRA requirements for tracks, equipment, railroad operating rules and practices, passenger safety, emergency response, and passenger equipment safety standards found in 49 CFR Parts 200-299." To elaborate, 49 CFR section 239.1(a) specifically states, "The purpose of this part is to reduce the magnitude and severity of casualties in railroad operations by ensuring that railroads involved in passenger train operations can effectively and efficiently manage passenger train emergencies." Furthermore, 49 CFR

4459-9078

section 239.101(a)(4)(i) states that, "When applicable, the railroad's emergency preparedness plan shall reflect readiness procedures designed to ensure passenger safety in an emergency situation occurring in a tunnel of 1,000 feet or more in length. The railroad's emergency preparedness plan shall address, as a minimum, availability of emergency lighting, access to emergency evacuation exits, benchwall readiness, ladders for detraining, effective radio or other communication between on-board crewmembers and the control center, and options for assistance from other trains."

As an example of evacuation from long tunnels, there is a 22-mile tunnel on the E1 Build Alternative between Portal P3 and P4. This tunnel has two intermediate windows and one adit that can serve as emergency egress. The longest stretch of tunnel between exits to the surface points is between Intermediate Window 1 and construction adit at Sta 1490+00.00. This stretch of tunnel is 11 miles long, meaning that the longest distance that passengers would have to travel to the closest emergency egress point would be 5.5 miles (i.e., if the train was stopped at the mid-point of the tunnel, farthest from the exit on either end). Assuming a walking traveling speed of 200 feet/minute it would take approximately 2 hours and 30 minutes to cover that distance at a walking speed. The longest tunnel for the SR14A Build Alternative extends from Portal 1A north of Pearblossom Highway Interchange (Sta 472+31.00) to Agua Dulce Canyon (Sta 1170+00.00). This tunnel has a total length of 13.21 miles. This tunnel has an intermediate window at Acton (Sta 819+00.00). Based on these considerations, the maximum length from a tunnel surface exit to the furthest point in the tunnel between Agua Dulce and the Intermediate Window would be 3.32 miles. Assuming an egress travel speed of 200 feet/minute, it would take approximately 1.5 hours for the passengers to evacuate the tunnel on foot or at a walking speed. Therefore, passengers would not be required to walk the entire length of the tunnel (16.6 miles) to evacuate based on the project design.

The construction contractor will develop and implement a Safety and Security Management Plan (SSMP) in accordance with SS-IAMF#2 prior to construction, documenting how the following requirements, plan, programs and guidelines are considered in design, construction and eventual operation to protect the safety and security of workers and users of project trains (please refer to Appendix 2.0-E, Impact Avoidance and Minimization Features, for full descriptions of IAMFs that will be

Response to Submission 4459 (Susan Bolan, Crescenta Valley Community Association, December 1, 2022) - Continued

4459-9078

incorporated into the project design). The contractor shall be responsible for implementing all construction-related safety and security plans, and the Authority shall be responsible for implementing all safety and security plans related to HSR operation. Regulatory requirements include: (1) Compliance with FRA requirements for tracks, equipment, railroad operating rules and practices, passenger safety, emergency response, and passenger equipment safety standards found in 49 CFR Parts 200-299. (2) Implementation of fire/life safety and security programs (FLSSPs) that promote fire and life safety and security in system design, construction, and implementation. The FLSSP is coordinated with local emergency response organizations to provide them with an understanding of the rail system, facilities, and operations, and to obtain their input for modifications to emergency response operations and facilities, such as evacuation routes. The Authority will establish fire/life safety and security committees throughout the project section. (3) Implementation of standard operating procedures and emergency operating procedures, such as the FRA-mandated Roadway Worker Protection Program, to address the day-to-day operation and emergency situations that will maintain the safety of employees, passengers, and the public.

Railroads have the responsibility for developing and implementing individual emergency preparedness plans that comply with the regulations based on the specific circumstances of each railroad's operations. On May 4, 1998, FRA published rail safety regulations for the preparation, adoption, and implementation of emergency preparedness plans by railroads connected with the operation of passenger trains, including railroads hosting the operations of rail passenger service 63 Federal Register (FR) 24676. These regulations became effective on July 6, 1998, and are codified in Part 239 of Title 49 of the Code of Federal Regulations (CFR). § 239.101(a) (8) –Procedures regarding passengers with disabilities regulatory text reads: *The railroad's emergency preparedness plan shall include procedures to promote the safety of passengers with disabilities under all conditions identified in its emergency preparedness plan, such as during a train evacuation. These procedures shall include, but not be limited to, a process for notifying emergency responders in an emergency situation about the presence and general location of each such passenger when the railroad has knowledge that the passenger is on board the train. The railroad does not have knowledge that such passenger has a disability unless a crewmember has actual knowledge of the disability, such as where a passenger (or his or her companion or*

4459-9078

fellow passenger) has expressly informed a crewmember on the train of the disability or where the disability is readily apparent. Nothing in this part requires the railroad to maintain any list of train passengers.

The plan would outline the railroads commitment to address passengers with disabilities in an emergency situation. This would include (1) a statement regarding the importance of identifying passengers with disabilities as soon as possible and notifying the control center and emergency response communications center personnel, (2) discussion regarding the training and testing of on-board, control center and emergency response communications center personnel so as to highlight the passenger with disability component, (3) how the railroad engages the disability community. (e.g., an explanation regarding the railroads outreach to the disability community in an effort to have them participate in full-scale simulations) and, (4) how the railroad evaluates the handling of passengers with disabilities after emergencies (e.g., such as during debriefing and critiques after simulations or passenger train emergency situations). We encourage the railroad to duplicate or expand on this information in other elements of the plan to reinforce the passenger with disability position as necessary.

Response to Submission 4459 (Susan Bolan, Crescenta Valley Community Association, December 1, 2022) - Continued

4459-9079

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process.

The commenter expresses opposition to the E2 and E2A Build Alternatives due to community impacts (on Lake View Terrace and Shadow Hills). Additionally, the commenter expresses concerns regarding impacts to equestrian uses under the E2 and E2A Build Alternative.

Please refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, which describes how alternatives were selected for evaluation in the Draft EIR/EIS. The SR14A Build Alternative is the Preferred Alternative of the project and loosely follows the existing SR 14 transportation corridor. For more information on the Preferred Alternative, please see Chapter 8 of the Final EIR/EIS. Refer to Standard Response PB-Response-PR-2: Impacts on Big Tujunga Wash - Recreational Uses, Equestrian Uses, which discusses impacts to Big Tujunga Wash, including recreational, equestrian, and aesthetic issues.

4459-9080

The commenter (Crescenta Valley Community Association) notes their appreciation for the opportunity to comment on the Draft EIR/EIS and requests that their comments be included in the final document along with responses to their concerns. All comments received on the Draft EIR/EIS, including from this commenter, are published in Volume 4, Responses to Comments, of the Final EIR/EIS and responses are provided for each comment.

Submission 4464 (Heather Neely, Southern California Edison, December 1, 2022)

Palmdale - Burbank - RECORD #4464 DETAIL

Status :	Ready for Delimiting
Record Date :	12/2/2022
Interest As :	Business and/or Organization
First Name :	Heather
Last Name :	Neely
Attachments :	SCE_Comments_Burbank_to_Palmdale_HSR_Project_1_December_2022.pdf (226 kb)

Stakeholder Comments/Issues :

Attached, please find Southern California Edison's (SCE) comments on the California High Speed Rail Palmdale to Burbank Project Section.

4464-8821 SCE understands that, as currently designed, the Project will protect in place SCE's infrastructure but provides these comments regarding the process if engineering changes affect SCE's Rights-of-Way or utility lines. A separate California Public Utilities review and permitting could be involved if those impacts are not analyzed in this Project's Environmental Impact Report/Statement.

Please do not hesitate to contact me with any questions and please continue to coordinate with your SCE planning and telecommunications teams on any changes in design.

We look forward to working with the California High Speed Rail Authority on completing this Project.

Heather Neely
Environmental Scientist/Advisor
Southern California Edison
Environmental Services | San Onofre Decommissioning
Mobile: 626.476.7839
2244 Walnut Grove Avenue
Rosemead CA 91770

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

Sent via electronic mail to Palmdale_Burbank@hsr.ca.gov

December 1, 2022

Southern California Regional Office
California High Speed Rail Authority
355 S Grand Avenue Suite 2050
Los Angeles CA 90071

RE: Palmdale to Burbank Project Section Draft EIR/EIS Comment

Southern California Edison (SCE) is pleased to submit the following comments on the Draft Environmental Impact Report (DEIR) for the California High Speed Rail Project: Palmdale to Burbank Project Section. The Proposed Project will construct approximately 31 to 38 miles of high-speed rail connecting Palmdale, near the vicinity of Spruce Court just west of Sierra Highway in the north to the Burbank Airport Station in the south and connect the Northern and Southern portions of the Statewide High Speed Rail system.

Encroachment of SCE's Right-of-Way and Access Roads

4464-8822 SCE understands that the Proposed Project is approximately 15% designed at the time of the DEIR's publication. While the Project's *Appendix 3.6-A High Risk and Major Utility Impact Report* documents that SCE infrastructure will be protected in place. SCE is concerned that the proposed project may impact SCE's SCE's infrastructure or Rights-of-Way (ROW) when engineering is complete.

4464-8823 The proposed project should not impose constraints on SCE's ability to access, maintain, and operate its current and future facilities. Additionally, if bike lanes and landscaping are planned within SCE's corridors an agreement between the developer and SCE is required. Any parkways or pathways (either by foot, bicycles, or other means) that invite the public onto SCE's right-of-way will require the installation of fencing and/or Climbing Discouragers on each transmission line tower at the customer's expense.

SCE's rights-of-way and fee-owned properties are purchased for the exclusive use of SCE to operate and maintain its present and future facilities. SCE will review any proposed use on a case-by-case basis. Approvals or denials will be in writing based upon review of the maps provided by the developer and compatibility with SCE right-of-way constraints and rights.

Should design change, please forward five (5) sets of plans depicting SCE's facilities and associated land rights to the following location for further analysis:

Rights-of-Way Analysis Department
Southern California Edison Company
2 Innovation Way
Pomona, CA 91768

General Order 131-D

4464-8824 Please note, the construction, modification, and relocation of transmission lines, or electrical facilities that are designed to operate at or above 50 kilovolts (kV) may be subject to the California Public Utilities Commission's (CPUC) General Order 131-D[1]. If the construction, modification, or relocation of transmission lines results in significant environmental impacts, they should be

[1] http://docs.cpuc.ca.gov/PUBLISHED/Graphics/589.PDF

Submission 4464 (Heather Neely, Southern California Edison, December 1, 2022) - Continued

4464-8824

identified and discussed in any revisions to the Draft EIR. If not, SCE may be required to pursue a separate, mandatory CEQA review through the CPUC, which could delay approval of the SCE transmission line portion of the project for two years or longer.

4464-8825

General Order 95
SCE must comply with General Order (GO) 95, which establishes rules and regulations for the overhead line design, construction, and maintenance. GO 95 also includes vertical clearance requirements from thoroughfares, ground, and railroads, as well as specific minimum clearances from tree branches and vegetation around overhead wires. The project's landscaping and final engineering should not conflict with SCE's existing and proposed transmission line designs.

4464-8826

Catenary Wires
Existing heights of electrical lines above any overhead catenary wires used to power trains could possibly not meet GO 95 vertical clearance standards and could possibly require SCE to increase the height of structures along the adjacent right-of-way if final design changes. Sufficient horizontal clearance must be maintained. Please continue to work with your SCE team to avoid any relocation of electrical infrastructure or realignment of the proposed track. As a reminder, 24-hour access must be provided to SCE employees to repair and maintain all structures and facilities.

SCE appreciates the opportunity to comment on the Palmdale to Burbank Project Section of the High Speed Rail Project. SCE looks forward to working and collaborating with the California High Speed Rail Authority.

If you have any questions regarding this letter, please contact me at heather.neely@sce.com or 626.476.7839.

Regards,

HEATHER NEELY

Heather Neely
Third Party Environmental Reviews
Environmental Services
Southern California Edison
2244 Walnut Grove
Rosemead CA 91770

Response to Submission 4464 (Heather Neely, Southern California Edison, December 1, 2022)

4464-8821

The commenter notes that the Project will protect in place SCE's infrastructure, but provides comments in the event engineering changes. The commenter additionally notes that additional CPUC review and permitting could be required. The comment does not address technical analysis in the Draft EIR/EIS or suggest edits to the document. No change has been made to the document in response to this comment. The Authority will continue to coordinate with SCE.

4464-8822

The commenter expresses concern that refined design of the project might end up impacting additional SCE infrastructure or ROW not identified at this stage. This concern is acknowledged. As noted in the comment, Draft EIR/EIS Appendix 3.6-A High Risk and Major Utility Impact Report identifies all high risk and major transmission lines that would be impacted based on the current level of design. The Authority will continue to coordinate with utility providers during detailed project design. In addition, PUE-IAMF#4 describes the Authority's commitment to coordinate with service providers to minimize or avoid utility service disruptions.

4464-8823

The commenter indicates that any construction/alteration within SCE right of way will need to be reviewed and approved by SCE on a case-by-case basis. The Authority will continue to coordinate with SCE during subsequent stages of the project. The commenter indicates that the proposed project should not impose constraints on SCE's ability to access, maintain, and operate its current and future facilities. As indicated on page 3.6-4 of the Draft EIR/EIS the base standards for design, construction, installation, operation, and maintenance established by General Order 176 require coordination and cooperation of the Authority (the entity that owns the HSR system) and other facility owners (e.g., SCE) so that the facilities of both parties are not prevented from performing as required or intended.

4464-8824

The commenter summarizes a compliance requirement with California Public Utilities Commission's (CPUC) General Order 131-D. General Order 131 is discussed in the EIR/EIS on page 3.6-4. General Order 131-D establishes rules for implementing Public Utilities Code Section 1001–1013 relating to the planning and construction of electric generation, transmission/power/distribution line facilities, and substations located in California. A permit to construct must be obtained from the CPUC for facilities between 50 kilovolts (kV) and 200 kV. A certificate of public convenience and necessity must be obtained from the CPUC for facilities that are 200 kV and above. Both the permit to construct and the certificate of public convenience and necessity are discretionary decisions by the CPUC, subject to CEQA. EIR/EIS Appendix 2-D Page 2-33 further clarifies that where electrification of the system is required, power companies would design and implement changes to their transmission lines, which includes environmental review and clearance of the reconstruction. If the engineering design for new or upgraded SCE facilities involves new or different significant environmental impacts, additional environmental review and analysis of the new equipment, including reconstruction of transmission lines, would be completed as part of the California Public Utilities Commission permit application process prior to construction. Section 3.6, Public Utilities and Energy, describes impacts to public utilities and utility infrastructure maintained for public service. For the purposes of the EIR/EIS, major utilities are defined as any subsurface, aboveground, or overhead facility used for transmission regardless of size, shape or method of conveyance, which includes transmission lines. Impact PUE#1 analyzes the conflicts with major or high-risk utilities, including nonlinear fixed facilities, that could create lengthy interruptions of service.

4464-8825

The comment pertains to standards relative to minimum clearances and indicates that SCE must comply with GO 95. The Authority will comply with such standards relative to SCE facilities. GO 95 is summarized on page 3.6-4 of the Draft EIR/EIS and the analysis assumes compliance with applicable regulatory requirements, including the requirements identified by the commenter, such as landscaping.

Response to Submission 4464 (Heather Neely, Southern California Edison, December 1, 2022) - Continued

4464-8826

The commenter expresses concern about vertical clearance under electrical lines, consistency with General Order (GO) 95, and requests continued coordination with SCE. GO 95 is summarized on page 3.6-4 of the Draft EIR/EIS. The design will comply with applicable standards and regulatory requirements. The Authority will continue to coordinate with SCE regarding any need to alter or relocate their facilities during the detailed design phase in accordance with applicable requirements and PUE-IAMF#4. As indicated in the Draft EIR/EIS (page 3.6-4), the base standards for design, construction, installation, operation, and maintenance established by GO 176 require coordination and cooperation of the Authority (the entity that owns the HSR system) and other facility owners (e.g., SCE) so that the facilities of both parties are not prevented from performing as required or intended.

Submission 4466 (Mary Johnson, Agua Dulce Town Council, December 1, 2022)

Palmdale - Burbank - RECORD #4466 DETAIL

Status :	Action Pending
Record Date :	12/2/2022
Interest As :	Business and/or Organization
First Name :	Mary
Last Name :	Johnson
Attachments :	11-30-22AguaDulceTownCouncilCommentsPalmdaleToBurbankDEIR-EIS-CHSR.pdf (410 kb)

Stakeholder Comments/Issues :

Dear California High Speed Rail Authority:

Attached please find a letter from the Agua Dulce Town Council with comments on the Palmdale to Burbank Draft Environmental Impact Report/Environmental Impact Statement. Please accept this public comment and enter it into the public record along with all other correspondence the Agua Dulce Town Council has sent previously or subsequently.

Mary Johnson, Secretary

Agua Dulce Town Council
33201 Agua Dulce Canyon Rd, Box 8
Agua Dulce, CA 91390
http://www.adtowncouncil.com <http://www.adtowncouncil.com/>

Meetings: 2nd Wednesday of the month
Via Zoom due to COVID-19 social distancing

6:30 PM-Administrative Meeting, 7:00 PM-Community Meeting
All meetings are open to the public

4466-8281

4466-8282

AGUA DULCE TOWN COUNCIL

33201 Agua Dulce Canyon Road * Box Number 8 * Agua Dulce, CA 91390
Website: www.adtowncouncil.com

- Don Henry, President
  (661) 268-1731
  BH33605@aol.com
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- Candy Clemente, Member
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- Scott Keller, Member
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  (310) 597-7154
  Lou@LouVince.com

November 30, 2022

Attn: "Palmdale to Burbank Draft EIR/EIS Comment"
California High Speed Rail Authority
355 South Grand Avenue, Suite 2020
Los Angeles, CA 90071

Via Email to: Palmdale_Burbank@hsr.ca.gov

RE: Palmdale to Burbank Draft EIR/EIS Comment from Agua Dulce Town Council

Dear California High Speed Rail Authority:

The Agua Dulce Town Council (the Council) appreciates the opportunity to comment on the Draft Environmental Impact Report/Environmental Impact Statement (Draft EIR/EIS) for the Proposed Palmdale to Burbank Section of the California High Speed Rail Project that would provide High Speed Rail Service between the Palmdale Station and the Burbank Airport Station. We also appreciate the High Speed Rail Authority hosting public meetings in the affected areas to solicit comments from the public. Please accept this public comment and enter it into the public record along with all other correspondence The Council has sent previously or subsequently.

The Agua Dulce Town Council is a local entity representing approximately 5,000 residents in the unincorporated community of Agua Dulce in northern Los Angeles County. Our community is semi-rural and is composed of a town center and small family-owned ranches and homesteads.

The Council has reviewed the Draft EIR/EIS, and while we do not consider ourselves to be experts in the complexities of the proposed project, and we do not have the resources available to analyze the thousands of pages of documents, we do have a number of comments relating to the perceived impacts of the project and how those impacts will directly affect our community of Agua Dulce.

Evaluation of Build Alternatives

The Build Alternatives the Council is commenting on are the Refined SR14 and SR1A. Build Alternatives E1, E1A, E2, and E2A do not have direct impacts on the community of Agua Dulce. Therefore, the Council will not comment on those 4 Build Alternatives.

Our community has major concerns regarding the Noise and Vibration impacts to residences near the project alignment. The Refined SR14 and the SR14A Build Alternatives are the only Build Alternatives that would result in construction noise impacts in Agua Dulce. Operation of the SR14A Build Alternative

Submission 4466 (Mary Johnson, Agua Dulce Town Council, December 1, 2022) - Continued

4466-8282

would cause the fewest moderate noise impact on residences, but the Refined SR14 and SR14A Build Alternatives would result in the most vibration effects on residences. The Refined SR14 Build Alternative would have noise impact on the Pacific Crest Trail and Vasquez Rocks Natural Area. SR14A would avoid those noise impacts by being built in a tunnel through that area. Both the Refined SR14 and the SR14A Build Alternative would result in noise impacts on domestic animals and wildlife.

The Council strongly opposes the Refined SR14 Build Alternative. Many of the significant and unavoidable impacts of that Build Alternative focuses on is a result of the "surface" and "elevated" sections. The SR14A Build Alternative added an additional tunnel area to reduce those impacts.

4466-8283

Proposed Modifications to Build Alternative SR14A

The location of the surface and elevated section of the proposed project near Agua Dulce Canyon Road poses significant noise impacts. The reflection of sound will bounce back and forth on the canyon walls and carry the high speed rail noise north into the heart of the community of Agua Dulce affecting many of the residents.

There is a short section of Build Alternative SR14A near Agua Dulce Canyon Road where the alignment grade comes out of the tunnel at surface and then goes over Agua Dulce Canyon Road with an elevated bridge. The alignment then goes back to surface and the into another tunnel section. The Council is requesting elimination of both of the surface and elevated grades near Agua Dulce Canyon Road. Instead, the Council proposes keeping the grade alignment underground connecting the two tunnels. Many of the significant and unavoidable impacts to Build Alternative SR14A may be reduced to less than significant.

In Conclusion

The Council urges the High Speed Rail Authority to seriously consider our proposed modifications to Build Alternative SR14A. While we as a community support the "No Project" Alternative, we feel the responsibility to protect our residents and keeping the project underground through Agua Dulce will do just that.

We appreciate the High Speed Rail Palmdale to Burbank team working with our communities, hearing our concerns and finding solutions that best serve both the Authority and our neighborhoods.

Respectfully,

Don Henry

Don Henry, President
Agua Dulce Town Council – 2022

cc: Brandon Roque, Field Representative, CA Senator Wilk, Senate District 21
brandon.roque@sen.ca.gov
George Andrews, Chief of Staff, CA Assemblyman Lackey, Assembly District 36
george.andrews@asm.ca.gov

Response to Submission 4466 (Mary Johnson, Agua Dulce Town Council, December 1, 2022)

4466-8281

This comment contains introductory material and states the commenter's appreciation for the opportunity to comment on the Draft EIR/EIS and attend public meetings. The commenter also states that they have a number of comments relating to impacts from the project. The Authority will continue to coordinate with the Agua Dulce Town Council and will notify the public as the project moves forward. Responses are provided for each substantive comment in the comment letter.

4466-8282

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife, PB-Response-PR-1: Impacts on the Pacific Crest Trail (Refined SR14 Build Alternative Only).

The commenter expresses concern about the noise and vibration impacts of the Refined SR14 and SR14A Alternative alignments to the Agua Dulce community and to recreational trails, as well as domestic animals and wildlife. Please refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors and Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife, for noise impact concerns to residents and wildlife. Additionally, please refer to Standard Response PB-Response-PR-1: Impacts on the Pacific Crest Trail (Refined SR14 Build Alternative only). Please refer to Section 3.15, Parks, Recreation and Open Space, Table 3.15-4 in the Draft EIR/EIS, for discussion of construction and operational impacts to the Vasquez Rocks Natural Area. The Authority evaluated a broad range of environmental and community factors in determining its Preferred Alternative. Please refer to Chapter 8 of the Draft EIR/EIS for a discussion of how the Authority considered these factors in making its determination of the Preferred Alternative.

4466-8283

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors.

The commenter expresses concern about SR14A Build Alternative noise impacts to the Agua Dulce community because of the portions of the alignment that are at grade and elevated. The commenter requests that the SR14A Build Alternative alignment design be modified so that the entire alignment is underground. Tunneling underneath Agua Dulce Canyon Rd would require lowering the SR14A Build Alternative Alignment at least 60 feet under the canyon bottom surface, which is infeasible because it would increase the grade of the tunnel between Acton and Agua Dulce Canyon over 2.5%, which is the maximum grade permissible for the project alignment design as indicated in the Authority's Technical Memorandum (TM) 2.1.2 Alignment Design Standards for High-Speed Train Operation Section 3.3 Vertical Alignment. Technical Memoranda can be found on the Authority's website (https://hsr.ca.gov/programs/environmental-planning/project-level-environmental-engineering-guidelines-studies-reports/). For more information regarding operational noise impacts, please refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors. For more information regarding alternatives selection and evaluation including why the Authority chose the SR14A Build Alternative as the Preferred Alternative, please see Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process.

Submission 4467 (Jacqueline Ayer, Acton Town Council, December 1, 2022)

Palmdale - Burbank - RECORD #4467 DETAIL

Status :	Action Pending
Record Date :	12/2/2022
Interest As :	Business and/or Organization
First Name :	Jacqueline
Last Name :	Ayer

Stakeholder Comments/Issues :

PLEASE CONFIRM RECEIPT

4467-9023

To the California High Speed Rail Authority;
Attached please find comments submitted by the Acton Town Council pertaining to the "Transportation" impact analysis (Section 3.2) of the Draft Environmental Impact Report/Environmental Impact Statement issued by the California High Speed Rail Authority for the Palmdale-Burbank Section of the High Speed Rail Project.
Please contact the Acton Town Council at atc@actontowncouncil.org if you have difficulties opening the attached or require additional information.

Sincerely,
Jacqueline Ayer
Correspondence Secretary

Response to Submission 4467 (Jacqueline Ayer, Acton Town Council, December 1, 2022)

4467-9023

This submission is a duplicate. Reference responses to Submission PB-4451.

Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022)

Palmdale - Burbank - RECORD #4473 DETAIL

Status :	Action Pending
Record Date :	12/2/2022
Interest As :	Business and/or Organization
First Name :	Kimberly
Last Name :	Bick
Attachments :	LOCKHEED MARTIN CORP. COMMENTS TO PALMDALE-BURBANK PROJECT[100].pdf (20 mb)

Stakeholder Comments/Issues :

Please confirm receipt.

Kimberly Bick
Partner

[A picture containing text Description automatically generated]

520 Newport Center Drive Suite 750
Newport Beach, CA 92660
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This message may contain confidential and privileged information. If it has been sent to you in error, please reply to advise the sender of the error and then immediately delete this message.

From: Kimberly Bick <kbick@bicklawllp.com>
Date: Thursday, December 1, 2022 at 12:19 PM
To: palmdale_burbank@hsr.ca.gov <palmdale_burbank@hsr.ca.gov>
Cc: Kramer, Beth M <beth.m.kramer@lmco.com>, Rosenstein, Liaht <liaht.rosenstein@lmco.com>, Phillips, Robert S <robert.s.phillips@lmco.com>, Tamara Grant <tgrant@bicklawllp.com>
Subject: LOCKHEED MARTIN CORP. COMMENTS TO PALMDALE-BURBANK PROJECT.pdf
Attached please find comments to the draft EIR/EIS for the Palmdale to Burbank Project Area for the High Speed Rail Project submitted on behalf of Lockheed Martin Corporation.
Sincerely,
Kimberly Bick
Partner

[A picture containing text Description automatically generated]

520 Newport Center Drive Suite 750
Newport Beach, CA 92660
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Cell: (949) 363-3057
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BICKLAW LLP

California High Speed Rail Authority
355 S Grand Avenue, Suite 2050
Los Angeles, CA 90071
palmdale_burbank@hsr.ca.gov

November 30, 2022

RE: California High Speed Rail Authority Palmdale to Burbank Draft EIR/EIS Comments

4473-9081

This letter is submitted on behalf of Lockheed Martin Corporation ("Lockheed Martin") to provide comments on the September 2, 2022 California High Speed Rail Authority Palmdale to Burbank Draft EIR/EIS ("Palmdale to Burbank Draft EIR/EIS" or "EIR/EIS") for the California High Speed Rail Project ("Project") for consideration in this California Environmental Quality Act ("CEQA") and National Environmental Policy Act ("NEPA") proceeding. Lockheed Martin objects to the approval of the Project and its implementation to the extent that the California High Speed Rail Authority ("Rail Authority" or "Authority") does not consider the potentially significant environmental impacts to Lockheed Martin's remedial activities in the San Fernando Valley and the underlying soil and groundwater conditions in the cleanup area nor plan for avoidance/mitigation of such impacts as discussed below. The impacts of the Project to and the location of the referenced remediation infrastructure are included in the attached letter from Lockheed Martin's technical consultant, CDM Smith (Exhibit A).

4473-9082

Lockheed Martin is and has been conducting remediation activities in the San Fernando Valley under the oversight of the United States Environmental Protection Agency ("EPA"), pursuant to the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§ 9606 and 9607 ("CERCLA"), as amended by the Superfund Amendments and Reauthorization Act of 1986 ("SARA") and the Los Angeles Regional Water Quality Control Board ("Regional Board"), pursuant to the Porter-Cologne Water Quality Control Act, California Water Code section 13000 et seq. The Palmdale to Burbank Draft EIR/EIS does not disclose or evaluate potential significant impacts of the Project to soil and groundwater subject to Lockheed Martin's remediation activities and to the related supply of safe drinking water to local communities. Nor does the draft EIR/EIS identify alternatives or mitigation efforts that may be able to avoid or reduce such impacts. Lockheed Martin suggests that the EIR/EIS should disclose or consider these potentially significant environmental impacts and analyze how such impacts could be avoided or reduced by alternatives to the proposed Project path or through mitigation efforts.

4473-9083

EPA has issued a Record of Decision ("ROD") prescribing an interim remedy for the San Fernando Valley Burbank Operable Unit ("BOU") (Exhibit B) and entered into a Consent Decree with Lockheed Martin to implement the remedy (Exhibit C). The interim groundwater remedy includes extraction wells and pipelines that extract and convey groundwater to a

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4473-9083

treatment plant in Burbank to remove contaminates and ultimately provide clean drinking water to citizens in the Burbank area.

There are 70 active groundwater monitoring wells within one mile of either side of the Project's centerline and southern terminus, some of which could be damaged or may need to be removed or moved because of the Project, at significant cost and impact to Lockheed Martin's remediation. In addition, vapor intrusion barriers are in place in existing building slabs in zones that are in the pathway of the Project's construction. The Draft EIR/EIS does not address the potential that Project activities could compromise the integrity of these barriers, which if damaged will need to be reinstalled. The Project's footprint, which will cover permeable land with impermeable improvements, also will result in the inability to conserve as much of the storm and other waters as practicable in spreading grounds, which permit water to percolate into groundwater basins for later pumping. This may result in a significant drop in groundwater levels. Declining groundwater levels would have a significant negative impact on the effectiveness and long-term sustainability of the BOU groundwater remedy and would require installing deeper, replacement extraction wells that would increase the cost of the remedy. Lockheed Martin understands and expects that the Authority, and not Lockheed Martin will be responsible for any costs that are related to the Project, including the above-referenced costs.

4473-9084

Additionally, certain Project activities, such as tunneling and excavation, could cause migration of contaminants in soil and groundwater. If such migration occurs, or if soil or groundwater conditions are exacerbated as a result of the Project's tunneling or excavation activities or any other aspect of the Project's work, the Authority will be considered a potentially responsible party under CERCLA and will be responsible for costs, including costs of disposal of contaminated soil.

4473-9085

Please see the attached letter from CDM Smith for additional specific comments regarding potential impacts from the Project to the BOU remediation effort. Lockheed Martin submits that these potential adverse impacts should be avoided by the Project (and/or mitigated) to the greatest extent possible. All of these potential impacts of the Project should be fully evaluated in the Palmdale to Burbank Draft EIR/EIS, and alternatives or mitigation to avoid or reduce such impacts should be analyzed and presented to the public or decision-makers for review.

4473-9086

The fundamental purpose of an EIR is "to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment." (Public Resources Code § 21061.) An EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project. (Laurel Heights Improvement Assn. v. Regents of University of California (1988) 47 Cal.3d 376, 405.) An EIR must contain facts and analysis, not just the agency's bare conclusions or opinions. (Concerned Citizens of Costa Mesa, Inc. v. 32nd Dist. Agricultural Assn. (1986) 42 Cal.3d 929, 935.)

The Palmdale to Burbank Draft EIR/EIS, as currently drafted, does not identify or discuss alternatives and/or mitigation that could avoid or reduce the costs and likely adverse impacts on Lockheed Martin's remediation efforts at the San Fernando Valley Superfund Sites, Area 1,

Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

November 30, 2022
California High Speed Rail Authority

4473-9086

including: impacts on contaminant plume containment and potential mobilization of contaminants as a result of the Project; impacts to wells that are in the pathway of the Project; impacts from Project tunneling creating accumulation of vapor causing vapor exposure to humans; costs of disposal of contaminated soil and costs of additional groundwater treatment due to migration of contaminants; loss of spreading grounds impacting the sustainability of the remedy; and impacts on the supply of drinking water to local communities. This results in an inadequate and deficient environmental document inconsistent with both CEQA and NEPA. Lockheed Martin requests that the Rail Authority fully consider the costs and impacts of the Project on the ongoing remediation efforts in the San Fernando Valley and evaluate alternatives and mitigation efforts that could avoid or reduce such costs and impacts.

By this letter, Lockheed Martin formally makes these comments, including all attachments, part of the Administrative Record for this CEQA and NEPA proceeding for consideration by the Rail Authority.

Thank you,



Kimberly L. Bick

Attachments

Exhibit A – Comments from Technical Consultant CDM Smith
Exhibit B – BOU ROD
Exhibit C – BOU Consent Decree

EXHIBIT A

CDM Smith

600 Wilshire Boulevard, Suite 750
Los Angeles, California 90017
tel: 213-457-2200

November 28, 2022

Subject: Comments on the California High-Speed Rail Project
Draft Environmental Impact Report/Environmental Impact Statement
Palmdale to Burbank Project Section

4473-9087

CDM Smith has conducted a review of Sections 3.8, 3.9 and 3.10 of the Draft Environmental Impact Report/Environmental Impact Statement (Draft EIR/EIS) for the California High-Speed Rail Project (HSR Project), Palmdale to Burbank Project Section, prepared by the California High-Speed Rail Authority (Authority). This review focuses primarily on elements of the HSR Project within the Burbank Operable Unit (BOU) and vicinity of the Burbank Airport Station. Lockheed Martin's August 2020 comment letter to the Authority, with an attached CDM Smith comment letter, addressed potential impacts to the BOU Superfund Site remedy, Burbank's groundwater extraction wells, and soil and soil vapor conditions associated with the Burbank to Los Angeles Section of the HSR Project.

Background

4473-9088

Between approximately 1925 and 1990 Lockheed Martin and other companies conducted aircraft and component manufacturing and testing in the City of Burbank. All former Lockheed Martin facilities have been closed and redeveloped by others. Figure 1 identifies former Lockheed Martin and other manufacturing facilities with potential contamination activities (PCAs) in and near the BOU. One former site, Plant B-6, was located at the location of the proposed HSR Burbank Airport Station, and another, former Plant A-1 North, was located just south of the Burbank Airport Station. Both sites will be traversed by underground HSR alignments. Additional former Lockheed Martin and non-Lockheed Martin industrial properties with PCAs are located within one-mile of the centerline of the Palmdale to Burbank section. The soil and groundwater conditions associated with the two closest facilities are described below.

Former Plant B-6, Soil: B-6 was approximately 132 acres in size and was located along the northeastern section of the Burbank Airport. The property was sold by Lockheed Martin to the Burbank-Glendale-Pasadena Airport Authority in 1997, and most of the site was subsequently redeveloped for private commercial, industrial, retail and office use.

Prior to its sale remediations were conducted and roughly 6,000 tons of metals-, petroleum hydrocarbon- and volatile organic compound (VOC)-impacted soil were removed. The work was conducted in accordance with the Regional Water Quality Control Board Los Angeles Region (Water Board), Cleanup and Abatement Order No. 87-161. The Water Board subsequently issued 12 No Further Requirements (NFR) letters for plant B-6 cleanup actions, and the soil remediations were completed by 1996.

4473-9088

In 2013 the Water Board issued Order No. R4-2013-0063 requiring the reevaluation of subsurface conditions at the former plants, including B-6 and A-1 North, primarily for the presence of potential residual hexavalent chromium in soil at specific areas of concern they identified. Based on the results the investigations, the Water Board concurred in 2015 that additional soil remediation was not necessary for former plants B-6 and A-1 North.

To safeguard against potential vapor intrusion (VI) from residual VOCs at the B-6 site, all recent buildings constructed as part of the commercial/retail development (i.e., the Avion Burbank and Amazon structures) were constructed with sub slab vapor barrier systems consisting of geotextile, geomembrane, and sprayed vapor barrier layers, as well as available passive vapor collection/vent systems. The barriers are maintained and any alterations resulting from tenant improvements are repaired and leak tested.

Former Plant A-1 North Soil: This facility was approximately 32 acres in size and was located southeast of the Burbank Airport property. Aircraft manufacturing operations were performed at the site between 1941 to 1991. Lockheed Martin sold the property in 2000 for development and use by Burbank Airport and private developers.

Environmental cleanup activities conducted by Lockheed Martin under Order No. 87-161 removed 13,000 tons of soil between 1989 and 1996, and the Water Board issued NFR letters to Lockheed Martin for chemical compounds and metals in soil in 2001. VOC cleanup was then performed between 1999 and 2009 using a soil vapor extraction system (SVE). Following the completion of the VOC remediation, the Water Board issued a NFR determination and the SVE system was dismantled. The Water Board also requested that the new property owners sign land use covenants to assure the State and owners that the properties would be used in a manner consistent with their zoning and former manufacturing history.

Burbank Groundwater: After the discovery of impacts to groundwater in the area, the US Environmental Protection Agency (USEPA) designated the regional groundwater plume as the BOU, within Area 1 of the San Fernando Valley Superfund Site. Under the USEPA 1989 Record of Decision, remediation is conducted by extracting groundwater to remove contaminant mass, restrict the migration of the impacted groundwater, and restore drinking water resources. The BOU groundwater extraction wells VO1 through VO8 are identified on Figure 1. Seven of the wells are adjacent to or within the planned HSR Burbank to Los Angeles Project Section and must be protected, as per the comments provided by Lockheed Martin to the Authority in August 2020.

In addition to the extraction wells and their infrastructure, approximately 70 groundwater monitoring wells are located within the one-mile buffer zone on either side and terminus of the Palmdale to Burbank section in BOU (Figure 1). These wells are part of the BOU monitoring

Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

4473-9088 program required by USEPA to document the effectiveness of the groundwater remedy, monitor changes to the plumes, and provide early warning of new contaminants.

In April 2022 the depth to groundwater in the vicinity of the planned HSR Burbank Airport Station was roughly 240 to 250 feet below ground surface. According to the general Station profile provided in the Draft EIR/EIS, the invert of the station will be roughly 90 feet below ground surface, therefore groundwater dewatering should not be required, although there is potential for localized perched groundwater.

Palmdale to Burbank Station Draft EIR/EIS Comments

Comments about potential impacts and mitigation measures associated with the BOU area of the Palmdale to Burbank Section are summarized below.

4473-9089
- CDM Smith agrees with the hazardous materials and wastes impact avoidance and minimization features (IAMFs) identified in Section 3.10.4.

4473-9090
- Impact HWR#4, Section 3.8: The Refined SR14, SR14A, E1 and E1A alternatives would cross the Hansen Spreading Grounds, and new impervious surfaces could interfere with groundwater recharge within the San Fernando Groundwater Basin. Loss of spreading would be a significant impact not only from a drinking water resource perspective but also to the sustainability of the BOU groundwater remedy, which is intended to restore the quality of water in the aquifers in the eastern San Fernando Groundwater Basin. Mitigation measure HWR-MM#3 should be further developed to identify replacement land for spreading upgradient of BOU to ensure continued groundwater recharge is available for the San Fernando Groundwater Basin remedies. .

4473-9091
- The Draft EIR/EIS identifies between 22 and 30 (depending on the build alternative) active groundwater monitoring wells within a one-mile zone on either side of the Palmdale to Burbank corridor in the Project Summary, Section 3.8, and Figures 3.8-A-21 through 3.8-A-23. As shown on the attached Figure 1, there are about 70 active groundwater monitoring wells located within one mile of either side of the HSR centerline and southern terminus, in the BOU only. Damage to or loss of groundwater monitoring wells used to assess progress of the USEPA and Water Board remedies would be significant. Damage could result from not only tunneling and excavation but resurfacing or loss of access due to site reconfiguration. The Draft EIR/EIS should identify any monitoring wells potentially impacted and include mitigation measures for their replacement or protection.

4473-9092
- The Draft EIR/EIS identifies the approximate locations of medium- and high-priority Potential Environmental Concern (PECs) on figures in Appendix 3.10-A but does not

4473-9092 identify the sites by name or type of PEC. The document would be more effective if the identification and type of PEC sites were tabulated in the Draft EIR/EIS.

4473-9093
- HMW#1, Section 3.10 – Hazards Due to Transport. Construction of the HSR may generate an estimated 3.0 – 9.2 million cubic yards of hazardous spoils, depending on the build alternative. Per Appendix 2.0-I it is conservatively assumed that 100% of the spoils from the 1) trench and cut-and-cover, 2) Burbank Airport Station Tunnel, and 3) Burbank Airport Station excavation would be contaminated and would need to be off-hauled to a suitable treatment site. The Draft EIS/EIR should also include a statement that the Authority would be the responsible generator for the transport and treatment or disposal of spoils.

4473-9094
- GEO-IAMF#3 and #4, Section 3.9 provides protections against explosive or natural gas via monitoring and ventilation. There should also be discussion regarding protection against potential exposure to VOCs that may be present at low levels in the soil and soil vapor adjacent to the Burbank Airport Station and tunnels. Prevention of vapor exposure risk, including mitigation of potential vapor intrusion pathways and appropriate tunnel/station vapor lining and/or ventilation requirements, should also be discussed in Section 3.10.

4473-9095
- Should the HSR plans include retention of the existing structures at the proposed Burbank Airport Station (i.e., Avion Burbank and/or Amazon buildings) the integrity of their VI barriers must also be preserved. Modifications or damage to the building slabs would require repair, smoke testing, and documentation of the VI barrier integrity.

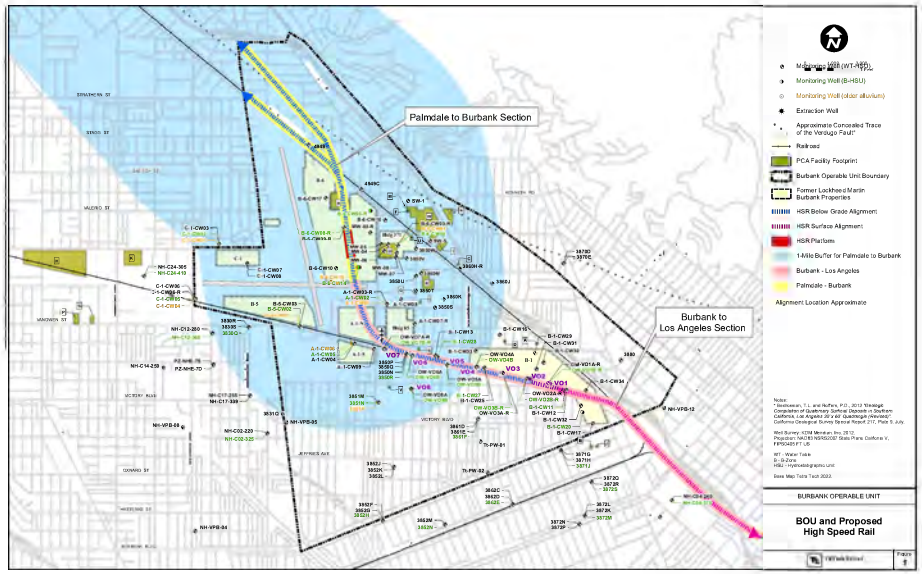
4473-9096 Lockheed Martin has completed remediation of the soil properties described herein and does not anticipate a need for additional investigation or remediation. In cases where a NFR has been issued the Water Board has determined that the contamination has been reduced to levels that are protective of human health for the current land uses. Should land uses change however, those decisions may need to be reconsidered by the appropriate agencies and the Authority. Additional actions associated with land use changes or newly discovered conditions should be the responsibility of the Authority to mitigate.

Prepared by:
Tom W. Davis, PG, CHG
CDM Smith Inc.

Attachment:
Figure 1

Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

EXHIBIT B



Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

4473-9097

EPA/ROD/R09-89/033
1989

EPA Superfund
Record of Decision:

SAN FERNANDO VALLEY (AREA 1)
EPA ID: CAD980894893
OU 03
NORTH HOLLYWOOD, CA
06/26/1989

This ROD has an associated ESD.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 9 - SAN FRANCISCO, CALIFORNIA

MAY, 1989

RECORD OF DECISION
DECLARATION

#SNL
SITE NAME AND LOCATION

SAN FERNANDO VALLEY BASIN AREA 1
BURBANK OPERABLE UNIT
LOS ANGELES COUNTY, CALIFORNIA

#DR
STATEMENT OF BASIS AND PURPOSE

THIS DECISION DOCUMENT PRESENTS THE SELECTED REMEDIAL ACTION FOR THE SAN FERNANDO VALLEY BASIN AREA 1, BURBANK OPERABLE UNIT, IN LOS ANGELES COUNTY, CALIFORNIA, DEVELOPED IN ACCORDANCE WITH THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (42 USC SECTION 9601 ET. SEQ.) AND THE NATIONAL CONTINGENCY PLAN (40 CFR SECTION 300 ET. SEQ.). THIS DECISION IS BASED ON THE ADMINISTRATIVE RECORD FOR THESE SITES.

THE STATE OF CALIFORNIA CONCURS ON THE SELECTED REMEDY.

#DE
DECLARATION

THE SELECTED REMEDY IS PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT, ATTAINS FEDERAL AND STATE REQUIREMENTS THAT ARE APPLICABLE OR RELEVANT AND APPROPRIATE FOR THIS REMEDIAL ACTION, AND IS COST-EFFECTIVE. THIS REMEDY SATISFIES THE STATUTORY PREFERENCE FOR REMEDIES WHICH EMPLOY TREATMENT THAT REDUCES TOXICITY, MOBILITY, OR VOLUME AS A PERMANENT SOLUTION AND ALTERNATIVE TREATMENT (OR RESOURCE RECOVERY) TECHNOLOGIES TO THE MAXIMUM EXTENT PRACTICABLE. AS PART OF THE REMEDY, GROUNDWATER MONITORING WILL BE CONDUCTED TO TRACK CONTAMINANT LEVELS IN THE BURBANK WELL FIELD AND TO MONITOR THE PERFORMANCE OF THE EXTRACTION AND TREATMENT SYSTEM TO ENSURE ADEQUATE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT. PERIODIC REVIEWS WILL BE CONDUCTED TO ANALYZE THE EFFECTIVENESS OF THE SYSTEM.

DATE
06/30/89

DANIEL W. MCGOVERN
REGIONAL ADMINISTRATOR

Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

4473-9097

RECORD OF DECISION
DECISION SUMMARY

#SLD
1.0 SITE LOCATION AND DESCRIPTION

THE AREA AROUND THE BURBANK WELL FIELD, LOCATED IN THE SAN FERNANDO AREA 1 (NORTH HOLLYWOOD) NPL SITE WITHIN THE SAN FERNANDO VALLEY BASIN (SFVB), HAS BEEN DESIGNATED AN OPERABLE UNIT (OU). FIGURE 1 SHOWS THE LOCATION OF THE NORTH HOLLYWOOD NPL SITE WITHIN THE SFVB. FIGURE 2 SHOWS THE BOUNDARY OF THE STUDY AREA FOR THE OU WITHIN THE NORTH HOLLYWOOD NPL SITE AND THE APPROXIMATE LOCATION OF THE PROPOSED EXTRACTION WELLS. THE ENTIRE BURBANK WELL FIELD LIES WITHIN THE POLITICAL BOUNDARIES OF THE CITY OF BURBANK, CALIFORNIA.

THE SFVB IS LOCATED IN THE UPPER LOS ANGELES RIVER AREA (ULARA), WHICH CONSISTS OF THE ENTIRE WATERSHED OF THE LOS ANGELES RIVER AND ITS TRIBUTARIES. THE ULARA ENCOMPASSES APPROXIMATELY 328,500 ACRES, OF WHICH 122,800 ACRES ARE ALLUVIAL DEPOSITS WHICH FILL THE SFVB. THE SFVB IS BOUNDED ON THE NORTH AND NORTHWEST BY THE SANTA SUSANA MOUNTAINS, ON THE NORTHEAST BY THE SAN GABRIEL MOUNTAINS, ON THE WEST BY THE SIMI HILLS, AND ON THE SOUTH BY THE SANTA MONICA MOUNTAINS. THESE MOUNTAIN RANGES ARE SHOWN IN FIGURE 1.

FOUR DISTINCT GROUNDWATER BASINS ARE LOCATED WITHIN THE ULARA: THE SAN FERNANDO (WITH 91.2 PERCENT OF THE TOTAL VALLEY FILL, THE VERDUGO (WITH 3.6 PERCENT OF THE TOTAL VALLEY FILL), THE SYLMAR (WITH 4.6 PERCENT OF THE TOTAL VALLEY FILL), AND THE EAGLE ROCK (WITH 0.6 PERCENT OF THE TOTAL VALLEY FILL). BECAUSE THE SFVB AREA 1 NPL SITE IS LOCATED WITHIN THE SAN FERNANDO GROUNDWATER BASIN, THE FOLLOWING DISCUSSION FOCUSES ON THE SAN FERNANDO GROUNDWATER BASIN.

THE GEOLOGY OF THE SFVB GENERALLY CONSISTS OF ALLUVIAL DEPOSITS COMPOSED OF UNCONSOLIDATED GRAVELS AND SAND INTERBEDDED WITH LENSES OF SILT AND CLAY. THE OVERLYING ALLUVIAL DEPOSITS RANGE IN THICKNESS FROM A FEW INCHES AT THE BASE OF THE MOUNTAINS TO AS MUCH AS 1,500 FEET IN THE CENTER OF THE SFVB. THE BURBANK WELL FIELD IS LOCATED IN THE EASTERN PORTION OF THE SAN FERNANDO VALLEY BASIN (SFVB), WHICH CONTAINS COARSER SEDIMENTS THAT TRANSMIT WATER AT HIGHER RATES THAN THE WESTERN AREA OF THE SFVB. MOST OF THE PRODUCTION WELLS IN THE SFVB ARE LOCATED IN THIS EASTERN AREA. RESULTS OF AQUIFER TESTING IN THE SFVB HAVE SHOWN THAT GROUNDWATER VELOCITIES IN THE EASTERN PORTION OF THE BASIN ARE MUCH GREATER THAN IN THE WESTERN PORTION. WITHIN THE EASTERN PORTION OF THE SFVB, THE VELOCITIES ARE ESTIMATED TO BE BETWEEN 300 TO 500 FEET PER YEAR WITH LOCALIZED VELOCITIES OF MORE THAN THREE FEET PER DAY NEAR WELL FIELDS.

HISTORICALLY, GROUNDWATER RECHARGE TO THE SFVB HAS OCCURRED THROUGH BOTH NATURAL RECHARGE FROM PRECIPITATION AND ARTIFICIAL RECHARGE FROM APPLIED WATER AND TREATED WASTEWATER EFFLUENT. THE TOTAL STORAGE CAPACITY OF THE SFVB IS APPROXIMATELY 3 MILLION ACRE-FEET (ACRE-FT), TWO-THIRDS OF WHICH IS LOCATED IN THE EASTERN PORTION OF THE BASIN. IN 1979, THE STATE SUPREME COURT GRANTED THE CITY OF BURBANK THE RIGHT TO EXTRACT 20 PERCENT OF THE IMPORTED AND RECLAIMED WATER FOR DOMESTIC USE. CURRENTLY, THIS 20 PERCENT AMOUNTS TO AN AVERAGE OF 4,700 ACRE-FT PER YEAR. THE CITY OF BURBANK ALSO HAS LIMITED RIGHTS TO PHYSICAL SOLUTION WATER, THAT IS, WATER NORMALLY SUPPLIED TO OTHER PARTIES BUT WHICH MAY BE USED BY THE CITY OF BURBANK UPON PAYMENT OF SPECIFIED CHARGES. IN ADDITION, THE CITY OF BURBANK IS ENTITLED TO STORE WATER IN THE SFVB AND RECEIVES A CREDIT FOR RECHARGING TREATED WASTEWATER EFFLUENT. AS OF MARCH 1989, BURBANK'S WATER CREDITS WERE APPROXIMATELY 38,000 ACRE-FEET.

THE CITY OF BURBANK,S PRODUCTION WELLS HAVE BEEN SHUT DOWN BECAUSE THE WATER THEY PRODUCE CONTAINS TRICHLOROETHYLENE (TCE) AND PERCHLOROETHYLENE (PCE) IN CONCENTRATIONS EXCEEDING STATE AND FEDERAL GUIDELINES. CONSEQUENTLY, THE CITY OF BURBANK NOW IMPORTS 100 PERCENT OF ITS WATER FROM THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA (MWD). IN 1987, THE CITY OF BURBANK IMPORTED APPROXIMATELY 23,100 ACRE-FEET OF WATER.

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2.0 SITE HISTORY

LN JUNE 1986, AT THE REQUEST OF THE LOS ANGELES DEPARTMENT OF WATER AND POWER (DWP) AND THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES (DHS), EPA DESIGNATED FOUR WELL FIELDS WITHIN THE SAN FERNANDO AND VERDUGO GROUNDWATER BASINS AS NATIONAL PRIORITIES LIST (NPL) HAZARDOUS WASTE SITES. INDUSTRIAL CHEMICALS HAVE BEEN DETECTED IN GROUNDWATER FROM THESE AREAS. ALTHOUGH EACH WELL FIELD IS LISTED SEPARATELY ON THE NPL, EPA AND DWP ARE MANAGING THE INVESTIGATION OF THE FOUR

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SITES AS IF THEY ARE ONE SINGLE, LARGE SITE.

THE SFVB REPRESENTS AN IMPORTANT SOURCE OF DRINKING WATER FOR THE CITIES OF LOS ANGELES, BURBANK, GLENDALE, AND LA CRESCENTA, AND PROVIDES THESE COMMUNITIES WITH ENOUGH WATER TO SERVE APPROXIMATELY 600,000 RESIDENTS.

GROUNDWATER FROM THE AQUIFERS IN THE SFVB IS USED FOR COMMERCIAL, INDUSTRIAL AND RESIDENTIAL PURPOSES, AND IS ESPECIALLY IMPORTANT DURING YEARS OF DROUGHT. THE GROUNDWATER THAT HAS BECOME CONTAMINATED IS DIFFICULT TO REPLACE. THE CURRENT WATER SUPPLY FROM SURFACE WATER VIA THE METROPOLITAN WATER DISTRICT (MWD) MAY NOT ALWAYS BE AVAILABLE IN THE FUTURE BECAUSE OF PERIODIC DROUGHT CONDITIONS AND STATE AND FEDERAL WATER RIGHTS ISSUES.

IN LATE 1979, AS A RESULT OF THE PASSAGE OF ASSEMBLY BILL 1803, DHS REQUESTED THAT ALL MAJOR WATER PURVEYORS USING GROUNDWATER CONDUCT TESTS FOR THE PRESENCE OF CERTAIN INDUSTRIAL CHEMICALS AS PART OF A STATEWIDE GROUNDWATER QUALITY SURVEILLANCE EFFORT. THESE INITIAL TESTS, COMPLETED IN SPRING 1980, INDICATED THAT HAZARDOUS SUBSTANCES SUCH AS TRICHLOROETHYLENE (TCE) AND PERCHLOROETHYLENE (PCE), WERE PRESENT IN CONCENTRATIONS ABOVE STATE ACTION LEVELS (SALS) AND MAXIMUM CONTAMINANT LEVELS (MCLS) IN A NUMBER OF WATER PRODUCTION WELLS IN THE SAN FERNANDO VALLEY BASIN. CONCENTRATION LEVELS IN THE WELLS HAVE BEEN INCREASING SINCE 1980

IN 1987, THE PRIMARY CONTAMINANT, TCE, WAS FOUND AT CONCENTRATIONS EXCEEDING THE STATE ACTION LEVEL (SAL) IN 48% OF THE SFVB,S 120 PRODUCTION WELLS. IN ADDITION, PCE LEVELS ABOVE STATE ACTION LEVEL WERE PRESENT IN 18% OF THE SFVB WELLS.

AT PRESENT, THE CITY OF LOS ANGELES ADDRESSES WELL CONTAMINATION BY EITHER SHUTTING DOWN HEAVILY CONTAMINATED WELLS AND PROVIDING ALTERNATE SOURCES OF DRINKING WATER, OR BLENDING CONTAMINATED WATER WITH OTHER SOURCES TO ACHIEVE TCE AND PCE CONCENTRATIONS IN THE SERVED WATER THAT ARE BELOW STATE ACTION LEVELS AND FEDERAL MCLS. OTHER COMMUNITIES, LIKE THE CITY OF BURBANK, HAVE TURNED TO THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA FOR SURFACE WATER TO AUGMENT THEIR SUPPLIES.

IN SEPTEMBER 1987, EPA SIGNED THE NORTH HOLLYWOOD OU RECORD OF DECISION TO CONSTRUCT AN EXTRACTION AND AERATION FACILITY, TO PUMP AND TREAT CONTAMINATED GROUNDWATER IN THE NORTH HOLLYWOOD AREA WITHIN THE SFVB AREA I NPL SITE. EPA PROVIDED FUNDS TO DWP THROUGH A COOPERATIVE AGREEMENT TO IMPLEMENT THIS PROJECT. ALSO, EPA HAS JOINED WITH DWP AND DHS IN A THREE PARTY AGREEMENT THAT DEFINES SPECIFIC AGENCY RESPONSIBILITIES, COST SHARING, AND OTHER APPLICABLE PROVISIONS FOR CONSTRUCTION, OPERATION, AND MAINTENANCE OF THIS TREATMENT SYSTEM. THE PLANT BECAME OPERATIONAL IN MARCH, 1989.

THE BURBANK OPERABLE UNIT (OU) WILL BE THE SECOND OU IN THE SFVB AREA 1.

3.0 ENFORCEMENT

THE SFVB NPL SITES WERE FIRST LISTED BECAUSE OF CONTAMINATED PUBLIC SUPPLY WELLS. AT THE TIME OF LISTING, THE SOURCES OF CONTAMINATION WERE UNKNOWN. EPA AND THE LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD (RWQCB) HAVE AND ARE CONTINUING TO CONDUCT NUMEROUS ACTIVITIES TO IDENTIFY SOURCES OF GROUNDWATER CONTAMINATION IN THE SAN FERNANDO VALLEY BASIN. THE TWO AGENCIES ARE WORKING COOPERATIVELY IN SOURCE IDENTIFICATION AND ENFORCEMENT ACTIVITIES.

THE RWQCB BEGAN SOURCE INVESTIGATION ACTIVITIES IN 1987 UNDER THE AB 1803 PR,GRAM. UNDER THIS PROGRAM, AN AREA (TYPICALLY ONE SQUARE MILE) SURROUNDING CONTAMINATED PUBLIC WATER SUPPLY WELLS IS ESTABLISHED WITHIN WHICH A DOOR-TO-DOOR INDUSTRIAL SURVEY IS COMPLETED. INSPECTIONS ARE CONDUCTED AT ALL FACILITIES POTENTIALLY USING SOLVENTS. FACILITIES THAT MAY HAVE HAD A RELEASE DUE TO THEIR HANDLING OR STORAGE PRACTICES ARE REQUESTED TO CONDUCT A SITE ASSESSMENT FOR THEIR FACILITY. IF SOIL CONTAMINATION IS FOUND, EXPANDED SOIL AND/OR GROUNDWATER INVESTIGATIONS ARE REQUIRED. LATER, A CLEANUP AND ABATEMENT ORDER MAY BE ISSUED REQUIRING THE SITE TO BE REMEDIATED.

IN ADDITION, THE RWQCB CONDUCTS SOURCE IDENTIFICATION AND CLEANUP ACTIVITIES UNDER THE UNDERGROUND STORAGE TANK, SOLID WASTE ASSESSMENT TESTING (SWAT), AND WASTE DISCHARGE REQUIREMENTS PROGRAMS.

BETWEEN AUGUST 1987 AND 1988, EPA ISSUED 145 RCRA SECTION 3007/ CERCLA SECTION 104 INFORMATION

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REQUEST LETTERS TO FACILITIES SUSPECTED OF BEING USERS OF CHLORINATED SOLVENTS IN THE SAN FERNANDO VALLEY BASIN. BASED ON THE RESPONSES RECEIVED AND INFORMATION IN STATE AGENCY FILES, EPA ISSUED 34 GENERAL NOTICE LETTERS INFORMING COMPANIES OF THEIR POTENTIAL LIABILITY FOR THE CLEANUP OF THE SFVB AREA 1 AND 2 NPL SITES. ON SEPTEMBER 13, 1988 EPA HELD AN INFORMATION MEETING FOR FACILITIES IDENTIFIED AS PRP'S FOR THE BURBANK WELL FIELD. TO BEGIN NEGOTIATIONS FOR CLEANUP OF THE BURBANK OU AREA, EPA SENT SPECIAL NOTICE LETTERS PURSUANT TO CERCLA SECTION 122 IN MAY 1989. NEGOTIATIONS WITH PRP'S ARE EXPECTED TO END IN SEPTEMBER 1989. EPA AND THE RWQCB WILL CONTINUE BASINWIDE SOURCE IDENTIFICATION AND ENFORCEMENT ACTIVITIES THROUGHOUT THE BASINWIDE RI/FS PROCESS.

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4.0 COMMUNITY RELATIONS

THE COMMENT PERIOD FOR THE OUFS REPORT AND THE PROPOSED PLAN OPENED ON OCTOBER 19, 1988 AND CLOSED DECEMBER 2, 1988. A PUBLIC MEETING WAS HELD ON NOVEMBER 9, 1988 AT THE THOMAS JEFFERSON ELEMENTARY SCHOOL IN BURBANK AND WAS ATTENDED BY APPROXIMATELY 65 PEOPLE.

PRIOR TO THE BEGINNING OF THE PUBLIC COMMENT PERIOD, EPA AND THE CITY OF BURBANK PUBLISHED A NOTICE BOTH IN THE LOS ANGELES TIMES AND THE BURBANK LEADER. THE NOTICE BRIEFLY DESCRIBED THE PROPOSED PLAN AND ANNOUNCED THE PUBLIC COMMENT PERIOD AND THE PUBLIC MEETING. THE NOTICE ALSO ANNOUNCED THE AVAILABILITY OF FORMATION REPOSITORIES ESTABLISHED AT THE BURBANK PUBLIC LIBRARY, CALIFORNIA STATE UNIVERSITY - NORTHRIDGE LIBRARY, LOS ANGELES DEPARTMENT OF WATER AND POWER LIBRARY AND THE UNIVERSITY OF CALIFORNIA - LOS ANGELES (UCLA) RESEARCH LIBRARY. (SEE FACT SHEET #1 OR #2 FOR THE LOCATIONS.)

A FACT SHEET DESCRIBING THE PROPOSED PLAN WAS DELIVERED TO THE INFORMATION REPOSITORIES. COPIES OF THE FACT SHEET WERE ALSO MAILED TO THE EPA GENERAL MAILING LIST FOR THE SAN FERNANDO VALLEY BASIN SITES, WHICH INCLUDED ABOUT 800 MEMBERS OF THE GENERAL PUBLIC, ELECTED OFFICIALS, AGENCY, AND MEDIA REPRESENTATIVES. FACT SHEETS WERE ALSO HAND-DELIVERED TO RESIDENTS NEAR THE PROPOSED TREATMENT FACILITY LOCATION. IN ADDITION, THE BURBANK WATER SYSTEM MANAGER MADE AN ANNOUNCEMENT OF THE PUBLIC MEETING AND PRESENTED THE PROPOSED PLAN ON LOCAL CABLE TELEVISION. HE ALSO HAD FACT SHEETS AVAILABLE FOR DISTRIBUTION AT THE BURBANK PUBLIC SERVICE DEPARTMENT (PSD) ADDITIONALLY, NEWS STORIES APPEARED IN THE LOCAL NEWSPAPER, THE BURBANK LEADER, AND THE LOS ANGELES TIMES AND THE DAILY NEWS.

FROM MARCH 1987 TO THE PRESENT, EPA AND DWP HAVE MET BIMONTHLY OR QUARTERLY WITH MEMBERS OF THE COMMUNITY WORKGROUP (CWG). THE MEMBERS INCLUDE ELECTED OFFICIALS, INDUSTRY REPRESENTATIVES, COMMUNITY-BASED PUBLIC INTEREST REPRESENTATIVES, AND RESIDENTS FROM THE SAN FERNANDO VALLEY/LOS ANGELES AREA. THE PURPOSE OF THE CWG MEETINGS HAVE BEEN TO DISCUSS TECHNICAL ISSUES AND MANAGEMENT STRATEGIES INVOLVING THE SAN FERNANDO VALLEY BASIN SUPERFUND PROJECT. CWG MEMBERS HAVE BEEN UPDATED ON AGENCY ACTIVITIES AND HAVE HAD THE OPPORTUNITY TO EXPRESS THEIR CONCERNS ABOUT THE BURBANK OPERABLE UNIT THROUGHOUT THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) PROCESS. EPA TRANSMITTED COPIES OF THE OUFS REPORT TO CWG MEMBERS FOR THEIR REVIEW AND COMMENT.

THE MINUTES OF THE COMMUNITY MEETING WERE TRANSCRIBED. THE TRANSCRIPT AND THE ATTACHED RESPONSE SUMMARY PROVIDE RESPONSES TO THE COMMUNITY COMMENTS SUBMITTED IN WRITING DURING THE PUBLIC COMMENT PERIOD, AS WELL AS ORAL COMMENTS MADE AT THE NOVEMBER 9, 1988 PUBLIC MEETING. THE PUBLIC TRANSCRIPT AND RESPONSE SUMMARY ARE PART OF THE ADMINISTRATIVE RECORD.

5.0 SCOPE AND ROLE OF THE OU WITHIN THE BASINWIDE SITE STRATEGY

AS DISCUSSED IN THE SITE HISTORY SECTION, EPA IS TREATING THE SFVB AREA 1 - 4 NPL SITES AS ONE LARGE SITE. EPA AND DWP ARE CONDUCTING ONE BASINWIDE RI/FS FOR THE 4 NPL SITES. THE RI/FS FOR THE SAN FERNANDO SITES WAS INITIATED IN 1987. THE MAJOR GOAL OF THE RI IS TO IDENTIFY THE SOURCES, PATHWAYS AND RECEPTORS OF THE CONTAMINANTS AND TO CHARACTERIZE THE NATURE AND EXTENT OF THE PUBLIC HEALTH AND ENVIRONMENTAL PROBLEMS PRESENTED BY THE CONTAMINATION. MAJOR COMPONENTS OF THE RI INCLUDE SOIL GAS SURVEYS, INSTALLATION OF MONITORING WELLS, REGIONAL AND SITE SPECIFIC GROUNDWATER FLOW AND SOLUTE TRANSPORT MODELING OF THE BASIN AND SAMPLING OF THE GROUNDWATER AND SOIL. THE FS WILL EVALUATE THE NECESSITY FOR AND PROPOSED EXTENT OF REMEDIAL ACTIONS. DWP HAS THE LEAD FOR THE RI AND EPA HAS THE LEAD FOR THE FS.

EPA PREVIOUSLY SELECTED A REMEDY TO ADDRESS THE PUBLIC HEALTH THREAT POSED BY CONTAMINATION OF THE PUBLIC WATER SUPPLY WELLS LOCATED IN THE CITY OF NORTH HOLLYWOOD WHICH LIES WITHIN THE SFVB

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AREA 1 NPL SITE. THE NORTH HOLLYWOOD OU PROJECT WAS DESIGNED TO CONTROL THE MIGRATION OF CONTAMINANTS IN THE GROUNDWATER, WHILE INITIATING AQUIFER RESTORATION IN THE AREA. THE CONTAMINANT PLUME HAS ALREADY AFFECTED NUMEROUS GROUNDWATER PRODUCTION WELLS IN AREA 1 OF THE SFVB AND HAS PRECLUDED THEIR USE FOR PUBLIC WATER SUPPLY. CONSTRUCTION AND OPERATION OF THE BURBANK PROJECT IS INTENDED TO FURTHER ADDRESS THE IMMEDIATE PROBLEM IN AREA 1 WHILE A MORE COMPLETE INVESTIGATION OF THE VALLEY'S OVERALL GROUNDWATER PROBLEM IS BEING DONE THROUGH THE OVERALL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) PROCESS.

THE BURBANK RESPONSE ACTION IS DESIGNED TO ACHIEVE TWO OBJECTIVES;

- TO PARTIALLY CONTROL THE MOVEMENT AND SPREAD OF GROUNDWATER CONTAMINANTS IN THE BURBANK OPERABLE UNIT AREA, WHILE CONTRIBUTING TO AQUIFER RESTORATION IN THE SAN FERNANDO VALLEY BASIN AREA 1 NPL SITE.

- TO ADDRESS THE PUBLIC HEALTH THREAT POSED BY CONTAMINATION OF THE CITY OF BURBANK'S PUBLIC WATER SUPPLY WELLS BY PROVIDING RESIDENTS IN THE AREA WITH A WATER SUPPLY THAT MEETS STATE AND FEDERAL DRINKING WATER STANDARDS.

ALL OF THE CITY OF BURBANK'S PSD WELLS ARE SHUT DOWN DUE TO THE VOC CONTAMINATION. MOREOVER, OTHER DOWNGRADIENT PUBLIC WATER SUPPLY WELLS ARE POTENTIALLY THREATENED BY CONTAMINATION IN THE BURBANK OU AREA. THE RESPONSE ACTION SELECTED IN THIS DECISION DOCUMENT WILL BE INCORPORATED INTO THE EPA RESPONSE ACTION FOR THE ENTIRE SAN FERNANDO SUPERFUND AREAS 1-4.

AS THE OPERABLE UNITS ARE ADDRESSING PART OF THE OVERALL PROBLEM, THE RI/FS AND SUBSEQUENT RCD ARE INTENDED TO ADDRESS THE 4 SFVB NPL SITES AND THE AREAS WHICH IMPACT THESE SITES.

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6.0 SUMMARY OF THE BURBANK OU SITE CHARACTERISTICS

CONTAMINATION OF GROUNDWATER FROM THE SAN FERNANDO VALLEY BASIN WELLS WAS FIRST DISCOVERED IN 1980. SINCE THEN, VARIOUS MONITORING PROGRAMS HAVE BEEN IMPLEMENTED. RESULTS OF LADWP'S GROUNDWATER MONITORING PROGRAM CONDUCTED FROM 1981 THROUGH 1987 REVEALED THAT TCE AND PCE HAD CONTAMINATED APPROXIMATELY 50 PERCENT OF THE WATER SUPPLY WELLS IN THE EASTERN PORTION OF THE SFVGB AT CONCENTRATIONS EXCEEDING STATE AND FEDERAL DRINKING WATER STANDARDS. FIGURE 3 PRESENTS THE APPROXIMATE LOCATION OF THE TCE AND PCE PLUMES IN 1987.

THE CITY OF BURBANK'S WELLS ARE SAMPLED ROUTINELY AS PART OF THE MONITORING OF 112 WELLS IN THE SAN FERNANDO VALLEY BASIN. THE CONCENTRATION RANGES OF TCE AND PCE FOUND IN THE BURBANK WELLS ARE PRESENTED IN TABLES 1 AND 2. SEVERAL OTHER VOCS HAVE ALSO BEEN DETECTED IN THE BURBANK WELLS, INCLUDING ACETONE, TOLUENE, METHYLETHYLKETONE, CARBON TETRACHLORIDE AND TRIHALOMETHANES (THMS) WHICH INCLUDE CHLOROFORM, BROMODICHLOROMETHANE, DIBROMOCHLOROMETHANE, AND BROMOFORM. THE CONCENTRATIONS OF THESE OTHER VOCS HAVE NOT EXCEEDED STATE ACTION LEVELS (SALS) OR FEDERAL MCLS. THE BURBANK WELLS HAVE ALSO BEEN SAMPLED FOR TRACE METALS AND OTHER WATER QUALITY PARAMETERS. ALTHOUGH GROUNDWATER FROM ONE WELL HAD ELEVATED CONCENTRATIONS OF IRON, THE QUALITY OF THE TREATED WATER FROM THESE WELLS IS EXPECTED TO MEET TITLE 22 DRINKING WATER STANDARDS FOR METALS.

THE TABLES CAN BE SUMMARIZED AS FOLLOWS;

- TCE AND PCE ARE THE PRINCIPAL CONTAMINANTS OF CONCERN. TCE AND PCE ARE INDUSTRIAL SOLVENTS COMMONLY USED IN THE METAL DEGREASING AND DRY-CLEANING INDUSTRIES. BOTH ARE ANIMAL CARCINOGENS AND ARE SUSPECTED OF BEING CARCINOGENIC TO HUMANS. THE FEDERAL MCL FOR TCE IS 5.0 UG/L. THE SAL FOR PCE IS 4.0 UG/L AND THE PROPOSED STATE MCL IS 5 UG/L.

- OTHER VOCS DETECTED IN TRACE QUANTITIES INCLUDE METHYLENE CHLORIDE, TOLUENE, ACETONE, CARBON TETRACHLORIDE, METHYLETHYLKETONE, AND THE THMS (CHLOROFORM, BROMODICHLORO-METHANE AND DIBROMOCHLOROMETHANE). METHYLENE CHLORIDE IS AN INDUSTRIAL SOLVENT COMMONLY USED IN LABORATORIES. IT IS CARCINOGENIC IN ANIMALS AND IS ALSO A SUSPECTED HUMAN CARCINOGEN. THE SAL FOR METHYLENE CHLORIDE IS 40 UG/L. TOLUENE IS AN INDUSTRIAL SOLVENT AND A GASOLINE ADDITIVE. IT IS CARCINOGENIC IN ANIMALS AND IS ALSO A SUSPECTED HUMAN CARCINOGEN. THE SAL FOR TOLUENE IS 100 UG/L. ACETONE IS USED AS AN INDUSTRIAL SOLVENT AND IN THE PRODUCTION OF LUBRICATING OILS. A SAL FOR ACETONE HAS NOT BEEN ESTABLISHED. CARBON TETRACHLORIDE IS AN INDUSTRIAL

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SOLVENT. IT IS CARCINOGENIC IN ANIMALS AND IS A SUSPECTED HUMAN CARCINOGEN. THE FEDERAL MCL FOR CARBON TETRACHLORIDE IS 5.0 UG/L AND THE FEDERAL MCLG IS SET AT 0 UG/1. METHYETHYLKETONE IS USED AS A SOLVENT IN NITROCELLULOSE COATINGS AND VINYL FILM MANUFACTURING AND IN CEMENTS AND ADHESIVES. A SAL HAS NOT BEEN ESTABLISHED FOR METHYLETHYLKETONE. MOST THMS FOUND IN FINISHED DRINKING WATER ARE UNWANTED BY-PRODUCTS CAUSED BY THE CHLORINATION PROCESS. THMS ARE FORMED BY THE CHEMICAL ATTACK OF HYPOCHLORITE ON FULVIC AND HUMIC ACIDS. CHLOROFORM ALSO HAS A VARIETY OF INDUSTRIAL USES, INCLUDING USE AS A SOLVENT IN LACQUER MANUFACTURE. CHLOROFORM IS A SUSPECTED HUMAN CARCINOGEN. THE MCL FOR THE SUM OF THMS IS 100 UG/L.

- THE WELLS WITH THE SHALLOWEST PERFORATED INTERVALS (PSD 10 AND PSD 12) AND THE ONES THAT ARE THE FURTHEST UPGRADIENT (PSD 9, PSD 10, PSD LLA, PSD 13, PSD 14A, PSD 17) HAVE HISTORICALLY HAD THE HIGHEST CONCENTRATIONS OF TCE AND PCE. IN CONTRAST, PSD 6, PSD 7 AND PSD 15 HAVE LOW OR NONDETECTED CONCENTRATIONS OF VOCS. PSD 6 IS LIKELY AT THE EDGE OF THE LATERAL EXTENT OF THE VOC PLUME, AND PSD 7 AND PSD 15 ARE LIKELY AT THE LEADING EDGE OF THE PLUME. FOR RELATIVE LOCATION OF WELLS SEE FIGURE 2.

#SSR
7.0 SUMMARY OF SITE RISKS

THE PURPOSE OF THE RISK ASSESSMENT IS TO EVALUATE THE PUBLIC HEALTH AND ENVIRONMENTAL RISKS POSED BY THE BURBANK OU SITE. FOR THE RISK ASSESSMENT EVALUATION, BOTH A BASELINE RISK ASSESSMENT AND A RISK ASSESSMENT FOR ALTERNATIVE 5, PHASE 1 WERE CONDUCTED. THIS SECTION DESCRIBES THE RISK ASSESSMENT PROCESS AND RESULTS.

BASELINE RISK ASSESSMENT: ANALYTICAL RESULTS FROM GROUNDWATER SAMPLES COLLECTED FROM CITY OF BURBANK PRODUCTION WELLS (PSD 6, 7, 10, 12, 15, AND 18) BETWEEN MAY 1987 AND JUNE 1988 FORM THE GROUNDWATER DATABASE THAT WERE USED IN THE BASELINE RISK ASSESSMENT. IN THE BASELINE RISK ASSESSMENTS THE CURRENT RISKS POSED BY DOMESTIC USE OF GROUNDWATER FROM THE BURBANK WELL FIELD WERE ESTIMATED. THE WELL FIELD IS CURRENTLY NOT IN USE AS A WATER SUPPLY. AS A RESULT, NO RECEPTORS ARE CURRENTLY BEING EXPOSED.

A QUANTITATIVE RISK ASSESSMENT WAS DEVELOPED FOR TWO EXPOSURE SOURCE TERMS. ONE SOURCE TERM, "THE POTENTIAL AVERAGE EXPOSURE," OR THE "MOST LIKELY CASE" ASSUMES THAT GROUNDWATER CONCENTRATIONS IN THE BURBANK WELL FIELD ARE AT THE GEOMETRIC MEAN LEVELS (AVERAGED BY WELL) AND AVERAGED ACROSS WELLS (ARITHMETIC MEAN OF GEOMETRIC MEANS). THE OTHER SOURCE TERM IS A "PLAUSIBLE WORSE-CASE" AND ASSUMES THAT THE RECEPTOR IS EXPOSED TO THE MAXIMUM CONTAMINANT LEVEL DETECTED IN ANY ONE WELL.

ASSUMING THAT GROUNDWATER FROM THE WELL FIELD IS USED FOR A LIFETIME, AN INDIVIDUAL RECEPTOR WOULD BE EXPOSED TO AN EXCESS CANCER RISK RANGE (I.E. ABOVE THE NATURAL BACKGROUND RISK) OF APPROXIMATELY 2.0 X 10(-4) TO 1.7 X 10(-3). THESE RISK VALUES ARE AT THE HIGHEST RANGE ALLOWED BY MOST REGULATORY AGENCIES. FOR COMPARISON, A LOWER EXCESS RISK RANGE OF 1.0 X 10(-4) TO 1.0 X 10(-7) WITH 10-6 DEPARTURE, IS USED IN CERCLA AS A SITE REMEDIATION TARGET.

THE BASELINE RISK ASSESSMENT CONCLUDED THAT, UNDER THE CONDITIONS POSTULATED IN THE EXPOSURE ASSESSMENT, THE USE OF UNTREATED GROUNDWATER FROM THE BURBANK WELL FIELD AS A DOMESTIC WATER SUPPLY FOR A LIFETIME WOULD PRESENT AN UNACCEPTABLY HIGH CANCER RISK. THIS CONCLUSION ASSUMES THAT THE EXISTING CHEMICAL ANALYTICAL DATABASE SUFFICIENTLY CHARACTERIZED THE GROUNDWATER CONTAMINATION PRESENT.

IT SHOULD BE NOTED THAT THE HIGHEST CONCENTRATION LEVELS FOUND IN THE AREA WERE NOT USED FOR THE BASELINS RISK ASSESSMENT. IN 1987, MONITORING WELLS LOCATED NEAR THE BURBANK WELL FIELD SHOWED CONCENTRATIONS AS HIGH AS 18,000 UG/L FOR PCE AND 3600 UG/L FOR TCE. MOREOVER, IN FEBRUARY 1989, LOCKHEED AERONAUTICAL SYSTEMS COMPANY (LASC) WAS EXTRACTING GROUNDWATER WITH CONCENTRATIONS AS HIGH AS 10,000 PPB FOR PCE AND 2000 PPB FOR TCE AT THEIR TREATMENT FACILITY LOCATED WITHIN THE BURBANK OU AREA. IF THESE CONCENTRATIONS OBSERVED AT LASC HAD BEEN USED, THE BASELINE RISK ASSESSMENT WOULD HAVE SHOWN EVEN HIGHER RISK.

ALTERNATIVE 5, PHASE 1 RISK ASSESSMENT: A RISK ASSESSMENT WAS PERFORMED FOR ALTERNATIVE 5, PHASE 1 (EXTRACTING AND TREATING 12,000 GPM WITH DUAL STAGE AIR STRIPPING AND VAPOR PHASE GAC). BOTH LASC MONITORING WELL DATA AND BURBANK PRODUCTION WELL DATA WERE USED. (SEE THE BURBANK OUFS REPORT FOR TABLES AND MORE INFORMATION.) THE CONTAMINANT MASS WAS CALCULATED FROM ESTIMATES OF

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THE CONCENTRATIONS IN THE GROUNDWATER (UG/M-) WHICH WOULD LIKELY BE EXTRACTED AND TREATED BY THE SYSTEM. THE EXPECTED CHEMICAL MASS DISCHARGED TO THE ATMOSPHERE (G/SEC) WAS CALCULATED WITH RESPECT TO THE THREE DIFFERENT AIR POLLUTION CONTROL OPTIONS. THE EXPECTED CHEMICAL MASS DISCHARGE WAS INPUT TO AN ATMOSPHERIC DISPERSION MODEL WHICH CALCULATED CONCENTRATIONS OF THE CHEMICALS IN THE AIR (UG/M3). THE CONCENTRATION IN THE AIR WAS MODELED TO BE SPATIALLY DISTRIBUTED IN A TWO-MILE RADIUS SURROUNDING THE PROPOSED AIR STRIPPER LOCATION (SEE FIGURE 2). THE POPULATION ESTIMATED TO RESIDE WITHIN TWO MILES OF THE SITE IN 1990 IS 94,195. THE 2010 POPULATION IS EXPECTED TO BE SLIGHTLY LOWER AT 93,765.

IN THE HEALTH RISK ASSESSMENT, THREE AIR STRIPPING AIR EMISSION CONTROL OPTIONS FOR PHASE I OF ALTERNATIVE 5 WERE EXAMINED;

- NO AIR POLLUTION CONTROL;
- AIR EMISSION CONTROLS LEADING TO 90 % REMOVAL OF VOCS; AND
- AIR EMISSIONS CONTROL LEADING TO 99 % REMOVAL OF VOCS.

TWO TYPES OF CARCINOGENIC RISK CALCULATIONS WERE PERFORMED. THE FIRST TYPE IS INDEPENDENT OF POPULATION AND IS TERMED THE MAXIMALLY EXPOSED INDIVIDUAL (MEI). THE MEI IS THE SITE OF HIGHEST ESTIMATED POTENTIAL EXPOSURE CALCULATED. THE MEI IS INDEPENDENT OF WHETHER THE SITE IS INHABITED THE TOTAL CANCER RISK TO THE MEI IS EXAMINED BY THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) TO ASCERTAIN IF A PROPOSED PROJECT IS EXPECTED TO EXCEED A TOTAL RISK OF 1 X 10-6. THE AIR MODELING RESULTS CONCLUDE THAT THE MEI OCCURS AT A DISTANCE 0.1 TO 0.2 MILES FROM THE SITE. THE TOTAL EXCESS ESTIMATED CANCER RISK (TO THE MEI) FOR THE THREE DIFFERENT AIR EMISSION CONTROL OPTIONS ARE AS FOLLOWS;

- NO AIR POLLUTION CONTROL: 5.98 X 10-6
- 90 % REMOVAL OF VOCS: 4.07 X 10-7
- 99 % REMOVAL OF VOCS: 4.07 X 10-8

THE SECOND TYPE OF RISK CALCULATION PRESENTED WAS FOR A POPULATION. FOR THE POPULATION RISK, THE INDIVIDUAL RISK LEVEL IS MULTIPLIED BY THE SIZE OF THE POTENTIALLY EXPOSED POPULATION. THE AIR CONCENTRATIONS GENERATED BY THE AIR MODEL, EXPRESSED AS THE ASSOCIATED RISK, ARE SUPERIMPOSED ON THE 1990 AND YEAR 2010 POPULATION DATA FOR A TWO-MILE RADIUS. THE PREDICTED TOTAL EXCESS POPULATION CANCER BURDEN IN A TWO-MILE ZONE UNDER CONDITIONS OF THE VARIOUS AIR EMISSION CONTROL OPTIONS ESTIMATED FOR THE 1990 POPULATION DATA ARE AS FOLLOWS;

- NO AIR POLLUTION CONTROL: 0.04 CANCERS/POPULATION;
- 90% REMOVAL OF VOCS: 0.003 CANCERS/POPULATION; AND
- 99% REMOVAL OF VOCS: 0.0003 CANCERS/POPULATION.

THUS, LESS THAN ONE EXCESS CANCER WOULD BE EXPECTED TO OCCUR IN THE POPULATION DUE TO THE EMISSIONS FROM THE PROJECT.

NON-CARCINOGENIC RISKS OR THE "HAZARD INDEX" (HI) WERE CALCULATED BY AN APPROACH SIMILAR TO THAT USED FOR CARCINOGENS. THE RULE OF THUMB IS THAT HI SHOULD NOT EXCEED ONE. THE HIS CALCULATED ARE SEVERAL ORDERS OF MAGNITUDE LESS THAN ONE, FOR ANY OF THE THREE AIR EMISSION CONTROL OPTIONS EXAMINED. AS A RESULT, THE PREDICTED EXPOSURE TO RECEPTORS DUE TO THE NON-CARCINOGENS EMITTED FROM THE AIR STRIPPING TOWERS WERE CONCLUDED TO BE INSIGNIFICANT FROM A HUMAN HEALTH PERSPECTIVE. (SEE THE BURBANK OUFS REPORT FOR MORE DETAIL ON THE RISK ASSESSMENT ANALYSIS.)

ALTHOUGH UNCONTROLLED EMISSIONS ARE NEAR EPA'S ACCEPTABLE EXCESS CANCER RISK NUMBER OF 1 X 10-6, IT IS UNACCEPTABLE TO NOT CONTROL EMISSIONS BECAUSE OF THE POOR AIR QUALITY IN THE BURBANK AREA. MOREOVER, EMISSION CONTROLS WOULD BE NEEDED TO COMPLY WITH REQUIREMENTS OF THE SCAQMD REGULATION 13. SEE SECTION 9, COMPLIANCE WITH ARARS FOR A MORE DETAILED EXPLANATION OF THE ARARS AND OTHER INFORMATION TO BE CONSIDERED (TBC).

#DA
8.0 DESCRIPTION OF ALTERNATIVES

MANY TECHNOLOGIES WERE EVALUATED BASED ON THESE CRITERIA DURING THE FEASIBILITY STUDY. TREATMENT TECHNOLOGIES THAT MAY BE APPLICABLE TO GROUNDWATER CONTAMINATED WITH VOLATILE ORGANIC COMPOUNDS, PRIMARILY TCE AND PCE, WERE SCREENED BASED ON TWO CRITERIA: (1) THEIR ABILITY TO MEET THE REMEDIAL RESPONSE OBJECTIVES; AND, (2) THE APPLICABILITY AND FEASIBILITY OF THE

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TECHNOLOGY TO THE SITE CONDITIONS.

AFTER THE INITIAL SCREENING, SIX ALTERNATIVES WERE EVALUATED USING THE FOLLOWING SUPERFUND GUIDANCE CRITERIA: TECHNICAL AND ADMINISTRATIVE FEASIBILITY, CAPITAL COSTS, OPERATION AND MAINTENANCE COSTS, ENVIRONMENTAL IMPACTS, PROTECTION OF PUBLIC HEALTH AND THE ENVIRONMENT, COMPLIANCE WITH FEDERAL AND STATE REGULATIONS, AND COMMUNITY AND STATE ACCEPTANCE.

THE FOLLOWING IS A LIST OF THE ALTERNATIVES ANALYZED AND COMPARED DURING THE FS AND FOUND IN THE BURBANK OUFS REPORT;

ALT 1 - NO ACTION
ALT 2 - EXTRACT FROM EXISTING WELLS/TREAT/REINJECT AND REUSE
ALT 3 - EXTRACT FROM NEW WELLS/TREAT/REINJECT AND REUSE
ALT 4 - EXTRACT FROM NEW AND EXISTING WELLS/TREAT/SPREAD AND REUSE
ALT 5 - EXTRACT FROM NEW AND EXISTING WELLS/TREAT/REUSE
ALT 6 - EXTRACT FROM EXISTING WELLS/TREAT/REUSE.

THE FOLLOWING DESCRIPTIONS GIVE A SUMMARY OF THE ALTERNATIVE FEATURES. SEE THE BURBANK OUFS REPORT FOR MORE DETAIL.

ALTERNATIVE 1 - NO ACTION ALTERNATIVE

THE NO ACTION ALTERNATIVE SERVED AS A BASIS FOR COMPARING THE OTHER REMEDIAL ALTERNATIVES. THIS ALTERNATIVE IS EVALUATED TO DETERMINE THE RISKS THAT WOULD BE POSED TO PUBLIC HEALTH AND THE ENVIRONMENT IF NO ACTION WERE TAKEN TO TREAT OR CONTAIN THE CONTAMINATION. THIS ALTERNATIVE WOULD INCLUDE QUARTERLY MONITORING OF THE TEN EXISTING BURBANK PUBLIC SERVICE DEPARTMENT (PSD) WELLS. THE MONITORING PROGRAM WOULD HELP TO ENSURE THAT GROUNDWATER WOULD NOT BE USED WHEN CONCENTRATIONS OF VOCS EXCEED MCLS AND SALS. IT SHOULD BE NOTED THAT CURRENTLY AIL OF THE CITY OF BURBANK'S WELLS HAVE BEEN SHUT DOWN DUE TO THE VOC CONTAMINATION AND THE CITY BUYS ALL ITS WATER FROM THE METROPOLITAN WATER DISTRICT (MWD).

THE FEDERAL AND STATE MCLS ARE RELEVANT AND APPROPRIATE IN THE AQUIFER.

ALTERNATIVE 2 - 6

ALTERNATIVES 2 THROUGH 6 INCLUDE EXTRACTION OF GROUNDWATER, TREATMENT WITH AIR STRIPPING WITH VAPOR PHASE GAC ADSORPTION UNITS, AND DISCHARGE OF THE TREATED GROUNDWATER. THE FOLLOWING IS A DESCRIPTION OF THE TREATMENT SYSTEM PROPOSED IN THE FEASIBILITY STUDY REPORT.

AIR STRIPPING (OR AERATION) IS A METHOD THAT REMOVES VOCS FROM WATER BY VOLATILIZATION AT THE AIR-WATER INTERFACE. THE PUMPED GROUNDWATER IS RUN DOWN THROUGH A VERTICAL COLUMN WHICH CONTAINS A PACKING MEDIUM. THE MEDIUM PROVIDES SURFACE AREA OVER WHICH A COUNTERCURRENT FLOW OF AIR IS INTRODUCED. THE CONTAMINANT IS TRANSFERRED FROM THE WATER TO THE AIR AND THUS REMOVED FROM THE WATER. THE EFFICIENCY OF THE PROCESS IS DEPENDENT ON THE NATURE OF THE CONTAMINANT, ITS INFLUENT CONCENTRATION, THE RATE OF AIR FLOW, AND THE AVAILABLE SURFACE AREA AFFORDED BY THE PACKING MATERIAL. FOR TCE AND PCE, REMOVAL EFFICIENCIES CAN EXCEED 99 PERCENT. AERATION IS A PROVEN METHOD AND IS COMMONLY USED TO TREAT GROUNDWATER.

DUAL STAGE AIR STRIPPING USES TWO AIRSTRIPPING TOWERS IN SERIES TO REMOVE CONTAMINANTS FROM WATER. TREATED WATER FROM THE BASE OF THE FIRST AIR STRIPPING TOWER IS PUMPED TO THE TOP OF THE SECOND AIR STRIPPING TOWER AND AERATED A SECOND TIME. DUAL STAGE AIR STRIPPING IS PREFERABLE TO SINGLE STAGE AIR STRIPPING BECAUSE THE CONTAMINATED WATER HERE IS EXPECTED TO HAVE HIGH LEVELS OF TCE AND PCE.

AIR STRIPPING HAS TWO DRAWBACKS WITH RESPECT TO PUBLIC HEALTH AND THE ENVIRONMENT. FIRST, THERE IS THE POSSIBILITY OF LOW-LEVEL, LONG-TERM CANCER RISK TO THE LOCAL POPULATION DUE TO THE RELEASE OF VOLATILIZED CONTAMINANTS INTO THE AIR. SECONDLY, THIS RELEASE OF CONTAMINANTS ALSO CONTRIBUTES TO AIR QUALITY DEGRADATION WHICH IN TURN AFFECTS HUMAN HEALTH AND THE ENVIRONMENT.

THEREFORE IF DUAL STAGE AIR STRIPPERS ARE USED AS THE TREATMENT TECHNOLOGY, VAPOR PHASE GAC ADSORPTION UNITS WILL BE INSTALLED TO REMOVE 90 - 99% OF THE VOCS DISCHARGED TO THE AIR. AIR EMISSION CONTROLS WOULD MINIMIZE THE NEGATIVE IMPACT ON PUBLIC HEALTH AND THE ENVIRONMENT. (SEE SECTION 9, COMPLIANCE WITH ARARS, COMMUNITY ACCEPTANCE AND STATE ACCEPTANCE, FOR MORE DETAILED

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SUPPORT DOCUMENTATION.)

IT HAS BEEN DETERMINED THAT PURE PRODUCT IN THE FORM OF TCE AND PCE (U210 AND U228) ARE CONTAINED IN THE GROUNDWATER MAKING RCRA SECTION 261.33 APPLICABLE FOR THIS ACTION. THE GROUNDWATER ALSO CONTAINS SPENT TCE AND PCE THAT WAS USED IN DEGREASING. THE LISTING IN 40 CFR SUBPART D SECTION 261.31 THAT PERTAINS TO SPENT HALOGENATED SOLVENTS USED IN DEGREASING IS F001. THIS LISTING REQUIRES KNOWLEDGE OF THE PERCENT SOLVENT BY VOLUME BEFORE USE. THIS INFORMATION IS UNAVAILABLE FOR THE BURBANK OU MAKING THE RCRA F001 LISTING NOT APPLICABLE BUT RELEVANT AND APPROPRIATE FOR THIS ACTION.

IN ALTERNATIVES 2-6, THE SPENT CARBON IS CONSIDERED A RCRA WASTE OR IT IS A MIXTURE OF THE SOLID WASTE CARBON AND THE RCRA LISTED WASTES F001, U210, AND U228 (40 CFR SECTION 261.3(A)(2)(IV)). THEREFORE THE CARBON MUST SATISFY THE REQUIREMENTS OF 40 CFR PART 263 TO BE SHIPPED OFF SITE FOR REGENERATION.

THE FEDERAL AND STATE MCLS ARE RELEVANT AND APPROPRIATE IN THE AQUIFER. MOREOVER, THE MCLS ARE THE ARARS THAT WILL BE MET IN THE TREATED WATER. THIS WATER WILL BE EITHER REINJECTED, SPREAD, OR REUSED AS A DRINKING WATER SOURCE.

ALTERNATIVE 2 - EXTRACT FROM EXISTING WELLS, TREAT, REINJECT AND REUSE

THIS ALTERNATIVE INCLUDES PUMPING 16,000 GPM OF WATER FROM EIGHT BURBANK PSD WELLS (LOCATED WEST OF THE HIGHEST KNOWN TCE AND PCE CONTAMINATION) TO AN EXISTING EQUALIZATION BASIN, WHICH WOULD BE RETROFITTED, TO PROVIDE A UNIFORM FEED TO THE TREATMENT FACILITY. THE WATER WOULD BE TREATED BY EIGHT SETS OF DUAL STAGE AIR STRIPPERS (AS) WITH VAPOR PHASE GAC ADSORPTION UNITS FOR THE OFF-GAS.

TREATMENT EFFICIENCY COULD PRODUCE EFFLUENT WATER OF A QUALITY THAT MEETS OR EXCEEDS ALL FEDERAL AND STATE APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS). FOUR THOUSAND GALLONS PER MINUTE (4000 GPM) OF THE TREATED WATER WOULD BE INTRODUCED INTO BURBANK'S EXISTING DISTRIBUTION SYSTEM FOR REUSE. THE REMAINDER OF THE TREATED WATER WOULD BE INJECTED INTO THE AQUIFER DOWNGRADIENT OF THE VOC PLUME TO REDUCE VOC MOVEMENT. THE REINJECTION WOULD HELP ENHANCE PLUME CONTAINMENT AND AQUIFER RESTORATION. THE TREATED WATER WOULD BE DELIVERED TO THE INJECTION FIELD BY A NEW PIPELINE TO BE CONSTRUCTED ALONG VICTORY BOULEVARD.

AFTER 20 YEARS OF EXTRACTION, CONCENTRATIONS OF TCE AND PCE IN THE GROUNDWATER WOULD STILL EXCEED MCLS. SINCE THE PLUME MIGRATION WOULD BE DIVERTED FROM ITS CURRENT PATH TOWARDS BURBANK'S PRODUCTION WELLS, THE PSD WELLS COULD PRODUCE GROUNDWATER WITH HIGHER CONCENTRATIONS OF PCE AND TCE.

THIS ALTERNATIVE WOULD BE EXPECTED TO REDUCE TCE CONCENTRATIONS IN THE AQUIFER FROM 3,200 PPB TO 590 PPB IN 20 YEARS. THIS ALTERNATIVE WOULD PARTIALLY ARREST THE MIGRATION OF THE TCE AND PCE PLUMES.

SIX MONITORING WELLS WOULD BE INSTALLED TO MONITOR THE PERFORMANCE OF THE SYSTEM.

SINCE THE GROUNDWATER HAS BEEN DETERMINED TO CONTAIN RCRA LISTED WASTES, IT MUST SATISFY THE REQUIREMENTS OF RCRA LAND DISPOSAL RESTRICTIONS (LDR), 40 CFR SECTION 268. THE LDR DEFINES THE REQUIREMENTS FOR REINJECTION OR LAND DISPOSAL. THEREFORE, THE WATER MUST BE TREATED TO MEET THE BEST DEMONSTRATED AVAILABLE TREATMENT TECHNOLOGY (BDAT) STANDARDS FOR SPENT PCE AND TCE WHICH ABE NEEDED FROM THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - LOS ANGELES REGION.

APPROVAL FOR REUSE WOULD BE REQUIRED BY CALIFORNIA DEPARTMENT OF HEALTH SERVICES (DHS) AND THE CITY OF BURBANK. EPA, DHS, AND THE CITY HAVE ALREADY BEGUN DISCUSSIONS OVER THE POSSIBILITY OF THE CITY'S REUSE OF THE WATER.

THERE ARE SOME TECHNICAL CONCERNS OVER THE OPERATION OF INJECTION WELLS DUE TO THE UNCERTAINTIES OF THE CONTAMINATION PLUMES AND OPERATIONAL EFFECTIVENESS OF INJECTION WELLS.

ALTERNATIVE 3 - EXTRACT FROM NEW WELLS, TREAT, REINJECT AND REUSE

THIS ALTERNATIVE IS SIMILAR TO ALTERNATIVE 2 EXCEPT THAT TEN NEW EXTRACTION WELLS WOULD BE CONSTRUCTED TO EXTRACT THE 16,000 GPM OF CONTAMINATED GROUNDWATER. ALTHOUGH THE COST OF

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INSTALLING EXTRACTION WELLS WOULD BE GREATER THAN PUMPING THE EXISTING WELLS, THE NEW WELLS WOULD BE OPTIMALLY LOCATED TO MAXIMIZE THE REMOVAL OF CONTAMINANTS FROM THE GROUNDWATER. THE TREATMENT, DISPOSAL, AND MONITORING TECHNOLOGIES WOULD BE THE SAME AS THOSE EMPLOYED IN ALTERNATIVE 2.

THIS ALTERNATIVE IS ESTIMATED TO REDUCE TCE CONCENTRATIONS FROM 3200 PPB TO 81 PPB IN THE FIRST 10 YEARS, AND MORE THEREAFTER. IT IS ESTIMATED IT WOULD REDUCE PCE CONCENTRATIONS FROM OVER 4000 PPB TO 30 PPB IN 20 YEARS. ALTERNATIVE 3 WOULD BE SUCCESSFUL IN HALTING PLUME MIGRATION AND IN MITIGATING THE VOC CONTAMINATION (CONTRIBUTING TO AQUIFER RESTORATION).

SINCE THE GROUNDWATER HAS BEEN DETERMINED TO CONTAIN RCRA LISTED WASTES, IT MUST SATISFY THE REQUIREMENTS OF RCRA LAND DISPOSAL RESTRICTIONS (LDR), 40 CFR SECTION 268. THE LDR DEFINES THE REQUIREMENTS FOR REINJECTION OR LAND DISPOSAL. THEREFORE, THE WATER MUST BE TREATED TO MEET THE BEST DEMONSTRATED AVAILABLE TREATMENT TECHNOLOGY (BDAT) STANDARDS FOR SPENT PCE AND TCE WHICH ARE .079 PPM PCE AND .062 PPM TCE (40 CFR PART 268.42). APPROVAL FOR REINJECTION WOULD ALSO BE NEEDED FROM THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - LOS ANGELES REGION.

APPROVAL FOR REUSE WOULD BE REQUIRED BY CALIFORNIA DEPARTMENT OF HEALTH SERVICES (DHS) AND THE CITY OF BURBANK. EPA, DHS, AND THE CITY HAVE ALREADY BEGUN DISCUSSIONS OVER THE POSSIBILITY OF THE CITY'S REUSE OF THE WATER.

THERE WOULD BE SIGNIFICANT GAINS IN AQUIFER RESTORATION AND CONTROL OF THE PLUME MIGRATION WITH THIS ALTERNATIVE.

ALTERNATIVE 4 - EXTRACT FROM NEW AND EXISTING WELLS/TREAT/SPREAD AND REUSE.

THE MAJOR FEATURES OF THIS ALTERNATIVE INCLUDE EXTRACTION OF 16,000 GPM FROM 10 NEW WELLS AND 6,000 GPM FROM 5 EXISTING WELLS, TREATMENT WITH EITHER DUAL STAGE OR SINGLE STAGE AS WITH VAPOR PHASE GAC, REUSE OF 4000 GPM BY THE CITY OF BURBANK AND DISCHARGE OF 18,000 GPM TO SPREADING GROUNDS FOR RECHARGE. SIX MONITORING WELLS WOULD BE INSTALLED TO ASSESS THE EFFECTIVENESS OF THE SYSTEM.

ALTERNATIVE 4 WAS DEVELOPED TO COMPARE THE OPTION OF GROUNDWATER RECHARGE BY SPREADING WITH GROUNDWATER RECHARGE BY INJECTION. THIS COMPARISON ADDRESSES UNCERTAINTIES ASSOCIATED WITH THE CAPACITY, OPERATION AND MAINTENANCE OF INJECTION WELLS USED IN ALTERNATIVES 2 AND 3, AND THE OVERALL UNCERTAINTIES ASSOCIATED WITH THE CHARACTERIZATION OF PLUME CONTAMINATION.

BECAUSE THE TREATED WATER WOULD NOT BE REINJECTED INTO THE AQUIFER DOWNGRADIENT OF THE VOC PLUME AS IN ALTERNATIVES 2 AND 3, THE EXTRACTION RATE OF CONTAMINATED GROUNDWATER WOULD HAVE TO BE HIGHER TO ACHIEVE A SIMILAR GRADIENT REVERSAL. IN THIS ALTERNATIVE, THE WATER FROM TEN NEW EXTRACTION WELLS AND FIVE EXISTING BURBANK PSD WELLS WOULD BE PUMPED TO AN EXISTING EQUALIZATION BASIN, WHICH WOULD BE RETROFITTED, TO DELIVER TWO TREATMENT STREAMS TO THE TREATMENT FACILITY. THE WATER WOULD BE TREATED BY SIX SETS OF DUAL STAGE CARBON AIR FILTERING UNITS AND FIVE SINGLE-STAGE AIR STRIPPERS WITH CARBON AIR FILTERING UNITS, DEPENDING ON THE AMOUNT OF WATER FLOWING INTO THE SYSTEM. EACH TREATMENT MODULE WOULD BE DESIGNED TO TREAT THE WATER AND AIR TO MEET THE ARARS AND TBCS (SEE SECTION 9, COMPLIANCE WITH ARARS).

SINCE THE GROUNDWATER HAS BEEN DETERMINED TO CONTAIN THE RCRA LISTED WASTES F001, U210 AND U228, IT MUST BE TREATED TO "NO LONGER CONTAIN" THESE LISTED WASTES BEFORE BEING SPREAD FOR RECHARGE. (SEE MEMORANDUM FROM MARCIA E. WILLIAMS, OFFICE OF SOLID WASTE DIRECTOR, TO PATRICK TOBIN, WASTE MANAGEMENT DIVISION DIRECTOR, REGARDING RCRA REGULATORY STATUS OF CONTAMINATED GROUND WATER, NOVEMBER 13, 1986.)

APPROVAL FOR REUSE WOULD BE REQUIRED BY CALIFORNIA DEPARTMENT OF HEALTH SERVICES (DHS) AND THE CITY OF BURBANK. EPA, DHS, AND THE CITY HAVE ALREADY BEGUN DISCUSSIONS OVER THE POSSIBILITY OF THE CITY'S REUSE OF THE WATER.

THIS ALTERNATIVE IS ESTIMATED TO REDUCE TCE CONCENTRATIONS FROM 3,200 PPB TO 122 PPB IN 10 YEARS AND MORE THEREAFTER. PCE CONCENTRATIONS ARE ESTIMATED TO REDUCE FROM OVER 4000 PPB TO 39 PPB IN 20 YEARS. THERE WOULD BE SIGNIFICANT GAINS IN AQUIFER RESTORATION AND CONTROL OF THE PLUME MIGRATION WITH THIS ALTERNATIVE.

THE OUFS REPORT DETERMINED THAT SPREADING BASINS MAY BE MORE RELIABLE THAN INJECTION WELLS.

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ALTERNATIVE 5 - EXTRACT FROM NEW AND EXISTING WELLS/TREAT/REUSE

THIS ALTERNATIVE USES THE SAME EXTRACTION, TREATMENT, AND MONITORING TECHNOLOGIES AS THOSE SPECIFIED IN ALTERNATIVE 4. THIS ALTERNATIVE IS UNIQUE IN THAT ALL OF THE TREATED WATER WOULD BE USED FOR POTABLE WATER SUPPLY. THE TREATED WATER WOULD BE AT OR BELOW THE FEDERAL AND STATE MCLS AND SALS (ARARS).

A PORTION OF THE TREATED WATER WOULD BE INTRODUCED INTO THE BURBANK PSD'S EXISTING DISTRIBUTION SYSTEM FOR REUSE, WHICH WOULD MEET THE CITY OF BURBANK'S CURRENT AVERAGE DAILY DEMAND (12,000 GPM). THE REMAINDER OF THE TREATED WATER (10,000 GPM) COULD BE INTRODUCED INTO THE METROPOLITAN WATER DISTRICT (MWD) DISTRIBUTION LINES.

UNDER THIS ARRANGEMENT, THE PARTIES INVOLVED WOULD HAVE TO ENTER INTO AGREEMENTS FOR THIS EXCHANGE BECAUSE THE SAN FERNANDO VALLEY GROUNDWATER BASIN IS AN ADJUDICATED BASIN AND THE NET EXTRACTION OF GROUNDWATER IN THIS ALTERNATIVE WOULD EXCEED THE BURBANK PSD'S PUMPING RIGHTS. ALSO, MWD DOES NOT HAVE ANY PUMPING RIGHTS. HOWEVER, INSTITUTIONAL ARRANGEMENTS COULD BE WORKED OUT BETWEEN THE LADWP AND THE OTHER PARTIES, SINCE LADWP DOES HAVE PUMPING RIGHTS. PRELIMINARY DISCUSSIONS WITH THE CITY OF BURBANK AND LADWP HAVE BEEN INITIATED AND THE PARTIES ARE IN AGREEMENT THAT ADMINSTRATIVE AGREEMENTS COULD BE ARRANGED (FOR THE REUSE OF 12,000 GPM).

ALTERNATIVE 5 COULD BE IMPLEMENTED IN TWO PHASES. PHASE 1 WOULD CONSIST OF EXTRACTING 12,000 GPM FROM NEW WELLS, TREATING WITH DUAL STAGE AS WITH VAPOR PHASE GAC, AND REUSING THE TREATED WATER BY THE CITY OF BURBANK. PHASE 2 COULD CONSIST OF EXTRACTING THE REMAINDER 10,000 GPM (TOTAL 22,000 GPM) FROM NEW AND EXISTING WELLS, TREATING WITH AS WITH VAPOR PHASE GAC ADSORPTION UNITS AND REUSING BY MWD CUSTOMERS.

IT IS ESTIMATED THAT PHASE 1 WOULD CONTROL MOST OF THE PLUME MIGRATION (100 UG/1 TCE PLUME BOUNDARY AND 5 UG/1 PCE PLUME BOUNDARY) WHILE AIDING WITH AQUIFER RESTORATION AND THE TOTAL PROJECT (PHASE 1 AND PHASE 2) WOULD REDUCE CONCENTRATIONS TO THE SAME LEVELS AS ALTERNATIVE 4.

DUE TO THE LARGE SIZE OF THE TOTAL PROJECT, AND THE UNCERTAINTIES ASSOCIATED WITH THE MODELING AND EXTENT OF CONTAMINATION, EPA BELIEVED IT WAS IMPORTANT TO LOOK AT PHASING ALTERNATIVE 5; THEREBY, INITIATING THE NECESSARY REMEDIATION, WHILE CONDUCTING FURTHER EVALUATIONS TO REFINE TECHNICAL FEATURES IN ORDER TO MAXIMIZE THE EFFECTIVENESS OF THE TOTAL PROJECT.

ALTERNATIVE 6 - EXTRACT FROM EXISTING WELLS/TREAT/REUSE

THE TECHNICAL FEATURES OF THIS ALTERNATIVE INCLUDE EXTRACTING 4000 GPM FROM TWO EXISTING BURBANK PSD WELLS, TREATING THE WATER WITH DUAL STAGE AS WITH VAPOR PHASE GAC ADSORPTION UNITS, AND REUSING THE TREATED WATER BY THE CITY OF BURBANK.

THIS ALTERNATIVE WOULD NOT RESTRICT THE PLUME'S MIGRATION, NOR WOULD IT SIGNIFICANTLY AID IN AQUIFER RESTORATION.

#SCAA
9.0 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

THIS SECTION PROVIDES A SUMMARY OF THE ADVANTAGES AND DISADVANTAGES OF EACH OF THE ALTERNATIVES' PERFORMANCE UNDER THE NINE EVALUATION CRITERIA.

TABLE 3 PROVIDES A SUMMARY OF THE ANALYSES OF ALTERNATIVES. THE ALTERNATIVES WERE EVALUATED BASED ON THE FOLLOWING CRITERIA FOR CONDUCTING FEASIBILITY STUDIES;

(1) OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT,
(2) SHORT TERM EFFECTIVENESS IN PROTECTING HUMAN HEALTH AND THE ENVIRONMENT,
(3) LONG-TERM EFFECTIVENESS AND PERMANENCE IN PROTECTING HUMAN HEALTH AND THE ENVIRONMENT,
(4) COMPLIANCE WITH ARARS,
(5) REDUCTION OF TOXICITY, MOBILITY, AND VOLUME OF CONTAMINANTS,
(6) TECHNICAL AND ADMINISTRATIVE FEASIBILITY OF IMPLEMENTATION,
(7) STATE ACCEPTANCE,
(8) COMMUNITY ACCEPTANCE, AND
(9) CAPITAL AND OPERATION AND MAINTENANCE COSTS.

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THE NINE CRITERIA AND THE RELATIVE PERFORMANCE OF THE ALTERNATIVES IN RELATION TO EACH CRITERION AND EACH OTHER IS SUMMARIZED BELOW.

OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

ALTERNATIVES 3, 4, AND 5 PROVIDE THE BEST PROTECTION TO HUMAN HEALTH AND THE ENVIRONMENT. ENVIRONMENTAL DEGRADATION WOULD BE REDUCED SINCE THE PLUME OF GROUNDWATER CONTAMINATION WOULD BE REDUCED IN CONCENTRATION AND EXTENT. INSTITUTIONAL CONTROLS WOULD CONTROL THE RISK OF INGESTION OF CONTAMINATED GROUNDWATER, SINCE ONLY TREATED WATER WOULD BE SERVED. DRINKING WATER WOULD BE PROVIDED VIA SURFACE WATER FROM THE MWD AND/OR TREATED GROUNDWATER FROM THE STRIPPING UNITS.

ALTERNATIVES L, 2 AND 6 ARE NOT AS PROTECTIVE OF THE ENVIRONMENT BECAUSE ENVIRONMENTAL DEGRADATION WOULD INCREASE OVER TIME. ALTERNATIVE 1, THE NO ACTION ALTERNATIVE, WOULD ALLOW THE CONTAMINATION TO CONTINUE SPREADING. ALTHOUGH ALTERNATIVES 2 AND 6 EXTRACT AND TREAT SOME OF THE CONTAMINATED GROUNDWATER, THE EXTRACTION WELLS WOULD NOT BE STRATEGICALLY LOCATED TO CAPTURE THE HIGHER GROUNDWATER CONTAMINANT CONCENTRATIONS. INSTITUTIONAL CONTROLS IN ALTERNATIVES 1, 2, AND 6 FOR THE PROTECTION OF DRINKING WATER WOULD BE THE SAME AS IN ALTERNATIVES 3, 4, AND 5.

COMPLIANCE WITH ARARS

THIS SECTION WILL OUTLINE THE APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) AND OTHER INFORMATION THAT EPA CONSIDERED FOR THIS SITE. THEN IT WILL COMPARE THE ALTERNATIVES WITH ONE ANOTHER REGARDING THESE ARARS AND TO BE CONSIDEREDS (TBCS).

THERE ARE ARARS AND TBCS THAT APPLY TO BOTH THE WATER AND AIR FOR THIS RESPONSE ACTION. THESE CAN BE SEPARATED INTO CHEMICAL SPECIFIC AND PRIMARY ACTION SPECIFIC ARARS AND TBCS.

WATER ARARS AND TBCS: THERE ARE CHEMICAL SPECIFIC ARARS AND TBCS FOR WATER WHICH WILL BE DESCRIBED HERE. FIRST, THE ARARS FOR THE WATER ARE THE SAFE DRINKING WATER ACT MAXIMUM CONTAMINANT LEVELS (MCLS). IN ACCORDANCE WITH THE EPA "INTERIM GUIDANCE ON COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (OSWER DIRECTIVE 9234.0-05)," THE MCLS ARE CONSIDERED THE CHEMICAL-SPECIFIC ARARS BECAUSE THEY ARE THE ENFORCEABLE DRINKING WATER STANDARDS. THEY ARE REQUIRED TO BE SET AS CLOSE TO THE MAXIMUM CONTAMINANT LEVEL GOALS (MCLGS) AS IS FEASIBLE, TAKING INTO CONSIDERATION THE BEST AVAILABLE TECHNOLOGY, TREATMENT TECHNIQUES AND OTHER FACTORS (INCLUDING COST). THEY ARE ALSO PROTECTIVE OF PUBLIC HEALTH TO WITHIN EPA'S ACCEPTABLE CARCINOGEN RISK RANGE OF 10-4 TO 10-7. THE MCL OF PARTICULAR IMPORTANCE FOR THIS RESPONSE ACTION IS THE MCL OF 5 PPB FOR TCE.

MCLGS, WHICH ARE BASED ONLY UPON HEALTH CRITERIA, ARE NOT DIRECTLY APPLICABLE AS CHEMICAL-SPECIFIC REQUIREMENTS BECAUSE THEY ARE NOT ENFORCEABLE STANDARDS.

EPA ALSO CONSIDERED THE CALIFORNIA DHS'S ACTION LEVELS FOR VOCS, A FEW OF WHICH ARE MORE STRINGENT THAN THE MCLS OR FOR WHICH NO MCL HAS BEEN ESTABLISHED. WHILE THE DHS ACTION LEVELS ARE NOT PROMULGATED STANDARDS AND ARE NOT, THEREFORE, ARARS, THEY HAVE BEEN TAKEN INTO CONSIDERATION DURING DEVELOPMENT OF REMEDIAL ACTION ALTERNATIVES AS ALLOWED FOR IN THE NATIONAL CONTIGENCY PLAN (NCP). IN ADDITION, DHS HAS RECENTLY PROPOSED MCLS FOR A NUMBER OF VOCS. OF PARTICULAR SIGNIFICANCE, THE PROPOSED MCL FOR PCE IS 5 PPB, WHICH IS JUST SLIGHTLY HIGHER THAN THE CURRENT DHS ACTION LEVEL OF 4 PPB.

TABLE 4 LISTS THE FEDERAL MCLS, MCLGS AND SALS FOR THE PRIMARY CONTAMINANTS DETECTED IN THE BURBANK OPERABLE UNIT AREA. THE REMEDIAL ACTION SELECTED WILL MEET THE FEDERAL MCL FOR TCE (LESS THAN 5 PPB) AND THE SAL FOR PCE (LESS THAN 4 PPB).

IT HAS BEEN DETERMINED THAT PURE PRODUCT IN THE FORM OF TCE AND PCE (U210 AND U228) ARE CONTAINED IN THE GROUNDWATER MAKING RCRA SECTION 261.33 APPLICABLE FOR THIS ACTION. THE GROUNDWATER ALSO CONTAINS SPENT TCE AND PCE THAT WAS USED IN DEGREASING. THE LISTING IN 40 CFR SUBPART D SECTION 261.31 THAT PERTAINS TO SPENT HALOGENATED SOLVENTS USED IN DEGREASING IS F001. THIS LISTING REQUIRES KNOWLEDGE OF THE PERCENT SOLVENT BY VOLUME BEFORE USE. THIS INFORMATION IS UNAVAILABLE FOR THE BURBANK OU MAKING THE RCRA F001 LISTING NOT APPLICABLE BUT RELEVANT AND APPROPRIATE FOR THIS ACTION.

AIR ARARS AND TBCS: THERE ARE PRIMARY ACTION-SPECIFIC ARARS AND TBCS FOR THE AIR DISCHARGE WHICH WILL AFFECT THIS RESPONSE ACTION. IN CALIFORNIA, THE AUTHORITY TO REGULATE STATIONARY

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SOURCES OF EMISSIONS HAS BEEN DELEGATED TO LOCAL AIR QUALITY MANAGEMENT DISTRICTS. THE BURBANK OU IS LOCATED IN THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD). THEREFORE, SCAQMD REGULATIONS CONSTITUTE GENERALLY APPLICABLE, PROMULGATED STATE REQUIREMENTS UNDER STATE ENVIRONMENTAL LAW, AS SET FORTH IN SECTION 121(D) OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA).

EPA CONSIDERED SCAQMD REGULATION XIII (COMPRISING RULES 1300 TO 1313), WHICH REQUIRES THAT STATIONARY SOURCES OF AIR EMISSIONS MEET BEST AVAILABLE CONTROL TECHNOLOGY (BACT) STANDARDS. REGULATION 13 STATES THAT NEW STATIONARY SOURCES OF AIR CONTAMINANTS IN THE AIR BASIN THAT EMIT REACTIVE ORGANIC GASES MUST EMPLOY BACT AIR POLLUTION CONTROL DEVICES. THESE BACT DEVICES ARE DEFINED AS "THE MOST STRINGENT EMISSION...CONTROL TECHNIQUE WHICH... IS FOUND... TO BE TECHNOLOGICALLY FEASIBLE AND COST EFFECTIVE...." (SEE THE ADMINISTRATIVE RECORD FOR THE BURBANK OU FOR A COPY OF REGULATION XIII.) IT IS ESTIMATED THAT, IF THERE ARE NO EMISSIONS CONTROLS, THE AIR STRIPPERS CONTEMPLATED FOR THE BURBANK OU WOULD EMIT OVER 168 POUNDS PER DAY OF REACTIVE ORGANIC GASES TO THE ATMOSPHERE. FOR AIR STRIPPERS, SCAQMD CONSIDERS VAPOR PHASE GAC (WITH 90 TO 99% REMOVAL EFFICIENCY) DEVICES TO BE BACT.

EPA ALSO CONSIDERED SCAQMD RULES 1401 AND 1167 AS "OTHER INFORMATION TO BE CONSIDERED," PURSUANT TO THE NCP.

PROPOSED RULE 1401 - NEW SOURCE REVIEW OF CARCINOGENIC AIR CONTAMINANTS - SPECIFIES LIMITS FOR INDIVIDUAL CANCER RISK AND EXCESS CANCER CASES FROM NEW STATIONARY SOURCES WHICH EMIT CARCINOGENIC AIR CONTAMINANTS. THE RULE REQUIRES BACT FOR TOXIC AIR DISCHARGE FOR NEW STATIONARY SOURCES WHERE A LIFETIME MAXIMUM INDIVIDUAL CANCER RISK OF ONE IN ONE MILLION OR GREATER IS ESTIMATED TO OCCUR. TCE IS A LISTED CARCINOGENIC AIR CONTAMINANT. RESULTS FROM THE PUBLIC HEALTH ASSESSMENT SHOW THAT TCE EMISSIONS AFTER TREATMENT ON THE VAPOR PHASE WOULD MEET RULE 1401'S REQUIREMENTS.

RULE 1167'S PURPOSE IS TO CONTROL VOCS AS PRECURSOR EMISSIONS TO OZONE FORMATION IN THE SOUTH COAST AIR BASIN. THE SOUTH COAST AIR BASIN IS CURRENTLY IN NON-ATTAINMENT STATUS WITH RESPECT TO THE NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS) FOR OZONE, AND VOCS ARE KNOWN PRECURSORS TO OZONE FORMATION. RULE 1167 IS DESIGNED TO REDUCE VOC EMISSIONS FROM NEW AND EXISTING AIR STRIPPING EQUIPMENT USED FOR TREATMENT OF CONTAMINATED WATER. THE RULE REQUIRES THAT ALL AIR STRIPPING FACILITIES TREATING CONTAMINATED GROUNDWATER THAT EMIT MORE THAN ONE POUND PER DAY OF TOTAL VOC EMISSIONS INSTALL AIR EMISSION CONTROLS CAPABLE OF REDUCING AIR EMISSIONS BY 90%.

ALTHOUGH RULE 1167 WAS STAYED BY THE CALIFORNIA SUPERIOR COURT UNTIL AN ENVIRONMENTAL IMPACT REPORT IS COMPLETED, IT IS CONSIDERED IN THE REMEDY SELECTION PROCESS AS A TBC SINCE SCAQMD FULLY INTENDS TO MEET THE REQUIREMENTS SET BY THE COURT JUDGMENT AND PROCEED TOWARD ADOPTION OF THIS RULE AS A PROMULGATED, LEGALLY ENFORCEABLE, GENERALLY APPLICABLE REQUIREMENT IN THE NEAR FUTURE.

INSTALLATION OF AN AIR STRIPPING SYSTEM WITH AIR EMISSION CONTROLS IS MORE PROTECTIVE OF THE ENVIRONMENT IN THAT IT WILL REDUCE OZONE PRECURSOR EMISSIONS TO THE ATMOSPHERE BY 90 TO 99% AND WILL SUPPORT EFFORTS BY SCAQMD TO REACH ATTAINMENT STATUS FOR OZONE IN THE SOUTH COAST AIR BASIN.

COMPARISON OF ALTERNATIVES: ALTERNATIVE 1, THE NO ACTION ALTERNATIVE, WOULD MEET THE DRINKING WATER ARARS BECAUSE INSTITUTIONAL CONTROLS WOULD CONTINUE TO ASSURE THAT THE PUBLIC WAS PROVIDED WITH DRINKING WATER THAT MEETS THE FEDERAL AND STATE MCLS AND SALS. ALSO SINCE NO SYSTEM WOULD BE IN PLACE, THE SCAQMD'S RULES WOULD NOT BE VIOLATED. WATER TREATED AND DISCHARGED FROM ALTERNATIVES 2 - 6 WOULD MEET THE FEDERAL AND STATE MCLS AND SALS BEFORE REUSE, INJECTION OR SPREADING. AIR STRIPPING SYSTEMS WOULD HAVE VAPOR PHASE GAC ADSORPTION UNITS TO CONTROL AIR EMISSIONS TO 90 - 99% REMOVAL EFFICIENCY TO MEET THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT'S RULES. STEAM STRIPPING WOULD RECOVER THE VOCS FOR RECYCLING SO NO AIR EMISSION CONTROL SYSTEM WOULD BE NECESSARY.

HOWEVER, ALTERNATIVES 1, 2, AND 6 DO NOT DO AS MUCH AS ALTERNATIVES 3, 4, AND 5 TO MEET FEDERAL AND STATE MCLS IN THE AQUIFER. ALTERNATIVES 3, 4, AND 5 MORE EFFECTIVELY AID IN RESTORING THE AQUIFER (TO VOC CONCENTRATIONS AT OR BELOW THE MCLS AND SALS) AND CONTROLLING THE PLUME MIGRATION.

BY MEETING THE FEDERAL AND STATE MCLS AND SALS BEFORE REINJECTION, ALTERNATIVES 2 AND 3 WILL

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SATISFY THE RCRA LAND DISPOSAL RESTRICTIONS REQUIREMENTS. BY MEETING THE FEDERAL MCLS AND SALS, THE GROUNDWATER WILL NO LONGER CONTAIN THE LISTED WASTES WHEN IT IS SPREAD FOR RECHARGE IN ALTERNATIVE 4.

FOR ALTERNATIVES 1 - 6, THE MCLS ARE RELEVANT AND APPROPRIATE IN THE AQUIFER. UPON COMPLETION OF THE FINAL REMEDIAL ACTION FOR THE SITE, THIS ARAR WILL BE SATISFIED.

LONG-TERM EFFECTIVENESS AND PERMANENCE

ALTERNATIVES 3,4, AND 5 WOULD HAVE THE GREATEST ABILITY TO MAINTAIN RELIABLE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT OVER TIME. AFTER 20 YEARS OF EXTRACTION, CONCENTRATIONS OF TCE AND PCE IN THE GROUNDWATER ARE EXPECTED TO STILL EXCEED THE FEDERAL MCLS AND SALS, HOWEVER THEY WOULD BE GREATLY REDUCED AS DISCUSSED IN THE PREVIOUS SECTION. PLUME MIGRATION WOULD BE CONTROLLED AND AQUIFER RESTORATION WOULD CONTINUE AS LONG AS THE SYSTEM KEPT OPERATING.

ALTERNATIVES 1,2, AND 6 DO NOT OFFER LONG TERM EFFECTIVENESS OR PERMANENCE. IN FACT, THESE ALTERNATIVES MIGHT ALLOW CONTAMINATION TO SPREAD TO CLEAN ZONES WITHIN THE SFVB.

ALTERNATIVE 1 RELIES SOLELY ON INSTITUTIONAL CONTROLS TO PREVENT EXPOSURE TO THE CONTAMINATED GROUNDWATER. THE CURRENT WATER SUPPLY FROM SURFACE WATER VIA THE MWD MAY NOT ALWAYS BE AVAILABLE IN THE FUTURE BECAUSE OF PERIODIC DROUGHT CONDITIONS AND STATE AND FEDERAL WATER RIGHTS ISSUES.

REDUCTION OF TOXICITY, MOBILITY, OR VOLUME

ALTERNATIVES 3, 4 AND 5 OFFER THE MOST REDUCTION OF TOXICITY, MOBILITY, AND/OR VOLUME OF THE CONTAMINATION. THE MOST CONTAMINATED GROUNDWATER IN THE BURBANK OU AREA WOULD BE EXTRACTED AND TREATED TO REMOVE THE VOCS FROM THE GROUNDWATER, THUS THE VOC CONTAMINATION IN THE GROUNDWATER WOULD BE GREATLY REDUCED IN TOXICITY, VOLUME AND MOBILITY. MOREOVER, THE AIR EMISSION CONTROL UNITS WOULD REDUCE THE MOBILITY OF THE VOCS TO THE AIR.

ALTERNATIVE 1 WOULD HAVE NO REDUCTION IN TOXICITY, MOBILITY, OR VOLUME SINCE NO TREATMENT IS EMPLOYED.

ALTERNATIVE 2 WOULD REDUCE THE VOLUME OF CONTAMINATION BY EXTRACTING AND TREATING 16,000 GPM. ALTERNATIVE 6 WOULD REDUCE THE VOLUME OF CONTAMINATION BY EXTRACTING AND TREATING 4000 GPM. HOWEVER, THE EXISTING WELLS USED FOR ALTERNATIVES 2 AND 6 WOULD NOT BE STRATEGICALLY LOCATED TO CONTROL MIGRATION OR CAPTURE THE CONTAMINATION. THEREFORE, CONTINUED CONTAMINANT MIGRATION WOULD OCCUR AND A LESSER AMOUNT OF CONTAMINATION WOULD BE CAPTURED THEN FOR ALTERNATIVES 3, 4, AND 5.

SHORT TERM EFFECTIVENESS

FOR ALTERNATIVES 3,4, AND 5, NO ADVERSE IMPACTS WOULD BE EXPECTED DURING THE CONSTRUCTION AND IMPLEMENTATION PERIOD OR REMEDIATION. DRINKING WATER SUPPLIES WOULD BE PROVIDED FROM TREATED GROUNDWATER AND/OR SURFACE WATER FROM THE MWD DURING THE INTERIM BEFORE CONSTRUCTION COMPLETE AND DURING REMEDIATION. INSTITUTIONAL CONTROLS WOULD ASSURE THAT ALL DRINKING WATER WOULD MEET DRINKING WATER STANDARDS. THE PLUME MIGRATION WOULD BE EFFECTIVELY CONTROLLED WITH THESE ALTERNATIVES AND AQUIFER RESTORATION WOULD BE INITIATED IN THIS AREA.

ALTERNATIVE 1, THE NO ACTION ALTERNATIVE, WOULD NOT BE EFFECTIVE IN CONTROLLING MIGRATION OR AQUIFER RESTORATION. IT WOULD ALLOW THE CONTAMINATED GROUNDWATER TO SPREAD TO UNCONTAMINATED DOWNGRADIENT WELLS. THERE WOULD BE SOLE RELIANCE ON INSTITUTIONAL CONTROLS TO PREVENT EXPOSURE VIA DRINKING WATER INGESTION.

ALTERNATIVE 2 AND 6 WOULD BE MORE EFFECTIVE THAN ALTERNATIVE 1. THERE WOULD BE LESS RELIANCE ON INSTITUTIONAL CONTROLS FOR DRINKING WATER, SINCE TREATED GROUNDWATER THAT MEETS MCLS AND SALS WOULD BE SERVED, AS A PORTION OF THE TOTAL DRINKING WATER SUPPLY FOR THE AFFECTED AREAS. HOWEVER, THESE ALTERNATIVES WOULD NOT BE AS EFFECTIVE IN CONTROLLING PLUME MIGRATION AND IN AQUIFER RESTORATION AS ALTERNATIVES 3, 4, AND 5.

IMPLEMENTABILITY

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ALTERNATIVES 1 - 6 WOULD ALL BE TECHNICALLY IMPLEMENTABLE. HOWEVER, ALTERNATIVE 5 APPEARS THE EASIEST TO IMPLEMENT WITH THE CURRENT INFORMATION, DUE TO THE PRACTICAL UNCERTAINTIES ASSOCIATED WITH INJECTION AND SPREADING AND THE TECHNICAL UNCERTAINTIES ASSOCIATED WITH PLUME LOCATION AND MIGRATION.

CONSTRUCTION OF MONITORING WELLS FOR ALL ALTERNATIVES IS STRAIGHT FORWARD, USING WELL KNOWN TECHNOLOGY. THERE ARE MANY MONITORING WELLS IN THE SFVB.

ALTERNATIVES 2 - 6 WOULD EMPLOY AIR STRIPPING WITH VAPOR PHASE GAC ADSORPTION UNITS (OR STEAM STRIPPING*) WHICH IS A PROVEN TREATMENT TECHNOLOGY AND RELATIVELY EASY TO IMPLEMENT. ADMINISTRATIVE AGREEMENTS WOULD BE NEEDED FOR THE USE OF TREATED GROUNDWATER. APPROVAL FOR HOOKUP TO THE CITY OF BURBANK WOULD ALSO NEED TO BE ARRANGED PRIOR TO DISTRIBUTION. PRELIMINARY DISCUSSIONS HAVE ALREADY TAKEN PLACE AND NO SIGNIFICANT PROBLEMS HAVE BEEN IDENTIFIED.

ALTERNATIVE 5 WOULD REQUIRE AGREEMENTS BETWEEN THE CITY OF BURBANK, LA DWP, AND MWD TO ACCOMODATE THE EXCHANGE OF WATER BEYOND THE CITY OF BURBANK'S EXTRACTION CREDITS. HOWEVER, PRELIMINARY DISCUSSIONS BETWEEN EPA AND THE AFFECTED PARTIES REGARDING THE REUSE OF THE WATER HAVE SHOWN THAT THE AGREEMENTS COULD BE ARRANGED.

THE USE OF INJECTION WELLS IN ALTERNATIVES 2 AND 3 COULD BE DIFFICULT TO IMPLEMENT TECHNICALLY DUE TO OPERATIONAL PROBLEMS ENCOUNTERED WITH INJECTION WELLS AND THE UNKNOWNS ASSOCIATED WITH EXTENT OF CONTAMINATION. FURTHER SPREAD OF CONTAMINATION COULD OCCUR IF THE INJECTION WELLS WERE IMPROPERLY PLACED.

SPREADING IN ALTERNATIVE 4. COULD BE MORE RELIABLE THAN THE INJECTION WELLS. HOWEVER, THERE ARE ALSO UNCERTAINTIES ASSOCIATED WITH POSSIBLE CONTAMINATION IN THE AREA OF THE SPREADING GROUNDS. AN ADDITIONAL LOAD FROM DISCHARGING THE WATER BY SPREADING COULD CAUSE FURTHER CONTAMINATION OF THE AREA BY ENHANCING MOVEMENT OF THE CONTAMINANTS IN THE SOIL AND/OR GROUNDWATER.

ALTERNATIVES 1 AND 6 WOULD ALLOW THE CONTAMINATION TO SPREAD AND THUS MAKE REMEDIATION MORE DIFFICULT IN THE FUTURE.

[* STEAM STRIPPING IS DISCUSSED IN SECTION 10, DOCUMENTATION OF SIGNIFICANT CHANGES.]

COST

ALTERNATIVE 1 WOULD BE THE LEAST EXPENSIVE WITH AN EXPECTED PRESENT WORTH VALUE OF $500,000. (PRESENT WORTH EVALUATIONS ASSUME 10% ANNUAL INTEREST RATE AND 20 YEARS FOR THE PROJECT LIFE.)

ALTERNATIVE 2 HAS AN ESTIMATED CAPITAL COST OF $36.6 MILLION AND TOTAL O&M OF $45.2 MILLION. THE EXPECTED PRESENT TOTAL WORTH VALUE IS $81.8 MILLION.

ALTERNATIVE 3 HAS AN ESTIMATED CAPITAL COST OF $43.4 MILLION AND TOTAL O&M OF $44.7 MILLION. THE EXPECTED PRESENT TOTAL WORTH VALUE IS $88.1 MILLION.

ALTERNATIVE 4 HAS AN ESTIMATED CAPITAL COST OF $42.3 MILLION AND TOTAL O&M OF $52.9 MILLION. THE EXPECTED PRESENT TOTAL WORTH VALUE IS $95.2 MILLION.

ALTERNATIVE 5 HAS AN ESTIMATED CAPITAL COST OF $32.1 MILLION ($25.1 M FOR PHASE 1 AND $7.0 M FOR PHASE 2) AND TOTAL O&M OF $54.2 MILLION ($43.9 M FOR PHASE 1 AND $10.3 M FOR PHASE 2). THE EXPECTED PRESENT WORTH VALUE IS $86.3 MILLION ($69.0 M FOR PHASE 1 AND $17.3 M FOR PHASE 2).

ALTERNATIVE 6 IS ASSUMED TO BE 25% OF THE COST OF ALTERNATIVE 2, OR $20.5 MILLION.

THE COST SUMMARIES CAN BE FOUND IN GREATER DETAIL IN THE BURBANK OUFS REPORT.

COMMUNITY ACCEPTANCE

ALTERNATIVES 3, 4, AND 5 RECEIVED THE MOST COMMUNITY ACCEPTANCE. THE COMMUNITY GENERALLY WANTS THE AQUIFER RESTORED FOR BENEFICIAL USE AND THE PLUME MIGRATION HALTED AS SOON AS POSSIBLE.

COMMUNITY WORKGROUP MEMBERS EXPRESSED SOME CONCERN OVER REINJECTION AND SPREADING DUE TO THE UNCERTAINTIES ASSOCIATED WITH THE EXTENT OF CONTAMINATION. THEIR CONCERN WAS THAT REINJECTION OR SPREADING COULD CONTRIBUTE TO THE SPREAD OF CONTAMINATION IF THE WELLS OR SPREADING AREAS

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WERE IMPROPERLY LOCATED. THEREFORE ALTERNATIVE 5, THE WATER REUSE OPTION, WAS MOST ATTRACTIVE TO THE COMMUNITY WORKGROUP.

THE COMMUNITY FEELS STRONGLY THAT AIR EMISSION CONTROLS MUST BE EMPLOYED DUE TO THE POOR AIR QUALITY IN THE BURBANK AREA. EPA ADDRESSES THIS CONCERN WITH THE REQUIREMENT THAT VAPOR PHASE GAC ADSORPTION UNITS WOULD BE INSTALLED IF AIR STRIPPING IS USED.

THE RESPONSE SUMMARY (ATTACHED) ADDRESSES MORE SPECIFIC CONCERNS AND COMMENTS RAISED DURING THE PUBLIC COMMENT PERIOD.

STATE ACCEPTANCE

LIKE THE COMMUNITY, THE STATE (DHS AND RWQCB) WANTS AQUIFER RESTORATION AND CONTROL OF THE PLUME MIGRATION INITIATED AS SOON AS POSSIBLE.

THEY PREFER ALTERNATIVE 5 BECAUSE THEY (LIKE THE COMMUNITY) HAVE CONCERNS WITH REGARDS TO THE REINJECTION AND SPREADING OPTIONS ASSOCIATED WITH ALTERNATIVES 3 AND 4. (SEE PREVIOUS DISCUSSION.)

THEY ALSO BELIEVE IT IS IMPORTANT TO HAVE AIR EMISSION CONTROLS ON THE AIR STRIPPERS. MOREOVER, THE SCAQMD INSISTS THAT IF AERATION IS USED TO TREAT THE WATER THAT VAPOR PHASE GAC ADSORPTION UNITS (OR COMPARABLE BACT) BE INSTALLED.

CALIFORNIA DHS HAS CONCURRED WITH THE BURBANK OU REMEDY SELECTION.

10. DOCUMENTATION OF SIGNIFICANT CHANGES

THE PROPOSED PLAN WAS RELEASED FOR PUBLIC COMMENT IN OCTOBER 1988. THE PROPOSED PLAN IDENTIFIED ALTERNATIVE 5, PHASE L, EXTRACTION, TREATMENT, AND REUSE, AS THE PREFERRED ALTERNATIVE.

DUAL STAGE AIR STRIPPERS WITH VAPOR PHASE GAC ADSORPTION UNITS WERE CHOSEN AS THE PREFERRED TREATMENT TECHNOLOGY. DURING THE PUBLIC COMMENT PERIOD, A POTENTIALLY RESPONSIBLE PARTY, LOCKHEED AERONAUTICAL SYSTEMS COMPANY (LASC), PRESENTED EPA WITH A SIMILAR TREATMENT TECHNOLOGY - STEAM STRIPPING, MORE SPECIFICALLY, THE AQUADETOX SYSTEM.

IN THE BURBANK OUFS REPORT, CONVENTIONAL STEAM STRIPPING WAS SCREENED OUT BECAUSE TCE AND PCE ARE HIGHLY VOLATILE COMPOUNDS WHICH ARE EASILY REMOVED FROM WATER WITHOUT INPUT OF HEAT. FURTHERMORE, THE EXPECTED CONCENTRATIONS OF TCE AND PCE WERE NOT HIGH ENOUGH TO WARRANT THE ADDED ENERGY INPUT. THEREFORE, STEAM STRIPPING WAS NOT CONSIDERED COST EFFECTIVE AND WAS NOT CONSIDERED FURTHER IN THE OUFS.

STEAM STRIPPING WITH THE AQUADETOX SYSTEM WAS ALSO SCREENED OUT DURING THE BURBANK OUFS ON THE BASIS THAT ADEQUATE EXPERIENCE DID NOT EXIST EITHER FOR AQUADETOX SYSTEMS WITHOUT EXTERNAL STEAM SUPPLY OR FOR THE EFFLUENT TO BE USED AS DRINKING WATER.

THE AQUADETOX PROCESS IS A PROPRIETARY AND PATENTED STEAM STRIPPING TECHNOLOGY DEVELOPED BY AWD TECHNOLOGIES, INC., WHICH USES STEAM STRIPPING UNDER MODERATE OR DEEP VACUUM PRESSURE. WHILE CONVENTIONAL STEAM STRIPPING WAS CONSIDERED NOT APPLICABLE BECAUSE OF ITS HIGHER COST THAN AIR STRIPPING, THE AQUADETOX SYSTEM, MAY BE COST-EFFECTIVE DUE TO THE LOWER ENERGY REQUIREMENTS. OTHER CLAIMED ADVANTAGES OF THE SYSTEM ARE: (1) THE VOCS CAN BE RECOVERED FOR RECYCLING INSTEAD OF DISCHARGED TO THE AIR OR CARBON, AND (2) IT IS A CLOSED LOOP SYSTEM AND THEREFORE THERE IS MINIMAL VOC DISCHARGE TO THE AIR (LESS THAN 1 LB/DAY, GIVEN ESTIMATED GROUNDWATER VOC CONCENTRATIONS).

THE AQUADETOX SYSTEM UNDER MODERATE VACUUM PRESSURE WAS SELECTED BY LASC FOR GROUNDWATER TREATMENT AT A SITE WITHIN THE BURBANK OU AREA. THIS 1200 GPM EXTRACTION AND TREATMENT FACILITY BEGAN OPERATION IN JANUARY 1989 AND SHOULD PROVIDE PERFORMANCE DATA RELATIVE TO THE USE OF THIS TECHNOLOGY IN THE REMOVAL OF THE VOCS.

INFORMATION ON THE INFLUENT FROM THE LASC AQUADETOX EXTRACTION AND TREATMENT SYSTEM IS SHOWING HIGHER CONCENTRATION LEVELS FOR TCE AND PCE THAN ESTIMATED IN THE BURBANK OUFS REPORT. LASC'S TREATMENT FACILITY IS EXTRACTING GROUNDWATER WITH CONCENTRATIONS UP TO 12,000 PPB PCE AND TCE COMBINED (AS OF FEBRUARY 1989). THEREFORE STEAM STRIPPING MAY BE MORE APPLICABLE (E.G.

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ECONOMICAL) THAN ORIGINALLY THOUGHT DUE TO THE HIGHER CONCENTRATIONS AND ADDED STRIPPING EFFICIENCY OF STEAM STRIPPING.

SINCE AIR AND STEAM STRIPPING FALL UNDER THE SAME CLASS OF TREATMENT - STRIPPING - EITHER TECHNOLOGY CAN BE EMPLOYED TO MEET THE PERFORMANCE STANDARDS, THEREFORE ACHIEVING THE STATED BURBANK OPERABLE UNIT OBJECTIVES.

AIR STRIPPING WAS USED DURING THE DISCUSSION OF THE DESCRIPTION OF ALTERNATIVES AND COMPARISON ANALYSIS. HOWEVER, THE SELECTED REMEDY WILL BE EITHER AIR OR STEAM STRIPPING, AS LONG AS THE STEAM STRIPPING MEETS THE PERFORMANCE STANDARDS AND IS AS EFFECTIVE AS THE AIR STRIPPING IN MEETING THE EVALUATION CRITERIA. THIS ALLOWS FLEXIBILITY DURING THE REMEDIAL DESIGN TO PROCURE THE MOST COST-EFFECTIVE UNIT THAT ALSO PROTECTS HUMAN HEALTH AND THE ENVIRONMENT.

#SR
11.0 THE SELECTED REMEDY

ALTERNATIVE 5, PHASE 1, USING EITHER STEAM OR AIR STRIPPING FOR TREATMENT, IS THE SELECTED REMEDY FOR THE BURBANK OPERABLE UNIT. THE REMEDY INCLUDES EXTRACTION OF CONTAMINATED GROUNDWATER, TREATMENT BY STRIPPING, AND REUSE OF THE WATER BY THE CITY OF BURBANK FOR DRINKING WATER. IF AIR STRIPPING IS CHOSEN DURING THE REMEDIAL DESIGN, VAPOR PHASE GAC ADSORPTION UNITS WILL BE NEEDED TO COMPLY WITH THE ARARS AND TBCS.

THE EXTRACTION SYSTEM WILL BE DESIGNED TO CAPTURE GROUNDWATER CONTAINING 100 PPB OR GREATER OF TCE AND 5 PPB OR GREATER OF PCE. THE EXTRACTION FLOW RATE IS CURRENTLY PROJECTED TO BE 12,000 GPM.

THE FEDERAL AND STATE MCLS ARE RELEVANT AND APPROPRIATE IN THE AQUIFER. UPON THE COMPLETION OF THE FINAL REMEDIAL ACTION FOR THE SITE, THIS ARAR WILL BE SATISFIED.

ALTHOUGH IT WAS ESTIMATED IN THE BURBANK OUFS REPORT THAT EXTRACTION AT A RATE OF 16,000 GPM COUPLED WITH INJECTION WELLS FOR A PERIOD OF 20 YEARS WAS NECESSARY TO FULLY REMEDIATE THE BURBANK OU AREA (I.E. REMOVING GROUNDWATER UNTIL THAT LEFT CONTAINED CONTAMINANTS TO CONCENTRATION LEVELS AT OR BELOW MCLS AND SALS), THE DECISION TO PUMP AND TREAT 12,000 GPM WAS DETERMINED TO BE THE MOST APPROPRIATE GIVEN THE AMOUNT OF TECHNICAL INFORMATION CURRENTLY AVAILABLE. MORE INFORMATION WILL BE GATHERED DURING THE BASINWIDE RI, NORTH HOLLYWOOD OU REMEDY OPERATION, LASC'S EXTRACTION AND TREATMENT SYSTEM, BURBANK OU REMEDIAL DESIGN, AND THE OPERATION OF THE BURBANK OU TREATMENT SYSTEM TO DETERMINE WHETHER MORE EXTRACTION IS NECESSARY TO CONTINUE AQUIFER RESTORATION AND CONTROLLING THE MIGRATION OF THE PLUME. IF ADDITIONAL EXTRACTION IS DETERMINED NECESSARY, EPA WOULD AGAIN GO OUT FOR PUBLIC COMMENT WITH A PROPOSED PLAN BEFORE SIGNING ANOTHER RECORD OF DECISION.

EXTRACTION WELLS WILL BE STRATEGICALLY PLACED (BOTH LATERALLY AND VERTICALLY) TO MAXIMIZE THE EFFECTIVENESS OF THE SYSTEM. THE LOCATIONS PRESENTED IN THE OU MAY BE MODIFIED IF WARRANTED BY NEW DATA. STRIPPING IS THE CHOSEN TREATMENT. LASC IS CONDUCTING A TREATABILITY STUDY WITH ITS AQUADETOX SYSTEM. THIS WILL HELP DETERMINE WHETHER STEAM STRIPPING WILL BE USED FOR THE OU REMEDY. AIR STRIPPING WITH VAPOR PHASE GAC ADSORPTION UNITS WILL BE USED UNLESS STEAM STRIPPING IS SHOWN TO MEET OR EXCEED THE TREATMENT ADVANTAGES OF AIR STRIPPING WITH VAPOR PHASE GAC. EPA MAY ALSO DECIDE TO USE THE TWO TECHNOLOGIES TOGETHER IF THAT WOULD MAXIMIZE EFFICIENCY.

THE VOCS - PARTICULARLY THE PRIMARY CONTAMINANTS, TCE AND PCE - IN THE GROUNDWATER MUST BE REMOVED FROM THE GROUNDWATER SUCH THAT TREATMENT PLANT EFFLUENT CONCENTRATIONS ARE BELOW THE FEDERAL MCLS AND SALS (TCE - 5 PPB AND PCE - 4 PPB). THE WATER MUST ALSO MEET ALL DRINKING WATER STANDARDS. THIS MAY REQUIRE FURTHER TREATMENT LIKE CHLORAMINATION FOR DISINFECTION PURPOSES, OR REVERSE OSMOSIS OR ION EXCHANGE FOR NITRATES.

THE TREATED WATER WILL BE FED DIRECTLY INTO BURBANK'S DISTRIBUTION SYSTEM FOR REUSE BY THE CITY'S RESIDENTS.

MONITORING WELLS WILL BE INSTALLED DOWNGRADIENT TO MONITOR THE PERFORMANCE OF THE SYSTEM.

THE EXTRACTION OF CONTAMINATED GROUNDWATER FROM THE BURBANK OU AREA, TREATMENT OF GROUNDWATER TO DRINKING WATER STANDARDS, AND DISTRIBUTION OF THE WATER TO THE BURBANK RESIDENTS IS THE MOST COST EFFECTIVE AND TECHNICALLY SOUND MEANS OF MEETING THE OU OBJECTIVES.

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THE SELECTED REMEDY PERMANENTLY AND SIGNIFICANTLY REDUCES THE TOXICITY, MOBILITY, AND VOLUME OF HAZARDOUS SUBSTANCES WITH RESPECT TO THEIR PRESENCE IN THE GROUNDWATER -- THE CONTAMINANTS ARE REMOVED FROM THE GROUNDWATER, THEREBY REDUCING CONTAMINANT MIGRATION IN THE VICINITY OF THE BURBANK OU AREA.

STRIPPING WILL RESULT IN A SMALL INCREASE IN THE TOXICITY, MOBILITY, AND VOLUME OF HAZARDOUS SUBSTANCES WITH RESPECT TO THEIR PRESENCE IN THE AIR. HOWEVER, THE USE OF STEAM STRIPPING RECOVERS MOST OF THE VOCS FOR RECYCLING. IF DUAL STAGE AIR STRIPPING IS USED FOR TREATMENT, VAPOR PHASE GAC ADSORPTION UNITS WILL BE INSTALLED TO MINIMIZE THE AMOUNT OF VOCS DISCHARGED TO THE AIR.

THE AIR EMISSIONS ARE ESTIMATED TO ADD A MINIMAL RISK TO THE PROJECT VIA AIRBORNE CONTAMINANTS, BECAUSE THE AIR EMISSION CONTROLS WILL REMOVE 90 - 99% OF THE CONTAMINANTS BEFORE THEY ARE DISCHARGED TO THE AIR. THE ADDITION OF VAPOR PHASE GAC ADSORPTION UNITS MEETS THE ARARS AND TBCS DISCUSSED IN SECTION 9, COMPLIANCE OF ARARS.

THE SPENT CARBON FROM THE VAPOR PHASE GAC ADSORPTION SYSTEM IS CONSIDERED A RCRA WASTE OR IT IS A MIXTURE OF THE SOLID WASTE CARBON AND THE RCRA LISTED WASTES F001, U210, AND U228 (40 CFR SECTION 261.3(A)(2)(IV)). THEREFORE THE CARBON MUST SATISFY THE REQUIREMENTS OF 40 CFR PART 263 TO BE SHIPPED OFF SITE FOR REGENERATION.

THE PUMP AND TREAT SYSTEM WILL OPERATE FOR AN ESTIMATED 20 YEARS. GROUNDWATER MONITORING AND GROUNDWATER LEVEL MEASURING WILL BE CONDUCTED AS PART OF THE REMEDY TO TRACK CONTAMINANT CONCENTRATIONS IN THE BURBANK OU AREA, TO MONITOR THE PERFORMANCE OF THE TREATMENT SYSTEM AND TO DETERMINE THE EFFICIENCY OF THE SYSTEM IN RESTORING THE AQUIFER. THE SYSTEM WILL BE EVALUATED PERIODICALLY TO DETERMINE THE EFFICIENCY AND NECESSITY OF THE REMEDIATION IN ACHIEVING THE STATED GOALS. THE REVIEWS WILL ALLOW FOR MODIFICATION IN THE SYSTEM AS REQUIRED.

FOR REFERENCE, THE ESTIMATED COST OF THE SELECTED REMEDY WITH THE USE OF DUAL STAGE AIR STRIPPING WITH VAPOR PHASE GAC ADSORPTION UNITS IS $69M (SEE TABLE 5). LASC'S REMEDIAL ACTION ALTERNATIVE FOR THE BURBANK WELL FIELD OPERABLE UNIT GIVES A COST ESTIMATE OF $50.1 MILLION NET PRESENT VALUE FOR THE BURBANK OU REMEDY USING THE AQUADETOX SYTEM INSTEAD OF THE AS WITH VAPOR PHASE GAC ADSORPTION UNITS. ALTHOUGH LASC'S ALTERNATIVE IS SIMILAR TO ALTERNATIVE 5, PHASE 1 IN THE BURBANK OUFS REPORT, LASC'S ALTERNATIVE DOES HAVE SOME DIFFERENT FEATURES. (LASC'S REPORT CAN BE FOUND IN THE ADMINISTRATIVE RECORD.)

#SD
12.0 STATUTORY DETERMINATIONS

THE SELECTED REMEDY IS PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT -- AS REQUIRED BY SECTION 121 OF CERCLA -- IN THAT IT TREATS THE EXTRACTED GROUNDWATER SO THAT REMAINING CONTAMINANTS ARE AT OR BELOW THE MCLS AND SALS FOR THE CONTAMINANTS OF CONCERN.

STRIPPING HAS BEEN SHOWN TO BE THE MOST COST EFFECTIVE TECHNOLOGY FOR TREATING THE CONCENTRATIONS OF VOCS FOUND IN THE GROUNDWATER FROM THE BURBANK OU AREA. ALTHOUGH THE ADDITION OF AIR EMISSION CONTROLS (GAC) TO THE DUAL STAGE AIR STRIPPERS (IF STEAM STRIPPING FAILS TO PASS THE TREATABILITY STUDIES) WILL INCREASE THE COST OF THE SELECTED REMEDY, IT IS DETERMINED TO BE JUSTIFIED AS A COST-EFFECTIVE MEASURE FOR THE FOLLOWING REASONS;

(1) IT MEETS THE REQUIREMENTS OF SCAQMD REGULATION XIII, THE ARAR FOR AIR DISCHARGE FROM THE AIR STRIPPING TREATMENT; (2) IT REDUCES OZONE PRECURSOR EMISSIONS IN A NONATTAINMENT AREA (THE SOUTH COAST AIR BASIN) THAT HAS THE WORST AIR QUALITY IN THE NATION; AND (3) IT RESPONDS TO PUBLIC COMMENTS REQUESTING AIR EMISSION CONTROLS TO MINIMIZE THE INCREASE IN EXISTING AIR QUALITY PROBLEMS REGARDLESS OF LEGAL REQUIREMENTS.

THE SELECTED REMEDY (EITHER AIR OR STEAM STRIPPING) MEETS THE ARARS AND TBCS THAT APPLY TO THIS RESPONSE ACTION. THE SELECTED REMEDY WILL MEET THE SAFE DRINKING WATER ACT MCLS AND THE CA DHS STATE ACTION LEVELS IN THE EXTRACTED GROUNDWATER THAT IS TREATED FOR REUSE. UPON THE COMPLETION OF THE FINAL REMEDIAL ACTION FOR THE SITE, THE MCLS WILL BE MET IN THE AQUIFER.

IT WILL ALSO MEET THE SCAQMD'S REGULATION XIII AND RULES 1167 AND 1401 BY ADDING AIR EMISSION CONTROLS TO THE AIR STRIPPERS OR USING STEAM STRIPPING.

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FINALLY, IT WILL MEET THE RCRA REQUIREMENTS AS SPECIFIED IN 40 CFR SECTION 261 AND 263. RCRA SUBPART B, 40 CFR 261 - CRITERIA FOR IDENTIFYING LISTED HAZARDOUS WASTE - IDENTIFIES THE WASTE AS RELEVANT AND APPROPRIATE TO FOOL AND APPLICABLE FOR U210 AND U228. RCRA PART 263 - STANDARDS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE - SPECIFIES COMPLIANCE WITH THE MANIFEST SYSTEM FOR SHIPMENT OF THE SPENT CARBON OFF-SITE FOR REGENERATION.

THE SOLVENT PRODUCT GENERATED FROM STEAM STRIPPING IS NOT CONSIDERED A RCRA WASTE IF IN ACCORDANCE WITH 40 CFR SECTION 261.2(E)(I)(II) MATERIALS ARE NOT SOLID WASTES WHEN THEY CAN BE SHOWN TO BE RECYCLED BY BEING USED OR REUSED AS EFFECTIVE SUBSTITUTES FOR COMMERCIAL PRODUCTS.

THE SELECTED REMEDY PERMANENTLY AND SIGNIFICANTLY REDUCES THE TOXICITY, MOBILITY AND VOLUME OF HAZARDOUS SUBSTANCES WITH RESPECT TO THEIR PRESENCE IN GROUNDWATER. THE CONTAMINANTS ARE REMOVED FROM THE GROUNDWATER, THEREBY REDUCING CONTAMINANT MIGRATION AND RESTORING THE AQUIFER IN THE VICINITY OF THE BURBANK OU AREA. THE STRIPPING TECHNOLOGY WILL RESULT IN A VERY SLIGHT INCREASE IN THE TOXICITY, MOBILITY, AND VOLUME OF HAZARDOUS SUBSTANCES WITH RESPECT TO THEIR PRESENCE IN THE AIR.

AIR STRIPPING WITH VAPOR PHASE GAC INCREASES THE VOLUME OF CONTAMINATION IN THE AIR BY TRANSFERRING THAT VOLUME, WHICH IS NOT TRAPPED INTO THE CARBON FOR REGENERATION, FROM THE WATER TO THE AIR. STEAM STRIPPING SLIGHTLY INCREASES THE VOLUME OF CONTAMINATION IN THE AIR BY TRANSFERRING THAT VOLUME, WHICH IS NOT RECOVERED AS PRODUCT FOR RECYCLING, FROM THE WATER TO THE AIR. THE VOC VOLUMES RELEASED BY EITHER METHOD WILL NOT EXCEED THE SCAQMD'S LIMITS.

THE INCLUSION OF AIR EMISSIONS CONTROL (VAPOR PHASE GAC ADSORPTION UNITS) IN THE SELECTED REMEDY (IF AIR STRIPPING IS USED) REDUCES THE IMPACT OF THE AIR EMISSIONS IN A COST-EFFECTIVE MANNER TO THE MAXIMUM EXTENT POSSIBLE. THE AIR EMISSIONS ARE ESTIMATED TO ADD A MINIMAL RISK TO THE PROJECT VIA AIRBORNE CONTAMINANTS. THE MINIMAL RISK ADDITION IS DUE LARGELY TO THE CAPABILITIES OF THE VAPOR PHASE GAC ADSORPTION UNITS TO REMOVE 90 TO 99% OF THE CONTAMINANTS IN THE AIR DISCHARGED TO THE ATMOSPHERE FROM THE STRIPPER. WITH THE ADDITION OF AIR EMISSION CONTROLS, THE SELECTED REMEDY REDUCES THE POTENTIAL FOR OZONE FORMATION.

BOTH AIR AND STEAM STRIPPING MEET THE STATUTORY PREFERENCE FOR REMEDIES THAT USE ALTERNATIVE TREATMENT OR RESOURCE RECOVERY TECHNOLOGIES TO THE MAXIMUM EXTENT PRACTICABLE. STEAM STRIPPING UNDER VACUUM PRESSURE IS AN INNOVATIVE TECHNOLOGY THAT RECOVERS THE VOCS FOR REUSE. IF THE DUAL STAGE AIR STRIPPING WITH VAPOR PHASE GAC ADSORPTION UNITS IS USED, THE SPENT CARBON FROM THE GAC OFF-GAS TREATMENT SYSTEM WILL BE REGENERATED, INSTEAD OF BEING DISPOSED OF IN A LANDFILL. THEREFORE, THE VOCS WILL BE COLLECTED FOR REUSE OR DESTROYED.

Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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TAB#

TABLE 1

SUMMARY OF VOLATILE ORGANIC CHEMICALS DETECTED IN BURBANK PUBLIC SERVICE DEPARTMENT WELLS

BURBANK PSD WELL NO.	TCE RANGE OF CONCENTRATION (UG/L)	PCE RANGE OF CONCENTRATION (UG/L)
6A	ND-1.0	ND-1.0
7	ND--4.9	ND-1.0
9	15-61.6	144
10	110-1800	56-590
11A	10-21	18-35
12	0.7 - 38	1.0 - 33
13	0.1 - 34	ND - 52
14A	76	140
15	ND - 4.1	ND - 1.0
17	5.8	5.3 - 8.3
18	ND - 38	ND - 63

TCE = TRICHLOROETHENE
PCE = TETRACHLOROETHENE
ND = BELOW DETECTION LIMIT

SOURCES: 1. LADWP, REMEDIAL INVESTIGATION OF SAN FERNANDO VALLEY GROUNDWATER BASIN, CURRENT SITUATION REPORT, JANUARY 29, 1988.
2. JMM. GC/MS ANALYSIS OF VOLATILE ORGANICS FOR SELECTED BURBANK WELLS. 1987-1988.

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TABLE 1 (CONTINUED)

SUMMARY OF VOLATILE ORGANIC CHEMICALS DETECTED IN BURBANK PUBLIC SERVICE DEPARTMENT WELLS

BURBANK PSD WELL NO.	OTHER (UG/L)	NOTES
6A	- - -	- - -
7	- - -	- - -
9	- - -	TWO DATA POINTS (1981 & 1984) THEN WELL ABANDONED
10	- - -	- - -
11A	- - -	- - -
12	CARBONTETRA-CHLORIDE 3.4	TREND TOWARD INCREASING CONTAMINATION SINCE 3/83
13	CHLOROFORM 2.0	TREND TOWARD INCREASEING CONTAMINATION SINCE 4/85
14A	- - -	AVERAGE OF 19 SAMPLES ANALYZED BY LOCKHEED
15	- - -	- - -
17	- - -	- - -
18	TRACE CONCENTRATIONS OF CHLOROFORM DICHLOROBROMOMETHANE	- - -

Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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TABLE 4
MCLS, MCLGS AND STATE ACTION LEVELS FOR PRIMARY ORGANIC CONTAMINANTS DETECTED IN THE GROUNDWATER BENEATH THE BURBANK OPERABLE UNIT AREA

	FEDERAL MAXIMUM CONTAMINANT A LEVEL (MCL) (UG/1)	FEDERAL MAXIMUM CONTAMINANT LEVEL GOAL A (MCLG) (UG/1)	STATE ACTION LEVEL (SAL) (UG/1)
TRICHLOROETHENA (TCE)	5	ZERO	5
PERCHLOROETHANE (PCE)			C
CARBON TETRACHLORIDE (CTC)	5	ZERO	5C
CHLOROFORM	100 D	-	-

NOTES: '-' INDICATES THAT THERE IS NOT A SET LEVEL.
A MCL AND MCLG ARE SET BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY.

B SALS ARE SET BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES (DHS)

C DHS HAS RECENTLY PROPOSED ESTABLISHING STATA MCLS FOR PCE AND CTC OF 5 AND 0.5 UG/1, RESPECTIVELY.

D VALUE RAPORTED IS TORAL TRIHALOMETHANES (CHLOROFORM, DIBROMOCHLOROMATHANA, BROMODICHLOROMETHANE, AND BROMOFORM).

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TABLE 5
COST SUMMARY FOR ALTERNATIVE 5, PHASA 1 (AIR STRIPPING, WITH VAPOR PHASE GAC)

ITEM/DESCRIPTION	ESTIMATED COST ($)
CAPITAL COSTS	
EXTRACTION AND PIPELINE TO TREATMENT SYSTEM	5,125,000
TREATMENT (DUAL-STAGE AS WITH VAPOR PHASE GAC)	6,740,000
CONNECTION TO BURBANK PSD DISTRIBUTION SYSTEM	25,000
MONITORING WELL	2,220,000
CAPITAL COSTS	$14,100,000
FEES AND CONTINGENCIES	4,510,000
ENGINEERING, LEGAL, ADMINISTRATION	6,520,000
TOTAL CAPITAL REQUIREMENT	$25,100,000
OPERATION AND MAINTENANCE COSTS	
EXTRACTION	793,000
TREATMENT	3,465,500
MONITORING	33,200
CONTINGENCIES	
TOTAL ANNUAL COSTS	$ 4,300,000
PRESENT WORTH OF O&M COSTS (INTEREST RATE = 10%; YEARS = 20; PRESENT WORTH FACTOR = 8.51)	$43,900,000
TOTAL PRESENT WORTH COST	$69,000,000

Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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EXHIBIT C

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2ND CD

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Continued After Caption

I HEREBY CERTIFY THAT THE DOCUMENT WAS SERVED BY FIRST CLASS MAIL, POSTAGE PREPAID, TO ALL COUNSEL (OR PARTIES) AT THEIR RESPECTIVE MOST RECENT ADDRESS OF RECORD IN THIS ACTION ON THIS DATE.
DATED: JUN 23 1998
DEPUTY CLERK

FILED
CLERK, U.S. DISTRICT COURT
JUN 22 1998
CENTRAL DISTRICT OF CALIFORNIA
BY DEPUTY

LODGED
CLERK, U.S. DISTRICT COURT
MAY 26 1998
CENTRAL DISTRICT OF CALIFORNIA
BY DEPUTY

ENTERED
CLERK, U.S. DISTRICT COURT
JUN 23 1998
CENTRAL DISTRICT OF CALIFORNIA
BY DEPUTY

IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA

UNITED STATES OF AMERICA and STATE OF CALIFORNIA, DEPARTMENT OF TOXIC SUBSTANCES CONTROL, Plaintiffs, vs. LOCKHEED MARTIN CORPORATION; CITY OF BURBANK, CALIFORNIA, a Charter City; WEBER AIRCRAFT, INC.; ACCRA-TRONICS SEALS CORPORATION; WILLIAM H. FISCH TRUST, DATED OCTOBER 29, 1993; JONES FAMILY TRUST, DATED MAY 14, 1993; ADLER SCREW PRODUCTS, INC.; EIRIK LIRHUS; BERGLJOT LIRHUS; LIRHUS FAMILY TRUST; AEROQUIP CORPORATION; TRINOVA CORPORATION; A-H PLATING, INC.; THE WASCHAK FAMILY TRUST; [illegible] P. WASCHAK; MELBA R. [illegible]AK; AVIALL SERVICES, INC.; [illegible]NC.; MCENTEE FAMILY [illegible]IP; B.J. GRINDING, INC.; HOISETH; GLENDA HOISETH;	CIVIL ACTION NO. 91-4527-MRP (Tx) SECOND CONSENT DECREE FOR SAN FERNANDO VALLEY SUPERFUND SITE, BURBANK OPERABLE UNIT

I HEREBY CERTIFY THAT THIS DOCUMENT WAS SERVED BY FIRST CLASS MAIL, POSTAGE PREPAID, TO ALL COUNSEL (OR PARTIES) AT THEIR RESPECTIVE MOST RECENT ADDRESS OF RECORD IN THIS ACTION ON THIS DATE.
DATED: JUN 23 1998
DEPUTY CLERK

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JUN 23 1998

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Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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HOISETH FAMILY TRUST; JOSEPH F. BANGS, DBA BANGS MANUFACTURING COMPANY; BANGS TRUST, DATED OCTOBER 3, 1990; MEL BERNIE & COMPANY, INC., DBA ACCESSORY PLATING AND 1928 JEWELRY LTD.; LAURIE S. BERNIE AND MELVYN J. BERNIE, AS TRUSTEES OF THE BERNIE TRUST; THE BERNIE TRUST; BURMAR METAL FINISHING CORP. DBA BARRON ANODYZING AND PAINT; CRANE CO., HYDRO-AIRE DIVISION; DELTRON ENGINEERING, INC.; FILIJAN AND KUEBLER PROPERTIES; MICHAEL FILIJAN; TONY KUEBLER; HYDRA-ELECTRIC COMPANY; DAVIS INDUSTRIES, INC.; JANCO CORPORATION, BKT ENTERPRISES, INC.; JOSLYN CORPORATION, LLC, FKA JOSLYN CORPORATION, JOSLYN SUNBANK COMPANY, LLC FKA JOSLYN SUNBANK CORPORATION; OCEAN TECHNOLOGY, INC.; TEXTRON, INC.; HR TEXTRON INC.; PACIFIC PARTNERSHIP; SARGENT INDUSTRIES, INC.; ANTONINI FAMILY TRUST; MARIO E. ANTONINI AND MARISI A. ANTONINI, TRUSTEES; SIERRACIN CORPORATION; INDUSTRIAL BOWLING CORPORATION; R&G SLOANE MANUFACTURING CO., INC.; SPACE-LOK, INC., LERCO DIVISION; THE ESTATE OF ALBINA BREBBIA; CHRISTINA COGAR, INDIVIDUALLY AND AS EXECUTRIX FOR THE ESTATE OF ALBINA BREBBIA; STAINLESS STEEL PRODUCTS, INC.; ZIMMERMAN HOLDINGS, INC.; THE UHLMANN OFFICES, a California corporation; SUNHILL PARTNERS, a California partnership; STEVE'S PLATING CORPORATION; TERRY S. KNEZEVICH; UNIFACTOR, INC., WALTON R. EMMICK; CLELTA SPELMAN; DIANE BARR; ELAINE S. BARR; THE HOMER R. BARR AND ELAINE S. BARR FAMILY TRUST; L.A. GUAGE COMPANY, INC.; TWISS HEAT TREATING CO., INC. DBA TWISS HEAT TREATING CO.; THE WILLIAM E. AND EVELYN TWISS FAMILY TRUST; WILLIAM E. TWISS AND EVELYN TWISS; W AND E TWISS TRUST; VALLEY ENAMELLING CORP.;

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DENISE E. MCLAUGHLAN; SHARYN E. SCHRICK; SANDRA E. BOWMAN; HM HOLDINGS, INC.; PH BURBANK HOLDINGS, INC.,

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Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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CONSENT DECREE

I. BACKGROUND

A. Summary of Site Background.

The following is a summary of the Site background as alleged by the United States which, for the purposes of this Consent Decree, Settling Defendants neither admit nor deny:

1. The United States of America ("United States"), on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), and the State of California Department of Toxic Substances Control ("State") have filed concurrently with this Consent Decree a supplemental complaint pursuant to Sections 106 and 107 of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9606 and 9607 ("CERCLA"), as amended by the Superfund Amendments and Reauthorization Act of 1986 ("SARA").

2. The United States and the State in the supplemental complaint, seek, inter alia: (1) reimbursement of costs of response incurred by EPA, the Department of Justice, and the State for response actions at the Burbank Operable Unit Site ("Site") of the San Fernando Valley Superfund sites, with accrued interest; and (2) performance of response work by the Defendants at the Site consistent with the National Contingency Plan, 40 C.F.R. Part 300 (as amended) ("NCP").

3. This is the second complaint the United States has filed in this action. Pursuant to the first complaint, a consent decree ("First Consent Decree") was entered by this Court on

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March 25, 1992. A copy of the First Consent Decree is included as Exhibit 1 to this Consent Decree. Under Section XXIII (Continuing Jurisdiction) of the First Consent Decree, this Court retained jurisdiction over both the subject matter and the parties to the original action for the duration of the First Consent Decree and for the purpose of issuing such further orders or directions as may be necessary or appropriate to construe, implement, modify, enforce, terminate or reinstate the terms of the First Consent Decree or for any further relief as the interest of justice may require.

4. The First Consent Decree provided for the defendants to the first complaint, Lockheed Corporation (now Lockheed Martin Corporation, hereinafter "Lockheed Martin"), the City of Burbank, and Weber Aircraft, Inc. ("Weber"), to fund and/or to perform certain response actions at the Site, and for Lockheed Martin and Weber to pay certain costs of response incurred by EPA and the Department of Justice with respect to the Site. This consent decree ("Second Consent Decree" or "this Consent Decree") provides for the defendants that have entered into this Consent Decree (collectively, "Settling Defendants") to fund and/or to perform the remainder of the response actions and to pay part of EPA's, the Department of Justice's, and the State's remaining costs of response for the Site. In general, the Second Consent Decree provides for the continued operation and maintenance of (1) the facilities constructed under the First Consent Decree, and (2) the facilities constructed under EPA Unilateral Administrative Order No. 92-12 ("UAO 92-12") by the

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parties to UAO 92-12 ("UAO Parties"), during the final eighteen years of the interim remedy operating period. The Second Consent Decree further provides for: (a) the performance of the UAO Remedial Action Work by the UAO Parties (who are all Settling Defendants), pursuant to UAO 92-12, to the extent that work has not been completed at the time the Second Consent Decree is entered; and (b) the possible dismantling or decommissioning of these facilities upon completion of the interim remedy.

5. Tests conducted on San Fernando Valley groundwater in the early 1980's revealed significant concentrations of volatile organic compounds ("VOCs") in San Fernando Valley basin ("Basin") groundwater. The primary VOCs found in the Basin groundwater were trichloroethylene ("TCE") and perchloroethylene ("PCE"), which were widely used solvents in machinery degreasing, metal plating and dry cleaning. TCE and PCE have been found at the Site at levels that exceed the Maximum Contaminant Levels ("MCLs") for these hazardous substances. MCLs are safe drinking water standards established under the Safe Drinking Water Act of 1974, as amended, 42 U.S.C. § 300f et seq. The Federal MCL for TCE and PCE is 5 parts per billion ("ppb").

B. Based on investigations of Basin groundwater, and pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, in June 1986 EPA placed four well field sites in the San Fernando Valley on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register (see 51 Fed. Reg. 21054): (1) the North Hollywood Superfund site (Area 1); (2) the Crystal Springs Superfund site (Area 2); (3) the Pollock

Superfund site (Area 3); and (4) the Verdugo Superfund site (Area 4).

C. EPA is conducting a Basin-wide Remedial Investigation and Feasibility Study ("RI/FS") for the San Fernando Valley Superfund sites, which EPA manages as one large Superfund site. EPA has also entered into a multi-site cooperative agreement with the California Department of Health Services ("DHS") which funds DHS participation in remedial activities at many California Superfund sites, including the San Fernando Valley sites. In September of 1989, EPA entered into a cooperative agreement with the California State Water Resources Control Board ("SWRCB"). Under that cooperative agreement, SWRCB funds the Los Angeles Regional Water Quality Control Board's ("RWQCB") ongoing source investigation and source control work in the Basin.

D. EPA has designated four operable units within the San Fernando Valley Superfund sites known as the North Hollywood, Burbank, Glendale North and Glendale South operable units. This Site, the Burbank Operable Unit Site, is one of those four operable units.

E. EPA has issued interim Records of Decision ("RODs") prescribing interim remedies for each of these operable units.

F. The Site is part of the North Hollywood (Area 1) Superfund site, and is the second operable unit in the Basin for which EPA has issued an interim ROD. The Site includes the northeast corner of the North Hollywood Superfund site, as well as the areas to which the plume of TCE and PCE has spread beyond the original boundaries drawn at the time the North Hollywood

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Superfund site was listed on the NPL.

G. EPA completed an Operable Unit Feasibility Study ("OU/FS") Report on the Site in October 1988.

H. The comment period on the OU/FS Report and the Proposed Plan for the Site opened on October 19, 1988 and closed December 2, 1988. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the OU/FS and of the Proposed Plan in two major local newspapers of general circulation, the Los Angeles Times and the Burbank Leader. EPA provided an opportunity for written and oral comments from the public on the Proposed Plan for remedial action. A copy of the transcript of the public meeting is available to the public as part of the Administrative Record upon which the Regional Administrator based the selection of the interim response actions selected for the Site.

I. EPA issued an interim ROD for the Site on June 30, 1989, which the State had a reasonable opportunity to review. A copy of the ROD is appended as Appendix A to the First Consent Decree. The ROD included a responsiveness summary responding to the public comments received at the public meeting. Notice of the Final Plan was published in accordance with Section 117(b) of CERCLA. The remedy described in the ROD was modified by EPA's Explanation of Significant Differences issued by EPA on November 21, 1990 ("ESD 1"). A copy of ESD 1 is included as Appendix B to the First Consent Decree. Furthermore, EPA included in the First Consent Decree certain modifications to the interim remedy, as provided in Subpart F of Section VII of that decree (Work To Be

Performed). Those modifications did not represent a fundamental change to the remedy selected in the ROD and ESD1. The remedy described in the ROD was further modified by EPA's second Explanation of Differences executed by EPA on February 12, 1997 ("ESD2"). Those modifications also did not represent a fundamental change to the remedy selected in the ROD and ESD1. A copy of EPA's ESD2 is included as Appendix 5 to this Consent Decree.

J. In 1989, pursuant to Section 122(e) of CERCLA, 42 U.S.C. § 9622(e), EPA issued Special Notice for Remedial Design and Remedial Action to potentially responsible parties for the Site. By its 1989 Special Notice, EPA sought the construction, operation and maintenance of the interim remedy for the Site. As more fully described in the ROD, that remedy consists of groundwater extraction and treatment facilities, a blending facility, and systems for delivering the treated groundwater to the public water supply. The treated, blended groundwater delivered to the public water supply shall meet all drinking water standards established by the United States and the State of California. The interim remedy is required to operate for twenty (20) years.

K. In the First Consent Decree, Lockheed Martin, Weber and the City of Burbank agreed to construct and/or to fund the construction of the treatment plant for the Burbank Operable Unit, and to operate and maintain and/or to fund the operation and maintenance of the treatment plant for two years after construction is complete. Lockheed Martin and Weber also agreed

Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

to pay part of EPA's and the Department of Justice's costs for the Site.

L. In March 1992, EPA issued UAO 92-12 to six potentially responsible parties who had received the 1989 Special Notice: Aeroquip Corporation, Crane Company, Inc., Janco Corporation, Sargent Industries, Incorporated, the Antonini Family Trust and Ocean Technology, Incorporated. Copies of UAO 92-12 and the April 28, 1992 Amendment to UAO 92-12 are included as Exhibit 2 to this Decree. UAO 92-12 ordered these parties to construct a blending facility to receive and blend the treated groundwater with another source of water to reduce nitrate levels, and to deliver the water to the public water supply system.

M. In this action, EPA and the State seek reimbursement of past and future response costs, including Basin-wide Response Costs for the Site, which are not reimbursed pursuant to the First Consent Decree. EPA also seeks the performance of the Operation and Maintenance ("O&M") of the treatment and blending facilities for the period not provided by the First Consent Decree or UAO 92-12.

N. Based on the information presently available to EPA and the State, EPA and the State believe that this work will be properly and promptly conducted by the Settling Defendants if conducted in accordance with the requirements of this Consent Decree and its appendices.

O. The State is not a party to the First Consent Decree. In accordance with the NCP and Section 121(f)(1)(F) of CERCLA, 42 U.S.C. § 9621(f)(1)(F), EPA notified the State on September 7,

1994 of negotiations with potentially responsible parties regarding the implementation of the remainder of the remedial action for the Site, and EPA has provided the State with an opportunity to participate in such negotiations and be a party to this Consent Decree.

P. The State has joined in the United States' supplemental complaint and is alleging that the defendants are liable to the State under Section 107 of CERCLA, 42 U.S.C. § 9607, and under Chapter 6.8, Section 25300 et seq., of the California Health & Safety Code, for the State's past and future response costs at the Site.

Q. In accordance with Section 122(j)(1) of CERCLA, 42 U.S.C. § 9622(j)(1), EPA notified the United States Department of the Interior on September 15, 1994 of negotiations with potentially responsible parties regarding the release of hazardous substances that may have resulted in injury to natural resources under federal trusteeship and encouraged the trustee(s) to participate in the negotiation of this Consent Decree.

R. Settling Defendants deny any and all legal or equitable liability under any federal, state, or local statute, regulation or ordinance, or the common law, for any response costs, damages or claims caused by or arising out of conditions at or arising from the Burbank well field or the Site. By entering into this Consent Decree, or by taking any action in accordance with it, Settling Defendants do not admit any allegations contained herein or in the complaints, nor do Settling Defendants admit liability for any purpose or admit any issues of law or fact or any

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responsibility for releases of hazardous substances into the environment. Nothing in this Paragraph shall alter Settling Defendants' agreement not to challenge the Court's jurisdiction as set forth in Section II ("Jurisdiction"), or in any manner whatsoever affect Settling Defendants' obligations or rights under this Consent Decree, the First Consent Decree or UAO 92-12.

S. The Parties recognize, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the Parties in good faith and implementation of this Consent Decree will expedite the cleanup of the Site and will avoid prolonged and complicated litigation between the Parties, and that this Consent Decree is fair, reasonable, and in the public interest.

T. Solely for the purposes of Section 113(j) of CERCLA, 42 U.S.C. § 9613(j), the interim remedial action selected by the ROD and the work to be performed by the Settling Defendants shall constitute a response action taken or ordered by the President. NOW, THEREFORE, it is hereby Ordered, Adjudged, and Decreed:

II. JURISDICTION

This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1345, and 42 U.S.C. §§ 9606, 9607, and 9613(b). This Court also has personal jurisdiction over the Settling Defendants. Solely for the purposes of this Consent Decree and the underlying complaints, Settling Defendants waive all objections and defenses that they may have to jurisdiction of the Court or to venue in this District. Settling Defendants shall not challenge the terms of

this Consent Decree or this Court's jurisdiction to enter and enforce this Consent Decree.

III. PARTIES BOUND

A. This Consent Decree applies to and is binding upon the United States and the State and upon Settling Defendants and their heirs, successors and assigns. Any change in ownership or corporate status of a Settling Defendant including, but not limited to, any transfer of assets or real or personal property shall in no way alter such Settling Defendant's responsibilities under this Consent Decree.

B. Settling Work Defendant (as defined below) shall provide a copy of this Consent Decree to each contractor hired to perform the O&M Activities (as defined below) required by this Consent Decree and to each person representing Settling Work Defendant with respect to the Site or the O&M Activities and shall condition all contracts entered into hereunder upon performance of the O&M Activities in conformity with the terms of this Consent Decree. Settling Work Defendant or its contractor shall provide written notice of this Consent Decree to all subcontractors hired to perform any portion of the O&M Activities required by this Consent Decree. Settling Work Defendant shall nonetheless be responsible for ensuring that its contractors and subcontractors perform the O&M Activities contemplated herein in accordance with this Consent Decree. With regard to the activities undertaken pursuant to this Consent Decree, each contractor and subcontractor shall be deemed to be in a contractual relationship with Settling Work Defendant within the

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meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3).

IV. DEFINITIONS

A. Unless otherwise expressly provided herein, terms used in this Consent Decree which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Consent Decree or in the appendices attached hereto and incorporated hereunder, the following definitions shall apply:

"Basin-wide Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs and interest, payroll costs, contractor costs, travel costs, laboratory costs, attorneys' fees and just compensation, that the United States or the State has incurred or paid or will incur and pay with regard to basin-wide non-operable unit-specific response actions.

"Blending Facility" shall mean the blending facility and related pipeline designed and constructed by the UAO Parties pursuant to UAO 92-12, beginning generally with the B-5 Connection and concluding with the Point of Interconnection, as "B-5 Connection" and "Point of Interconnection" are defined in the First Consent Decree.

"CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601 et seq.

"City" or "City of Burbank" shall mean the City of Burbank, California, as a charter city, and any of its divisions, departments and other subdivisions. "City" or "City of Burbank"

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shall not include any joint powers authority of which the City of Burbank is a member.

"Consent Decree" or "Second Consent Decree" shall mean this Consent Decree and all appendices attached hereto (listed in Section XXX). In the event of conflict between this Consent Decree and any appendix, this Consent Decree shall control.

"Date of Commencement" shall mean, in general, the date specified by EPA that Settling Work Defendant will assume the O&M responsibilities for the Burbank Operable Unit interim remedy, and Lockheed Martin and the UAO Parties shall cease their respective obligations to perform under the First Consent Decree or UAO 92-12. The parties anticipate that this date will be two years after the System Operation Date for phase two of the Remedial Action Work as specified in the First Consent Decree unless delays, including without limitation delays which any party attributes to a force majeure event, cause that date to be extended. Within thirty (30) days of the System Operation Date for phase two of the Remedial Action Work as specified in the First Consent Decree, EPA will specify the tentative Date of Commencement and notify the Settling Work Defendant, Lockheed Martin and the UAO Parties of the tentative Date of Commencement. EPA may revise the tentative Date of Commencement at any time during phase two of the Remedial Action Work as specified in the First Consent decree, and shall notify the Settling Work Defendant, Lockheed Martin and the UAO Parties of any such revision. EPA's specified tentative Date of Commencement shall control all reporting and similar requirements which are required

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to occur in relation to the Date of Commencement. However, in no event shall the Date of Commencement specified by EPA extend the amount of time the interim remedy is required to operate under the ROD.

"Day" shall mean a calendar day unless expressly stated to be a working day. "Working Day" shall mean a day other than a Saturday, Sunday, or federal or State of California holiday. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or federal or State of California holiday, the period shall run until the close of business of the next Working Day.

"Department of Health Services," or "DHS" shall mean the California pollution control agency of that name and any successor departments or agencies of the State of California with authority to implement the Safe Drinking Water Act.

"Department of Toxic Substances Control" or "DTSC" shall mean the California pollution control agency of that name and any successor departments or agencies of the State of California.

"Design Defect" shall mean a failure of any system required to be designed and constructed pursuant to the First Consent Decree or UAO 92-12 to perform as originally designed, which results from a failure by a design professional used by Lockheed Martin or the UAO Parties to adequately design the system to perform in the manner intended, and as described in the design specifications contained in the Final Remedial Design Reports prepared by Lockheed Martin pursuant to the First Consent Decree or the UAO Parties pursuant to UAO 92-12.

"Downstream Facilities" shall mean the Blending Facility constructed by the UAO Parties pursuant to UAO 92-12 and facilities constructed or repaired by the City of Burbank pursuant to the First Consent Decree. Downstream Facilities also shall mean additional facilities which may be constructed pursuant to this Consent Decree downstream of the Upstream Facilities, as defined in this Section. "Downstream" shall mean the flow of extracted, treated groundwater beginning generally with the Point of Delivery as "Point of Delivery" is defined by the First Consent Decree.

"EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

"Explanation of Significant Differences 1" or "ESD1" shall mean the document dated November 21, 1990, Appendix B to the First Consent Decree. "Explanation of Significant Differences 2" or "ESD2" shall mean the Explanation of Significant Differences dated February 12, 1997, Appendix 5 to this Consent Decree.

"First Consent Decree" shall mean the consent decree entered by this Court on March 25, 1992, resolving the underlying complaint filed by the United States against defendants Lockheed Martin, the City of Burbank and Weber, appended to this Consent Decree as Exhibit 1, and any amendments or modifications to that consent decree.

"Future Basin-wide Response Costs" shall mean all Basin-wide Response Costs incurred or paid by EPA after September 30, 1995 or incurred or paid by the State after March 31, 1996.

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"Future Site-Specific Response Costs" shall mean all types of costs described in the definition of Basin-wide Response Costs, (e.g., payroll costs) above, incurred or paid by the United States after the Certification of Completion issues with respect to the First Consent Decree, or by the State after March 31, 1996, with regard to Burbank Operable Unit-specific response actions.

"Interest" shall mean interest at the rate specified for interest on investments of the Hazardous Substance Superfund established under Subchapter A of Chapter 98 of Title 26 of the U.S. Code, compounded on October 1 of each year, in accordance with 42 U.S.C. § 9607(a).

"Los Angeles Department of Water and Power" or "LADWP" shall mean the department of the City of Los Angeles, and any successor agencies or departments, with which EPA has entered into cooperative agreements for the performance of the Basin-wide Remedial Investigation and Feasibility Study for the San Fernando Valley Superfund sites.

"National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, including, but not limited to, any amendments thereto.

"Operation and Maintenance" or "O&M" or "O&M Activities" shall mean the activities required to operate, maintain and monitor the effectiveness of the interim remedial action as required under the Operation and Maintenance Plan(s) approved or

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developed by EPA in conformance with this Consent Decree, UAO 92-12, the Second Stage O&M Work Plan to be developed under this Consent Decree, and the Second Stage Statement of Work attached as Appendix 4 to this Consent Decree.

"O&M Trust Account" shall mean the trust account which Lockheed Martin shall be required to establish pursuant to Section XIV (Funding of Response Activities), Paragraph D of this Consent Decree.

"Operations and Maintenance Contractor" or "O&M Contractor" shall mean the principal contractor retained by the Settling Work Defendant to perform the O&M Activities. The O&M Contractor shall, inter alia: (1) provide the staff to operate and maintain the Plant Facilities; (2) conduct the day-to-day physical tasks of operating the Plant Facilities; (3) perform routine water quality monitoring; (4) physically perform the routine and non-routine maintenance of the Plant Facilities; and (5) maintain the daily operational records of the Plant Facilities.

"Owner Settling Defendants" shall mean the Settling Defendants listed in Appendix 2.

"Paragraph" shall mean a portion of this Consent Decree or the First Consent Decree identified by an Arabic numeral or an upper case letter.

"Parties" shall mean the United States, the State of California DTSC and the Settling Defendants.

"Past Basin-wide Response Costs" shall mean all Basin-wide Response Costs incurred and paid by EPA prior to September 30, 1995, or incurred and paid by the State prior to March 31, 1996.

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"Past Site-Specific Response Costs" shall mean all costs, including, but not limited to, all types of costs described in the definition of Basin-wide Response Costs, (e.g. payroll costs), above, that the United States incurred and paid with regard to the Burbank Operable Unit Site prior to the issuance of the Certification of Completion for the First Consent Decree or that the State incurred and paid prior to March 31, 1996.

"Performance Standards" shall mean those operation and maintenance standards, standards of control, and other substantive requirements, criteria or limitations set forth in the ROD, the First Consent Decree or this Consent Decree, the Second Stage Statement of Work, Appendix 4 to this Consent Decree, and any work plan established pursuant to the First Consent Decree or this Consent Decree. In the event of any conflict between the First Consent Decree and this Consent Decree, or between any work plan established pursuant to the First Consent Decree or this Consent Decree as to the Performance Standards that apply to the O&M Activities, this Consent Decree or the work plan established pursuant to this Consent Decree shall control.

"Plaintiffs" shall mean the United States and the State of California DTSC.

"Plant Facilities" shall mean all parts of the infrastructure necessary to carry out the Burbank Operable Unit interim remedy, as constructed pursuant to the First Consent Decree and UAO 92-12, including without limitation the extraction wellfield, treatment plant, disinfection facility, booster

station, blending water interconnection and pipeline, connecting pipelines for extraction wells to treatment plant, and Blending Facility.

"Regional Water Quality Control Board" or "RWQCB" shall mean the California pollution control agency and any successor agencies or departments of the State of California, which performs ongoing source investigation and source control work in the San Fernando Valley Basin pursuant to a cooperative agreement between EPA and the State Water Resources Control Board.

"RCRA" shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901 et seq., (also known as the Resource Conservation and Recovery Act).

"Record of Decision" or "ROD" shall mean the EPA Record of Decision relating to the Burbank Operable Unit, signed on June 30, 1989, by the Regional Administrator, EPA Region IX, and all attachments thereto, as modified by the First Consent Decree, ESD1 and ESD2.

"Related Settling Defendants" shall mean entities related to Settling Cash Defendants and identified as such in Appendix 1.

"Released Parties" shall mean Settling Defendants and their officers, directors, employees and agents; where the Settling Defendant or other Released Party is a trust, Released Party also shall mean its trustees and successor trustees appointed to carry out the purposes of said trust; where the Settling Defendant or other Released Party is a corporate entity, Released Party also shall mean its corporate successors to potential liability for the Site; and where the Settling Defendant or other Released

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Party is a partnership, Released Party also shall mean its partners. "Released Parties" also shall mean the named entities described in Appendix 1 as Released Parties related to one or more of the Settling Defendants.

"Remedial Action" or "Remedial Action Work" shall mean those activities, except for Operation and Maintenance, to be undertaken or which have been undertaken by any of the Settling Defendants to implement the final plans and specifications submitted by certain of the Settling Defendants pursuant to the Remedial Design Work Plan under the First Consent Decree or the UAO Remedial Design Work Plan under UAO 92-12 and approved by EPA.

"Remedial Action Work Plan" shall mean the documents submitted by Lockheed Martin and/or the City of Burbank pursuant to the Statement of Work, Appendix D to the First Consent Decree.

"Remedial Design" shall mean those activities which were undertaken by Lockheed Martin and/or the City of Burbank pursuant to the Statement of Work ("SOW"), Appendix D to the First Consent Decree, to develop the final plans and specifications for the Remedial Action pursuant to the Remedial Design Statement of Work, or by the UAO Parties pursuant to the Work Schedule, Appendix A to UAO 92-12, to develop the final plans and specifications for the Blending Facility.

"Remedial Design Statement of Work" or "SOW" shall mean the document appended as Appendix D to the First Consent Decree.

"Remedial Design Work Plan" shall mean the work plans prepared by Lockheed Martin and/or the City of Burbank pursuant

to the SOW, Appendix D to the First Consent Decree, to describe the final plans and specifications for the Remedial Action.

"Second Consent Decree Trust Account" pertains to the trust account which Lockheed Martin shall be required to establish pursuant to Section XIV (Funding of Response Activities), Paragraph C of this Consent Decree.

"Second Stage Operation and Maintenance Work Plan" or "Second Stage O&M Work Plan" shall mean the document prepared pursuant to Section VI of this Consent Decree (Performance of the Work), which shall describe certain Settling Defendants' obligations to operate and maintain, and to dismantle, decommission or otherwise dispose of the Plant Facilities.

"Second Stage Statement of Work" or "Second Stage SOW" shall mean the statement of work for implementation of the O&M Activities, attached as Appendix 4 to this Consent Decree.

"Section" shall mean a portion of this Consent Decree or the First Consent Decree identified by a Roman numeral.

"Settling Cash Defendants" shall mean those Settling Defendants who have funded, in whole or in part, the Second Consent Decree Trust Account described in Section XIV (Funding of Response Activities), via a settlement with Lockheed Martin in the action Lockheed Martin Corporation v. Crane Company et al., United States District Court, Central District of California, Case No. CV 94 2717 MRP (Tx). This term includes each of the UAO Parties.

"Settling Defendants" shall mean Lockheed Martin, Settling Cash Defendants, Related Settling Defendants and Settling Work

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Defendant.

"Settling Work Defendant" shall mean the Settling Defendant that is obligated to perform the Operation and Maintenance Activities pursuant to this Consent Decree, except as to Design Defects as provided in Section VI (Performance of the Work), capital expenditures that are not integral to the Upstream Facilities as provided in Section XIV (Funding Obligations), Paragraph K (Capital Expenditures), and as provided for in Section XIV (Funding Obligations), Paragraph M (Funding Obligation for Design Defects). The City of Burbank is the sole Settling Work Defendant pursuant to this Consent Decree.

"Site" shall mean the areal extent of hazardous substance groundwater contamination that is presently located in the vicinity of the Burbank well field and includes any areas to which and from which such hazardous substance groundwater contamination migrates.

"State" shall mean the Department of Toxic Substances Control and any successor agencies or departments of the State.

"State Water Resources Control Board" or "SWRCB" shall mean the California pollution control agency and any successor agencies or departments of the State of California, with which EPA has entered into a series of cooperative agreements for the ongoing source identification and source control in the Basin conducted by the RWQCB.

"Statement of Work" or "SOW" shall mean the statement of work for implementation of the Remedial Action, and the first two years of Operation and Maintenance at the Site, as set forth in

Appendix D to the First Consent Decree and any modifications made pursuant to the First Consent Decree.

"Supervising Contractor" shall mean the principal contractor retained or otherwise selected by the Settling Work Defendant, and approved by EPA, to (1) develop the Second Stage O&M Work Plan; (2) prepare the Project Time Line and Staffing Plan required by Section VI, Paragraph C.8 of this Consent Decree; (3) prepare bid documents to select the O&M Contractor; and (4) conduct periodic oversight, including engineering oversight of the O&M Contractor, and submit reports on such periodic oversight to EPA.

"UAO 92-12" shall mean the unilateral administrative order executed by EPA on March 26, 1992 as amended by a letter of April 28, 1992, from Jeffrey Zelikson to the UAO Parties, appended as Exhibit 2 to this Consent Decree.

"UAO Parties" shall mean the Respondents as defined in Section VII.V of UAO 92-12: Aeroquip Corporation, Crane Company, Inc., Janco Corporation, Sargent Industries, Incorporated, Antonini Family Trust, and Ocean Technology, Incorporated.

"UAO Remedial Action Work Plan" shall mean the document submitted by the UAO Parties pursuant to Attachment A to UAO 92-12.

"UAO Remedial Design" shall mean those activities which were undertaken by the recipients of UAO 92-12 to develop the final plans and specifications for the Blending Facility pursuant to Attachment A to UAO 92-12.

"UAO Remedial Design Statement of Work" or "UAO SOW" shall

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mean the remedial design document prepared by the recipients of UAO 92-12 and submitted pursuant to Attachment A to UAO 92-12.

"UAO Remedial Design Work" shall mean the activities to be undertaken by the UAO Parties as defined in Section VII.T of UAO 92-12.

"UAO Remedial Design Work Plan" shall mean the work plan prepared by the UAO Parties pursuant to the Work Schedule, Appendix A to UAO 92-12, to describe the final plans and specifications for the Blending Facility.

"Upstream Facilities" pertains to all facilities designed and constructed by Lockheed Martin pursuant to the First Consent Decree and modifications thereto, and to additional facilities which may be constructed pursuant to this Consent Decree upstream of the Blending Facility as originally constructed by the UAO Parties pursuant to UAO 92-12. "Upstream" pertains to the flow of extracted, treated groundwater beginning with its extraction from the aquifer and generally concluding with the Point of Delivery as "Point of Delivery" is defined in the First Consent Decree.

"United States" shall mean the United States of America.

"Waste Material" shall mean (1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any pollutant or contaminant under Section 101(33), 42 U.S.C. § 9601(33); (3) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27); and (4) any "hazardous material" under California Health & Safety Code Section 25100 et seq.

"Working Day" shall mean a day other than a Saturday, Sunday

or federal or State of California holiday.

V. GENERAL PROVISIONS

A. Purpose.

The purposes of this Consent Decree are to protect public health, welfare or the environment at the Site by the implementation of response actions at the Site, to reimburse part of the Plaintiffs' response costs related to the Site, and to resolve amicably the claims asserted against Settling Defendants in the underlying complaints filed in this matter.

B. Commitments by Settling Defendants.

1. Lockheed Martin, the City of Burbank, the UAO Parties and the other Settling Cash Defendants shall finance and/or perform the O&M Activities and other obligations, if any, described in Sections VI, (Performance of the Work), VII (Additional Response Actions), VIII (EPA Periodic Review) and XIV (Funding of Response Activities) herein in accordance with this Consent Decree and all plans, standards, specifications, and schedules set forth in or developed or approved by EPA pursuant to this Consent Decree. Lockheed Martin shall also reimburse the United States and the State for Past and Future Site-Specific and Past Basin-wide Response Costs as provided in Section XVII of this Consent Decree (Reimbursement of Response Costs).

2. The obligations of Lockheed Martin, the City of Burbank, the UAO Parties and the other Settling Cash Defendants to finance and/or to perform the O&M Activities, and other obligations, if any, and to pay amounts owed to the United States and the State under this Consent Decree are several, except with

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respect to the UAO Parties' obligation to fund response actions pursuant to Section XIV (Funding of Response Activities), Paragraph M, which is joint and several as among the UAO Parties, and the Settling Cash Defendants' obligation to fund response actions pursuant to Section XIV, Paragraph N, which is joint and several among the Settling Cash Defendants.

3. Compliance With Applicable Law.

All response activities undertaken by any Settling Defendants pursuant to this Consent Decree shall be performed in accordance with the requirements of all applicable federal and State of California laws and regulations. Settling Defendants who perform response activities also shall comply with all applicable or relevant and appropriate requirements of all federal and State of California environmental laws as set forth in the ROD, the Explanations of Significant Differences, the SOW, the First Consent Decree, this Consent Decree, and any deliverables developed or approved by EPA under the First Consent Decree, UAO 92-12 or this Consent Decree. The activities conducted in accordance with this Consent Decree shall be considered to be consistent with the NCP.

C. Permits.

1. As provided in Section 121(e) of CERCLA, 42 U.S.C. § 9621(e) and Section 300.5 of the NCP, no permit shall be required for any portion of the O&M Activities conducted entirely on-site. Where any portion of the O&M Activities requires a federal or State of California permit or approval, Settling Work Defendant shall submit timely and complete applications and take

all other reasonable actions necessary to obtain all such permits or approvals. Nothing in this Paragraph shall require the City of Burbank to exercise condemnation, eminent domain, or similar powers or authorities.

2. Settling Work Defendant may seek relief under the provisions of Section XIX (Force Majeure) of this Consent Decree for any delay in the performance of the O&M Activities resulting from a failure to obtain, or a delay in obtaining, any permit required for the O&M Activities.

3. This Consent Decree is not, and shall not be construed to be, a permit issued pursuant to any federal or State of California statute or regulation.

D. Notice of Obligations to Successors-in-Title.

1. The obligations of each Owner Settling Defendant with respect to the properties it owns which are identified in Appendix 2 to this Consent Decree, and the provision of access under Section X (Access) shall be binding upon such Owner Settling Defendant and any and all persons who subsequently acquire by conveyance any fee ownership interest in such property or portion thereof within the Site, hereinafter "Successors in Title." Each Owner Settling Defendant warrants and represents that to the best of its knowledge and belief, the properties it owns which are identified in Appendix 2 to this Consent Decree are the only properties it owns within the Site, and the United States relies upon such representations with respect to the mutual agreements in this Consent Decree concerning properties within the Site which are owned by any Settling Defendant.

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2. In the event of any conveyance of such fee ownership or portion thereof, each such Owner Settling Defendant's obligations under this Consent Decree, including its obligations to provide or secure access pursuant to Section X, shall continue to be met by such Owner Settling Defendant. In no event shall the conveyance of an interest in property that includes, or is a portion of, the Site release or otherwise affect the liability of such Owner Settling Defendant to comply with this Consent Decree.

3. Any Owner Settling Defendant and any Successor-in-Title shall, at least thirty (30) days prior to the conveyance of any fee ownership interest in such property, give written notice of this Consent Decree to the grantee. The City shall, at least thirty (30) days prior to the conveyance of any such interest in the real property it owns at 164 West Magnolia Boulevard in the City of Burbank, as depicted in Appendix 8 to this Consent Decree, give written notice of this Consent Decree to the grantee. No later than thirty (30) days after the conveyance of any such interest, such Owner Settling Defendant, Successor-in-Title, or the City shall give written notice to EPA and the State of the conveyance, including the name and address of the grantee, and the date on which notice of the Consent Decree was given to the grantee, and evidence such action by providing a copy of its notice to the grantee.

E. The obligation to provide notice pursuant to this Section shall terminate upon issuance of the Certification of Completion pursuant to Section XV (Certification of Completion)

of this Consent Decree.

F. In the event of any such conveyance by the City of the property at 164 West Magnolia Boulevard in the City of Burbank, the City's obligations under this Consent Decree shall continue to be met by the City. In no event shall the conveyance of an interest in the property release or otherwise affect the liability of the City to comply with the Consent Decree. Any Successor-in-Title to the real property at 164 West Magnolia Boulevard shall be bound by the provisions of Paragraph D.1 through D.3 of this Section.

VI. PERFORMANCE OF THE WORK

A. Selection of Supervising Contractor.

1. All aspects of the O&M Activities to be performed by Settling Work Defendant pursuant to Sections VI (Performance of the Work), VII (Additional Response Actions), VIII (U.S. EPA Periodic Review), and IX (Quality Assurance, Sampling and Data Analysis) of this Consent Decree shall be under the direction and supervision of the Supervising Contractor, the selection of which shall be subject to disapproval by EPA after a reasonable opportunity for review and comment by the State. Within one hundred and eighty (180) days after the entry of this Consent Decree, Settling Work Defendant shall notify EPA and the State in writing of the name, title, and qualifications of any contractor proposed to be the Supervising Contractor. Settling Work Defendant may submit a list of contractors for pre-qualification prior to engaging in any bidding process. Settling Work Defendant may also propose to directly serve in the role of

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Supervising Contractor, subject to EPA's review and approval. EPA will issue a notice of approval or disapproval of the Supervising Contractor. Upon its approval of the Supervising Contractor, EPA will issue an authorization to proceed. If at any time thereafter, Settling Work Defendant proposes to change a Supervising Contractor, Settling Work Defendant shall give such notice to EPA and the State and must obtain an authorization to proceed from EPA, after a reasonable opportunity for review and comment by the State, before the new Supervising Contractor performs, directs, supervises or implements any O&M Activities under this Consent Decree. In addition, if the Supervising Contractor proposes to subcontract any portion of the supervision, direction or implementation of the O&M Activities under this Consent Decree, Settling Work Defendant shall give such notice to EPA and the State and must obtain an authorization to proceed from EPA, after a reasonable opportunity for review and comment by the State, before the subcontractor supervises, directs, or implements any O&M Activities under this Consent Decree.

2. If EPA disapproves a proposed Supervising Contractor, EPA will notify Settling Work Defendant in writing. Settling Work Defendant shall submit to EPA and the State a list of contractors, including the qualifications of each contractor, that would be acceptable to it within thirty (30) days of receipt of EPA's disapproval of the contractor previously proposed. EPA will provide written notice of the names of any contractor(s) that it disapproves and an authorization to proceed with respect

to any of the other contractors. Settling Work Defendant may select any contractor from that list that is not disapproved and shall notify EPA and the State of the name of the contractor selected within twenty-one (21) days of EPA's authorization to proceed.

3. If EPA fails to provide written notice of its approval, authorization to proceed or disapproval as provided in this Paragraph, and this failure prevents Settling Work Defendant from meeting one or more deadlines pursuant to this Consent Decree, Settling Work Defendant may seek relief under the provisions of Section XIX (Force Majeure) hereof.

B. Selection of O&M Contractor.

1. The day-to-day conduct of the O&M Activities will be performed by the O&M Contractor as defined in Section IV (Definitions) of this Consent Decree. The selection of the O&M Contractor shall be subject to disapproval by EPA after a reasonable opportunity for review and comment by the State. Within one hundred and eighty (180) days after the System Operation Date for Phase Two of the Remedial Action Work as specified in the First Consent Decree, Settling Work Defendant shall notify EPA and the State in writing of the name, title and qualifications of any contractor proposed to be the O&M Contractor. EPA will issue a notice of approval or disapproval. Upon issuance of a notice of approval, EPA shall issue an authorization to proceed. If at any time thereafter, Settling Work Defendant proposes to change the O&M Contractor, Settling Work Defendant shall give such notice to EPA and the State and

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must obtain an authorization to proceed from EPA, after a reasonable opportunity for review and comment by the State, before the new O&M Contractor performs, directs, supervises or implements any O&M Activities under this Consent Decree. In addition, if the O&M Contractor proposes to subcontract any portion of O&M Activities under this Consent Decree, Settling Work Defendant shall give such notice to EPA and the State and must obtain an authorization to proceed from EPA, after a reasonable opportunity for review and comment by the State, before the subcontractor supervises, directs, or implements any O&M Activities under this Consent Decree.

2. EPA's approval or disapproval of Settling Work Defendant's selection of an O&M Contractor shall be governed by the procedures set forth in Section VI (Performance of the Work), Paragraphs A.2 and A.3 of this Consent Decree.

C. Completion of the Response Action.

1. Under Section VII of the First Consent Decree, Lockheed Martin, Weber and the City of Burbank submitted to EPA, inter alia, a work plan for the Remedial Design ("Remedial Design Work Plan"), a work plan for the Remedial Action at the Site ("Remedial Action Work Plan") and a plan for the first two years of the Operation & Maintenance ("O&M Work Plan") of the interim remedy. The Remedial Design, Remedial Action and O&M Work Plans provided for design and implementation of part of the interim remedy set forth in the ROD in accordance with the SOW and, upon approval by EPA, were incorporated into and became enforceable under the First Consent Decree. Under Section VII, Paragraph H.1

of the First Consent Decree, the City of Burbank agreed to accept the treated, blended groundwater for distribution to the public water supply.

2. Lockheed Martin, Weber and the City of Burbank are performing their obligations under the First Consent Decree. Unless otherwise stated in this Consent Decree, these parties' obligations under the First Consent Decree are not altered in any manner by this Consent Decree.

3. Under Section X of UAO 92-12, the UAO Parties were required to submit, inter alia, a Remedial Design Work Plan and Remedial Action Work Plan for the design, construction and operation of the Blending Facility.

4. The UAO Parties are performing their obligations under UAO 92-12. Unless otherwise stated in this Consent Decree, these parties' obligations under UAO 92-12 are not altered in any manner by this Consent Decree. The UAO Parties agree to perform and complete their obligations under UAO 92-12.

5. Settling Work Defendant shall begin conducting the Operation and Maintenance of the Plant Facilities, beginning on the Date of Commencement and concluding upon EPA's issuance of a Certification of Completion in accordance with Section XV (Certification of Completion) of this Consent Decree. Specifically, Settling Work Defendant shall operate and maintain the Plant Facilities and monitor the effectiveness of such facilities, for the duration of the time required by the ROD.

6. Lockheed Martin shall perform all work necessary to dismantle and decommission the Plant Facilities upon EPA's

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determination pursuant to Paragraph A.1 of Section XV (Certification of Completion) of this Consent Decree that dismantling and/or decommissioning is required.

7. As provided in Section XIV (Funding of Response Activities), Paragraphs D and M, Lockheed Martin shall fund the O&M Activities for the Upstream Facilities and any response activities required because of a Design Defect in the Upstream Facilities. As is also provided in Section XIV (Funding of Response Activities), Paragraph C, the Settling Cash Defendants shall fund the Second Consent Decree Trust Account according to their respective shares as set forth in Appendix 6 to this Consent Decree, which is submitted under seal. As provided in Section XIV, Paragraph M.2(c)(2), the UAO Parties also shall fund any response activities required because of a Design Defect in the Blending Facility. Lockheed Martin, the City of Burbank, and the Settling Cash Defendants shall fund any response activities required because of an earthquake or Uninsurable Force Majeure Event, as defined in Section XIV, Paragraph N, as provided in that Paragraph. The City of Burbank shall fund the Operation and Maintenance of the Downstream Facilities except insofar as the UAO Parties may be required to fund such activities because of a Design Defect, or Lockheed Martin or the Settling Cash Defendants may be required to fund such activities because of an earthquake or Uninsurable Force Majeure Event.

8. Within one year after the Effective Date of this Consent Decree, as defined in Section XXVIII (Effective Date), Settling Work Defendant shall submit to EPA:

a. A Staffing Plan indicating lines of responsibility and communication for day-to-day operations, and designating the person or persons responsible for oversight of the O&M Activities on behalf of Settling Work Defendant. Such person or persons may be a member or members of Settling Work Defendant's staff or a member of Settling Work Defendant's Supervising or O&M Contractors' staffs. Settling Work Defendant shall also designate a single contact for communications with EPA for the O&M Activities from the Effective Date of this Consent Decree, as defined in Section XXVIII (Effective Date), through completion of the Remedial Action.

b. A Time Line and Schedule describing the timing of the O&M Activities which will be carried out during the period of time covered by the First Consent Decree, including but not limited to any transitions in operations responsibility to take place between Lockheed Martin and the City of Burbank prior to or at the Date of Commencement.

9. Within two (2) years after the Effective Date of this Consent Decree, as defined in Section XXVIII (Effective Date), the Settling Work Defendant shall submit to EPA a Second Stage O&M Work Plan describing in detail the tasks to be performed to operate and maintain the Plant Facilities.

D. Settling Defendants acknowledge and agree that nothing in the First Consent Decree, this Consent Decree, the Second Stage O&M Work Plan or in any plan approved pursuant to the First Consent Decree or this Consent Decree constitutes a warranty or representation of any kind by Plaintiffs that compliance with the

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work requirements set forth in the O&M Second Stage Work Plan and completion of the O&M Activities will achieve the Performance Standards. Settling Work Defendant's compliance with the requirements of Section VI (Performance of the Work) shall not foreclose Plaintiffs from seeking achievement of all requirements of the ROD including, but not limited to, the applicable Performance Standards.

E. Settling Work Defendant shall, prior to any off-site shipment of Waste Material from the Site to an out-of-state waste management facility, provide written notification to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator of such shipment of Waste Material. However, this notification requirement shall not apply to any off-site shipments when the total volume of all such shipments will not exceed 10 cubic yards.

1. The Settling Work Defendant shall include in the written notification the following information, where available: (1) the name and location of the facility to which the Waste Material(s) are to be shipped; (2) the type and quantity of the Waste Material to be shipped; (3) the expected schedule for the shipment of the Waste Material; and (4) the method of transportation. The Settling Work Defendant shall notify the state in which the planned receiving facility is located of major changes in the shipment plan, such as a decision to ship the Waste Material to another facility within the same state, or to a facility in another state.

2. The Settling Work Defendant shall provide the information required by this Section, Paragraph E.1 as soon as practicable and before the Waste Material is actually shipped.

F. Miscellaneous Standards of Control.

1. Settling Work Defendant may discharge extracted water to any offsite conveyance(s) leading to any Publicly Owned Treatment Works ("POTW") or to any off-site conveyance(s) leading to any water(s) of the United States for a period of up to five (not necessarily consecutive) days during any month, if the water is not accepted by the City and cannot be vended, provided that the following requirements are met for such discharge:

a. All substantive and procedural requirements applicable to such discharge at the time of such discharge shall be met, including any limits on the quantity of water to be discharged;

b. The total combined amount of any discharge(s) of extracted water to any off-site conveyance(s) leading to any POTW(s) at any time shall not exceed 6,000 gpm; and

c. The total combined amount of extracted water discharged to any off-site conveyance(s) leading to any POTW(s) and to any off-site conveyance(s) leading to any water(s) of the United States at any time shall not exceed 9,000 gpm.

Nothing in this Paragraph shall excuse Settling Work Defendant from stipulated penalties for failure to comply with any other requirements of this Consent Decree.

2. Settling Work Defendant may discharge development and purge water from wells to any off-site conveyance(s) leading

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to any POTW or to any offsite conveyance(s) leading to any water(s) of the United States, provided that any such discharge is in compliance with all substantive and procedural requirements applicable to such discharge at the time of such discharge. Water discharged pursuant to this Section, Paragraph F.2 shall not be included in the limits on the amount of water allowed to be discharged pursuant to this Section, Paragraph F.1.

3. Any water containing hazardous constituents and stored onsite for more than ninety (90) days shall be handled as a hazardous waste onsite. Such storage shall be accomplished in compliance with the substantive requirements of 40 C.F.R. Part 264, Subparts I and J, and 22 California Code of Regulations, Chapter 30, Article 24 ("Use and Management of Containers") and Article 25 ("Tank Systems"). These requirements are applicable or relevant and appropriate requirements for the O&M Activities.

4. With respect to requirements for the operation of the groundwater treatment plant's VOC-stripper (i.e., air stripper with vapor phase granulated activated carbon absorption units), South Coast Air Quality Management District ("SCAQMD") Rule 1167 was rescinded in December of 1988 and Settling Work Defendant is not required to comply with this Rule despite any other language in this Consent Decree. Furthermore, some of the regulations cited in the ROD have been changed by the SCAQMD. The only requirements of the SCAQMD that Settling Work Defendant is required to comply with in performing Work onsite are the substantive requirements of the following applicable or relevant and appropriate requirements for the groundwater treatment plant

VOC stripper:

a. SCAQMD Regulation XIII, as amended through June 28, 1990; and

b. SCAQMD Rule 1401, as adopted on June 1, 1990.

G. System Operation Minimum Standards. The work to be performed shall achieve the Performance Standards and shall, at a minimum, achieve the following standards during system operation:

1. All groundwater to be extracted shall be treated by Settling Work Defendant to a level such that the following chemicals do not exceed their respective MCL:

Chemical	MCL
PCE	5.0 micrograms/liter
TCE	5.0 micrograms/liter

2. All treated groundwater shall be disinfected and then blended by the Settling Work Defendant to meet all legal requirements for introduction of the blended water into the City's water supply system, including, but not limited to, the MCL for nitrate.

3. Settling Work Defendant shall operate and maintain the facilities it is required to operate and maintain in such a way as to ensure that failure to attain drinking water standards promulgated and in effect on the date of delivery (other than the MCL for nitrate), regardless of when any such standards were promulgated, shall result in the immediate, and, in all cases where possible, automatic shut-down of the groundwater treatment plant and water delivery system. Such a shut-down shall not, in and of itself, release Settling Work Defendant from any other

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requirement of this Consent Decree and specifically shall not, in and of itself, affect the requirement that Settling Work Defendant pay stipulated penalties for failure to extract and deliver water in the amounts and of the quality required by Paragraphs G.3 and H.1 of this Section.

H. Extraction Requirements.

1. The Settling Work Defendant shall extract and treat an annual average of 9,000 g.p.m. of contaminated groundwater except as otherwise provided in this Section. Settling Work Defendant shall purvey all treated groundwater which satisfies the treatment standards established by Paragraphs G and H of this Section up to an amount which, when blended with the blending water, will meet the City's Water Demand (as defined in the Second Stage Statement of Work) without resulting in a nitrate concentration in the blended water that exceeds the promulgated MCL for nitrate in effect at that time; provided however that, in order to maximize the Settling Work Defendant's use of treated groundwater while providing a margin of safety in achieving compliance with the MCL for nitrate, the Settling Work Defendant shall be deemed to be in compliance with this Paragraph if it

a. Achieves at all times a level of nitrate in the blended water which is no greater than eighty-nine percent (89%) of the promulgated MCL for nitrate that is in effect at the time of the blending;

b. Extracts contaminated groundwater at an annual average rate of 9,000 g.p.m. at all times when the nitrate level in the extracted groundwater does not exceed 50 mg/l as nitrate;

and

c. Maximizes the use of the extracted groundwater to the degree possible when the nitrate level in the extracted groundwater exceeds 50 mg/l as nitrate.

2. Notwithstanding the requirements of Paragraph H.1 of this Section, the Settling Work Defendant shall not be charged a stipulated penalty for failure to meet a nitrate level specified in that Paragraph except where the nitrate concentrations of the blended water exceed the promulgated MCL for nitrate in effect at the time of the blending.

3. Settling Work Defendant shall maximize the amount of extraction from the Phase I and Phase II extraction wells and shall preferentially extract groundwater from these wells to meet its Water Demand as limited by the amount of water the Settling Work Defendant is required to accept pursuant to Paragraph H.1 of this Section.

4. Settling Work Defendant shall extract, treat and use its best efforts to vend or discharge, in compliance with Paragraphs F and G of this Section, additional groundwater such that the total amount of water extracted, treated and then delivered by the Settling Work Defendant, or vended or discharged by the Settling Work Defendant, equals or exceeds 9,000 g.p.m. on an annual average. Extraction from the City's liquid phase GAC wellfield located at 164 West Magnolia Boulevard, Burbank, California, as depicted in the plot plan attached as Appendix 8 to this Consent Decree, may be counted towards Settling Work Defendant's achievement of the 9,000 g.p.m. annual average

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extraction requirement. Settling Work Defendant shall be subject to stipulated penalties if it fails to achieve the 9,000 g.p.m. annual average extraction requirement, unless such failure is due to nitrate levels in the extracted groundwater which exceed 50 mg/l as nitrate.

I. Settling Work Defendant shall not be obligated to meet the requirements of this Section, Paragraph H.1 if a new drinking water standard is promulgated after March 1, 1997, EPA has identified such standard as applicable or relevant and appropriate for the treated groundwater and necessary to protect public health or the environment and such standard cannot be met without modifying the facilities constructed pursuant to Section VII, Subpart A of the First Consent Decree or changing their operation.

VII. ADDITIONAL RESPONSE ACTIONS

A. In the event that EPA determines or the Settling Work Defendant proposes that additional response actions are necessary to meet the Performance Standards or to carry out the interim remedy selected in the ROD, notification of such additional response actions shall be provided to EPA and to each of the Settling Defendants.

B. Within thirty (30) days of receipt of notice from EPA or Settling Work Defendant pursuant to Paragraph A of this Section that additional response actions are necessary (or such longer time as may be specified by EPA), Settling Work Defendant shall submit for approval by EPA, after reasonable opportunity for review and comment by the State, a work plan for the additional

response actions. The plan shall conform to the applicable requirements under law or EPA guidance. Upon approval of the plan pursuant to Section XII (Submissions Requiring Agency Approval), Settling Work Defendant shall implement the plan for additional response actions in accordance with the schedule contained therein.

C. Any additional response actions that Settling Work Defendant proposes are necessary to meet the Performance Standards or to carry out the interim remedy selected in the ROD shall be subject to approval by EPA, after reasonable opportunity for review and comment by the State, and, if authorized by EPA, shall be completed by Settling Work Defendant in accordance with plans, specifications, and schedules approved or established by EPA pursuant to Section XII (Submissions Requiring Agency Approval).

D. Any Settling Defendant required to fund, perform, or operate and maintain completed additional response actions may invoke the procedures set forth in Section XX (Dispute Resolution) to dispute EPA's determination that additional response actions are necessary to meet the Performance Standards or to carry out the interim remedy selected in the ROD. Such a dispute shall be resolved pursuant to Section XX (Dispute Resolution), Paragraph F of this Consent Decree.

E. The United States and the State reserve all rights against Settling Defendants, pursuant to Paragraph E of Section XXII (Covenants Not to Sue by Plaintiffs), if any new requirement(s) are promulgated or if any requirement(s)

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promulgated on or before the Effective Date of this Consent Decree as defined in Section XXVIII (Effective Date) subsequently are changed and such requirement(s) are determined by EPA to be both (a) applicable or relevant and appropriate and (b) necessary to insure that the interim remedy is protective of human health and the environment and such standard cannot be met without modifying the Plant Facilities or significantly changing their operation.

F. If EPA determines that reinjection capacity is necessary for the remedy to meet the Performance Standards or to protect human health or the environment, the development of such capacity shall not be considered an additional response action under this Section. The United States and the State reserve all rights against Settling Defendants as provided in Paragraph E of Section XXII (Covenants Not to Sue by Plaintiffs) concerning installation of such capacity.

VIII. EPA PERIODIC REVIEW

A. Settling Work Defendant shall conduct any studies and investigations as requested by EPA in order to permit EPA to conduct reviews at least every five years as required by Section 121(c), 42 U.S.C. § 9621(c) of CERCLA and any applicable regulations.

B. Settling Defendants and, if required by Sections 113(k)(2) or 117 of CERCLA, 42 U.S.C. §§ 9613(k)(2) or 9617, the public will be provided with an opportunity to comment on any further response actions proposed by EPA as a result of the review conducted pursuant to Section 121(c), of CERCLA, 42 U.S.C.

§ 9621(c), and to submit written comments for the record during the public comment period. After the period for submission of written comments is closed, the Regional Administrator, EPA Region IX, or his/her delegate will determine in writing whether further response actions are appropriate.

C. The United States reserves the right pursuant to Section XXII, Paragraphs A and E of this Consent Decree (Covenants Not to Sue by Plaintiffs) to institute proceedings in this action or in a new action, or to issue an administrative order seeking to compel Settling Defendants or any of them (1) to perform further response actions relating to the Site or (2) to reimburse the United States for additional costs of response if the Regional Administrator, EPA Region IX, or his/her delegate determines that information received, in whole or in part, during the review conducted pursuant to Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), indicates that the Remedial Action or the O&M Activities are not protective of human health or the environment.

IX. QUALITY ASSURANCE, SAMPLING, AND DATA ANALYSIS

A. Settling Work Defendant shall use quality assurance, quality control, and chain of custody procedures for all treatability, design, compliance and monitoring samples in accordance with EPA's "Interim Guidelines and Specifications For Preparing Quality Assurance Project Plans," December 1980, (QAMS-005/80); "Data Quality Objective Guidance," (EPA/540/G87/003 and 004); "EPA NEIC Policies and Procedures Manual," May 1978, revised November 1984, (EPA 330/9-78-001-R); and subsequent

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amendments to such guidelines upon notification by EPA to Settling Work Defendant of such amendment. Amended guidelines shall apply only to procedures conducted after such notification. Prior to the commencement of any monitoring project under this Consent Decree, Settling Work Defendant shall submit to EPA for approval, after a reasonable opportunity for review and comment by the State, a Quality Assurance Project Plan ("QAPP") that is consistent with the Second Stage O&M Work Plan, the NCP and applicable guidance documents. If relevant to the proceeding, the Parties agree that validated sampling data generated in accordance with the QAPP(s) and reviewed and approved by EPA shall be admissible as evidence, without objection, in any proceeding under this Consent Decree. Settling Work Defendant shall ensure that EPA and State personnel and their authorized representatives are allowed access at reasonable times to all laboratories utilized by Settling Work Defendant in implementing this Consent Decree. In addition, Settling Work Defendant shall ensure that such laboratories shall analyze all samples submitted by EPA pursuant to the QAPP for quality assurance monitoring. Settling Work Defendant shall ensure that the laboratories it utilizes for the analysis of samples taken pursuant to this Consent Decree perform all analyses according to accepted EPA methods. Accepted EPA methods consist of those methods which are documented in the "Contract Lab Program Statement of Work for Inorganic Analysis" and the "Contract Lab Program Statement of Work for Organic Analysis," dated February 1988, and any amendments made thereto during the course of the implementation

of this Consent Decree. Settling Work Defendant shall ensure that all laboratories it uses for analysis of samples taken pursuant to this Consent Decree participate in an EPA or EPA-equivalent QA/QC program.

B. Upon request, Settling Work Defendant shall allow split or duplicate samples to be taken by EPA and the State or their authorized representatives. Settling Work Defendant shall include in the O&M Second Stage Work Plan a schedule of routine, pre-scheduled sampling events, for example those required by the California Department of Health Services under the operating permit for the Plant Facilities, or under existing regulations. As regulations or permit conditions change and affect this schedule, Settling Work Defendant shall submit revised schedules as amendments to the Second Stage O&M Work Plan. For non-routine, non-emergency sampling events, for example, an unscheduled performance evaluation study of the Plant Facilities, Settling Work Defendant shall notify EPA and the State not less than fourteen (14) days in advance of any sample collection activity unless shorter notice is agreed to by EPA. In addition, EPA and the State shall have the right to take any additional samples that EPA or the State deem necessary. Upon request, EPA and the State shall allow any Settling Defendant to take split or duplicate samples of any samples either Plaintiff takes as part of either Plaintiff's oversight of the implementation of the O&M activities.

C. Settling Work Defendant shall submit to EPA three (3) copies each of the results of all sampling and/or tests

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performed, or data gathered pursuant to the implementation of this Consent Decree unless EPA agrees otherwise. Such results and other data may be submitted as part of the progress reports required pursuant to Paragraph A.1 of Section XI (Reporting Requirements). EPA will provide to Settling Work Defendant's Project Coordinator results of analyses conducted by EPA pursuant to Section IX, (Quality Assurance, Sampling and Data Analysis), Paragraph B of this Consent Decree.

D. Notwithstanding any provision of this Consent Decree, the United States and the State hereby retain all of their information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, RCRA and any other applicable statutes or regulations.

E. Settling Work Defendant may deviate from EPA guidance on Quality Assurance/Quality Control ("QA/QC") as referenced in Section IX, Paragraph A of this Consent Decree under the following circumstances. For compliance monitoring required under federal and/or State of California drinking water regulations, Settling Work Defendant may follow QA/QC procedures required under those regulations so long as EPA determines that such procedures are equally protective of human health and the environment as EPA QA/QC procedures.

X. ACCESS

A. Commencing upon the Effective Date of this Consent Decree and terminating upon issuance of a final ROD for the Site, each Owner Settling Defendant agrees to provide the United States, the State, and their representatives, including EPA and

its contractors, access at all reasonable times to real property to which EPA informs such Owner Settling Defendant access is required for the implementation of this Consent Decree, to the extent access to the property is controlled by such Owner Settling Defendant, for the purposes of conducting any activity related to this Consent Decree including, but not limited to:

a. Monitoring the O&M Activities;

b. Verifying any data or information submitted to the United States;

c. Conducting investigations relating to contamination at or near the Site;

d. Obtaining samples;

e. Assessing the need for, planning, or implementing additional response actions at or near the Site;

f. Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Settling Defendants or their agents, pursuant to Section XXV (Access to Information); and

g. Assessing Settling Defendants' compliance with this Consent Decree.

B. Except to the extent Plaintiffs deem necessary to protect human health or the environment, Plaintiffs will provide the affected Settling Defendant with twenty-four (24) hours notice prior to entry to properties accessed pursuant to this Consent Decree. In exercising their rights to access under this Paragraph, Plaintiffs shall to the extent practicable not unreasonably interfere with Settling Defendants' business or

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municipal activities. However, nothing in this Paragraph shall provide Settling Defendants with any claim or cause of action whatsoever against Plaintiffs, including without limitation any claim for injunctive relief. In addition, it shall not constitute an unreasonable interference for Plaintiffs to take any action they deem necessary to avoid endangerment to human health or the environment or to respond to an emergency.

C. To the extent that any other real property to which access is required for the implementation of this Consent Decree is owned or controlled by persons other than Owner Settling Defendants, Settling Work Defendant shall use best efforts to secure from such persons access for Settling Work Defendant, as well as for the United States and the State and their representatives, including, but not limited to, their contractors, as necessary to effectuate this Consent Decree. For purposes of this Paragraph, "best efforts" may include the payment of reasonable sums of money in consideration of access. "Best efforts" does not include the exercise of eminent domain, condemnation or similar authorities. Settling Defendants shall coordinate and cooperate with Settling Work Defendant as appropriate and necessary to obtain such access to properties which they own, control, or to which they otherwise have access. If any access required to effectuate this Consent Decree is not obtained within forty-five (45) days of the date of lodging of this Consent Decree, or within forty-five (45) days of the date EPA notifies the Settling Work Defendant in writing that additional access beyond that previously secured is necessary,

Settling Work Defendant shall promptly notify the United States, and shall include in that notification a summary of the steps Settling Work Defendant, or other Settling Defendants in coordination and cooperation with Settling Work Defendant, have taken pursuant to this Section to attempt to obtain access. The United States or the State may, as either deems appropriate, assist Settling Work Defendant in obtaining access. Lockheed Martin shall reimburse the United States or the State, in accordance with the procedures in Section XVII (Reimbursement of Response Costs), for all costs incurred by the United States or the State in obtaining access pursuant to this Section.

D. Notwithstanding any provision of this Consent Decree, the United States and the State retain all of their access authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA and any other applicable statute or regulations.

XI. REPORTING REQUIREMENTS

A. In addition to any other requirement of this Consent Decree, Settling Work Defendant shall submit to EPA and the State, with the frequency described below, three (3) copies each of written progress reports that: (a) describe the actions which have been taken toward achieving compliance with this Consent Decree during the previous reporting period; (b)include a summary of all results of sampling and tests and all other data received or generated by Settling Work Defendant or its contractors or agents in the previous reporting period; (c) identify all work plans, plans and other deliverables required by this Consent

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Decree completed and submitted during the previous period; (d) describe all actions, including, but not limited to, data collection and implementation of work plans, which are scheduled for the subsequent two reporting periods, (e) include information regarding unresolved delays encountered or anticipated that may affect the future schedule for implementation of the O&M Activities, and a description of efforts made to mitigate those delays or anticipated delays; (f) include any modifications to the O&M Second Stage Work Plan or other schedules that Settling Work Defendant has proposed to EPA or that have been approved by EPA; (g) describe all activities undertaken in support of the Community Relations Plan during the period dating from the submission of the last progress report and those to be undertaken prior to the submission of the next progress report, and (h) report any out-of-state shipments of Waste Materials that occurred during the previous reporting period. Settling Work Defendant shall submit these progress reports to EPA with the frequency described below, commencing from the Effective Date of this Consent Decree until EPA notifies the Settling Work Defendant pursuant to Paragraph A.5 of Section XV (Certification of Completion). If requested by EPA or the State, Settling Work Defendant shall also provide briefings for EPA and the State to discuss the progress of the work.

1. The progress reports shall be submitted with the following frequency:

a. Semi-annually from the Effective Date of this Consent Decree until one year prior to the Date of Commencement;

b. Quarterly during the year prior to the Date of Commencement;

c. Monthly commencing with the Date of Commencement for a period of three years ("the Monthly Reporting Requirement").

d. Quarterly from completion of the Monthly Reporting Requirement until EPA notifies the Settling Work Defendant pursuant to Paragraph A.5 of Section XV (Certification of Completion) of this Consent Decree.

2. The Settling Work Defendant shall notify EPA of any change in the schedule described in the progress reports for the performance of any activity, including, but not limited to, data collection and implementation of work plans, no later than seven (7) days prior to the performance of the activity.

B. Upon the occurrence of any event during performance of the O&M Activities that Settling Work Defendant is required to report pursuant to Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-Know Act (EPCRA), 42 U.S.C. § 11004, Settling Work Defendant shall within twenty-four (24) hours of the onset of such event orally notify the EPA Project Coordinator or the Alternate EPA Project Coordinator (in the event of the unavailability of the EPA Project Coordinator), or, in the event that neither the EPA Project Coordinator or Alternate EPA Project Coordinator is available, the Emergency Response Section, Region IX, United States Environmental Protection Agency. These reporting requirements are in addition to the reporting required by CERCLA

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Section 103, 42 U.S.C. § 9603 or EPCRA Section 304, 42 U.S.C. § 11004.

C. Within twenty (20) days of the onset of such an event, Settling Work Defendant shall furnish to Plaintiffs a written report, signed by the Settling Work Defendant's Project Coordinator, setting forth the events which occurred and the measures taken, and to be taken, in response thereto. Within thirty (30) days of the conclusion of such an event, Settling Work Defendant shall submit a report setting forth all actions taken in response thereto.

D. Settling Work Defendant shall submit three (3) copies of all plans, reports, and data required by the Second Stage O&M Work Plan to EPA. Settling Work Defendant shall simultaneously submit three (3) copies of all such plans, reports and data to the State.

E. All reports and other documents submitted by Settling Work Defendant to EPA (other than the progress reports referred to above) which purport to document Settling Work Defendant's compliance with the terms of this Consent Decree shall be signed by an authorized representative of the Settling Work Defendant.

F. Settling Work Defendant shall immediately notify EPA of any failure to attain MCLs or State of California Action Levels ("SALs") when such failures occur at a point of compliance as defined under federal or State of California drinking water regulations.

XII. SUBMISSIONS REQUIRING AGENCY APPROVAL

A. After review of the Second Stage O&M Work Plan or other item which is required to be submitted for approval pursuant to this Consent Decree, EPA, after reasonable opportunity for review and comment by the State, shall: (1) approve, in whole or in part, the submission; (2) approve the submission upon specified conditions; (3) modify the submission to cure the deficiencies; (4) disapprove, in whole or in part, the submission, directing that the Settling Work Defendant modify the submission; or (5) any combination of the above.

B. In the event of approval, approval upon conditions, modification, disapproval or partial disapproval by EPA, pursuant to this Section, Paragraph A, Settling Work Defendant shall proceed to take any action required by the Second Stage O&M Work Plan or other item, as approved or modified by EPA, subject only to its right to invoke the dispute resolution procedures set forth in Section XX (Dispute Resolution) with respect to the modifications or conditions made by EPA. However, in the event that EPA modifies the submission pursuant to this Section, Paragraphs A and D, to cure continued deficiencies, and the submission has a material defect not cured upon resubmittal, EPA retains its right to impose stipulated penalties, as provided in Section XXI (Stipulated Penalties), retroactive to the date of the initial submittal.

C. Upon receipt of a notice of disapproval of a resubmitted Second Stage O&M Work Plan or other item, or portion

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thereof, pursuant to this Section, Paragraph C or D, Settling Work Defendant shall, within fourteen (14) days or such other time as specified by EPA in such notice, correct the remaining deficiencies and resubmit the Second Stage O&M Work Plan or other item for approval. Any disapproval by EPA shall include an explanation of why the deliverable is inadequate. If the resubmitted deliverable is inadequate, Settling Work Defendant shall be deemed to be in violation of this Consent Decree. Any stipulated penalties applicable to the submission, as provided in Section XXI (Stipulated Penalties), shall accrue during the fourteen-day (14-day) period or otherwise specified period but shall not be payable unless the resubmission is disapproved or modified due to a material defect as provided in this Section, Paragraph E.

Notwithstanding the receipt of an initial notice of disapproval pursuant to this Section, Paragraph A, D or E, Settling Work Defendant shall proceed, at the direction of EPA, to take any action required by any non-deficient portion of the submission. Implementation of any non-deficient portion of a submission shall not relieve Settling Work Defendant of any liability for stipulated penalties under Section XXI (Stipulated Penalties).

D. In the event that a resubmitted Second Stage O&M Work Plan or other item, or portion thereof, is disapproved by EPA, EPA may again require the Settling Work Defendant to correct the deficiencies, in accordance with the preceding Paragraphs. EPA also retains the right to amend or develop the Second Stage O&M

Work Plan or other item. Settling Work Defendant shall implement the Second Stage O&M Work Plan or other item as amended or developed by EPA, subject only to its right to invoke the procedures set forth in Section XX (Dispute Resolution).

E. If upon resubmission, the Second Stage O&M Work Plan or other item is disapproved or modified by EPA due to a material defect, Settling Work Defendant shall be deemed to have failed to submit the Second Stage O&M Work Plan or other item timely and adequately unless Settling Work Defendant invokes the dispute resolution procedures set forth in Section XX (Dispute Resolution) and EPA's action is overturned pursuant to that Section. The provisions of Section XX (Dispute Resolution) and Section XXI (Stipulated Penalties) shall govern the implementation of the O&M Activities and accrual and payment of any stipulated penalties during dispute resolution. If EPA's disapproval or modification is upheld, stipulated penalties shall accrue for such violation from the date on which the initial submission was originally required, as provided in this Section, Paragraph C.

F. The Second Stage O&M Work Plan and other items required to be submitted to EPA under this Consent Decree shall, upon approval or modification by EPA, be enforceable under this Consent Decree. In the event EPA approves or modifies a portion of the Second Stage O&M Work Plan or other item required to be submitted to EPA under this Consent Decree, the approved or modified portion shall be enforceable under this Consent Decree.

G. Items required to be submitted for approval by EPA

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pursuant to this Consent Decree are set forth in the Second Stage Statement of Work, Appendix 4 to this Consent Decree.

XIII. PROJECT COORDINATORS

A. Within thirty (30) days of the Effective Date of this Consent Decree, Settling Work Defendant, Lockheed Martin, the UAO Parties, the State and EPA will notify each other, in writing, of the name, address and telephone number of their respective designated Project Coordinators and Alternate Project Coordinators. If a Project Coordinator or Alternate Project Coordinator initially designated is changed, the identity of the successor will be given to the other parties at least five (5) working days before the change occurs, unless impracticable, but in no event later than the actual day the change is made. The Settling Work Defendant's Project Coordinator shall be subject to disapproval by EPA and shall have the technical expertise sufficient to adequately oversee all aspects of the O&M Activities. The Settling Work Defendant's Project Coordinator shall not be an attorney for any of the Settling Defendants in this matter. He or she may assign other representatives, including other contractors, to serve as a Site representative for oversight of performance of daily operations during O&M Activities.

B. Plaintiffs may designate other representatives, including, but not limited to, EPA and State employees, and federal and State contractors and consultants, to observe and monitor the progress of any activity undertaken pursuant to this Consent Decree. EPA's Project Coordinator and Alternate Project

Coordinator shall have the authority lawfully vested in a Remedial Project Manager (RPM) and an On-Scene Coordinator (OSC) by the National Contingency Plan, 40 C.F.R. Part 300. In addition, EPA's Project Coordinator or Alternate Project Coordinator shall have authority, consistent with the National Contingency Plan, to halt any O&M Activities required by this Consent Decree and to take any necessary response action when the Project Coordinator determines that conditions at the Site constitute an emergency situation or may present an immediate threat to public health or welfare or the environment due to release or threatened release of Waste Material.

C. EPA's Project Coordinator and the Defendants' Project Coordinators will meet on a regular basis as deemed appropriate by EPA's Project Coordinator.

XIV. FUNDING OF RESPONSE ACTIVITIES

A. Within sixty (60) days of the Effective Date, Lockheed Martin shall establish and maintain financial security in the amount of $ 48 million, in one or a combination of the following forms:

1. A surety bond guaranteeing performance of the O&M Activities for the Upstream Facilities;

2. One or more irrevocable letters of credit;

3. A trust fund or combination of trust funds;

4. A guarantee to fund the O&M Activities for the Upstream Facilities by one or more parent corporations or subsidiaries, or by one or more unrelated corporations that have a substantial business relationship with Lockheed Martin;

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5. A demonstration that Lockheed Martin satisfies the requirements of 40 C.F.R. Part 264.143(f); or

6. A demonstration, by submittal of its annual report on Form 10-K filed with the Securities and Exchange Commission, that Lockheed Martin possesses the requisite financial ability to assure completion of the O&M Activities for the Upstream Facilities.

B. The amount of financial security that Lockheed Martin is required to maintain shall be decreased in the following increments:

1. Nine years after the Date of Commencement, Lockheed Martin shall maintain financial security in the amount of $ 39 million.

2. Twelve years after the Date of Commencement, Lockheed Martin shall maintain financial security in the amount of $ 31 million.

3. Fifteen years after the Date of Commencement, Lockheed Martin shall maintain financial security in the amount of $ 18 million.

4. Upon decreasing the amount of financial security as provided by this Paragraph, Lockheed shall make a new demonstration of such financial security in the manner described in Paragraph A.1 through A.6 of this Section.

C. Within sixty (60) days of the Effective Date, each Settling Cash Defendant shall cause the funds in the escrow account established pursuant to the settlement agreement reached in the action entitled Lockheed Corporation v. Crane Company,

United States District Court, Central District of California No. CV 94-2717 MRP (Tx) ("Escrow Account") to be transferred into a segregated account ("Second Consent Decree Account"), which shall be used to satisfy Lockheed Martin's obligations as required by this Consent Decree.

D. Within thirty (30) days prior to the Date of Commencement, Lockheed Martin shall establish a trust account ("O&M Trust Account"). The O&M Trust Account shall be used to satisfy Lockheed Martin's obligation to fund the O&M Activities for the Upstream Facilities and other obligations as required by this Section XIV (Funding of Response Activities), Section VI (Performance of the Work), Paragraph C.7, and Section XVIII (Indemnification and Insurance), of this Consent Decree. Lockheed Martin also shall fund transition activities and the Settling Work Defendant's preparation of an integrated O&M manual for the combined Plant Facilities as agreed to in a separate agreement between Lockheed Martin and Settling Work Defendant.

1. The costs of O&M Activities with respect to the Upstream Facilities, including but not limited to the costs of rectifying any construction defect in the Upstream Facilities, all costs of additional response actions required by EPA pursuant to Section VII (Additional Response Actions) related to the Upstream Facilities, and costs incurred for the Site pursuant to Section VIII (EPA Periodic Review) shall be paid from the O&M Trust Account subject to the limitations and in accordance with the provisions set forth in this Section.

2. All costs of O&M Activities with respect to the

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Downstream Facilities, including but not limited to the costs of rectifying any construction defect in the Downstream Facilities, and all costs of additional response actions required by EPA pursuant to Section VII (Additional Response Actions) related to the Downstream Facilities shall be paid directly by the City and shall not be subject to reimbursement from the O&M Trust Account. The City's contracting and accounting systems shall be established so as to clearly distinguish between costs incurred for O&M Activities or other activities associated with the Upstream Facilities and costs incurred for O&M Activities or other activities associated with the Downstream Facilities.

3. Prior to the Date of Commencement and contemporaneously with the execution of appropriate documents under Section XIV, Paragraph L of this Consent Decree, the UAO Parties shall execute such agreements as are necessary to assign to the City of Burbank any and all express and implied warranties, rights, claims or causes of action they have or may have as against their construction contractors related to the construction of the Blending Facility, specifically including, but not limited to, claims for defects in the construction of the Blending Facility, but not including claims arising from delays in or excess costs of construction.

E. Lockheed Martin and the City shall, by January 1, 1999, jointly retain an independent cost estimating consultant ("Cost Consultant") acceptable to both parties and EPA, whose responsibilities shall include preparation of the annual budgets and audit reports for O&M Activities with respect to the Upstream

Facilities required by this Section. The Cost Consultant may be replaced by mutual agreement of Lockheed Martin and the City upon thirty (30) days written notice to EPA and the Cost Consultant, subject to approval by EPA. Either the City or Lockheed Martin may petition EPA for the replacement of the Cost Consultant.

1. If Lockheed Martin, the City and EPA are unable to agree upon a Cost Consultant by January 1, 1999, Lockheed Martin and the City shall, within thirty (30) days thereafter, each submit a list of three (3) cost estimating consultants to the other party and to EPA, along with information regarding the qualifications of each cost estimating consultant on its list. Within ten (10) days after both lists have been submitted, the City and Lockheed Martin may each veto one cost estimating consultant from the other's list. EPA shall select the Cost Consultant from the cost estimating consultants remaining on one or both of the lists, unless all such consultants are unacceptable to EPA.

2. The Cost Consultant may retain a subcontractor to perform some of his or her functions, as described herein. Any such subcontractor shall be approved by the City, Lockheed Martin and EPA prior to performing any work.

3. In the event of the resignation of the Cost Consultant, the City, Lockheed Martin and EPA shall attempt to agree upon the selection of a replacement. If the parties cannot agree upon a replacement, the procedures described in Paragraph E.1 above shall be employed to select a replacement. The lists of three (3) cost estimating consultants referred to in Paragraph

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E.1 shall be submitted forty-five (45) days prior to the effective date of resignation of the Cost Consultant or such other date as may be mutually agreed upon by the City, Lockheed Martin and EPA.

4. The Cost Consultant's fees shall be paid from the O&M Trust Account.

F. It shall be the Cost Consultant's responsibility to independently use his or her best technical judgment to prepare an annual budget for O&M Activities with respect to the Upstream Facilities for each of the years during which such O&M Activities are required by this Consent Decree ("Annual Budget"). The Annual Budget shall be developed in the following manner:

1. No later than one hundred and twenty (120) days prior to the Date of Commencement, Lockheed Martin shall provide the Cost Consultant and the City with non-proprietary information regarding its operation and maintenance costs with respect to the Upstream Facilities for the prior year.

2. Ninety (90) days prior to the Date of Commencement, and annually thereafter, the City may submit to the Cost Consultant, Lockheed Martin and EPA its estimate of the cost of O&M Activities with respect to the Upstream Facilities for the one-year period beginning on the Date of Commencement or on the anniversary thereof for the upcoming year. Such an estimate may be submitted by the City in advance of each of the eighteen (18) years for which O&M Activities are required by this Decree.

3. Sixty (60) days prior to the Date of Commencement, and annually thereafter, Lockheed Martin and EPA may submit

comments to the Cost Consultant on the City's estimate submitted pursuant to Paragraph F.2 of this Section.

4. Thirty (30) days prior to the Date of Commencement, and annually thereafter, the Cost Consultant shall establish the Annual Budget based on: (1) O&M Activities expenditures with respect to the Upstream Facilities during prior years; (2) the City of Burbank's estimate; (3) Lockheed Martin's comments thereon, if any; (4) EPA's comments thereon, if any; and (5) any other cost estimating factors deemed relevant by the Cost Consultant.

5. The Annual Budget shall contain the following cost categories relating to the Upstream Facilities: direct labor, contracted-for labor, power, natural gas, liquid phase carbon, vapor phase carbon, laboratory costs, supplies and materials, disposal costs, permitting costs, replacement costs, insurance (including but not limited to insurance described solely in Exhibit 3 to this Consent Decree), fees of the Cost Consultant and any other cost categories related to the O&M Activities with respect to the Upstream Facilities that the Cost Consultant deems appropriate for cost accounting purposes. In addition, costs of compliance with the provisions of Sections VII (Additional Response Actions) with respect to the Upstream Facilities and VIII (EPA Periodic Review) of this Consent Decree shall be deemed to be O&M Activities and may be included in the Annual Budget.

6. The Cost Consultant shall include a 10% contingency for each cost category in the Annual Budget.

7. Lockheed Martin, the City and EPA shall each have

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the right to invoke dispute resolution pursuant to Section XX (Dispute Resolution) of this Consent Decree regarding the total budgeted amount set forth in any Annual Budget, the amount budgeted for any cost item, the inclusion or exclusion of any item from the Annual Budget, or any other matter related to the establishment of the Annual Budget.

G. Lockheed Martin shall ensure that the O&M Trust Account contains funds equal to or in excess of the Annual Budget established for the upcoming year as of the Date of Commencement, and as of each anniversary of that date, by causing funds from the Second Consent Decree Account or its own funds to be transferred to the O&M Trust Account. The City shall have no obligation to undertake O&M Activities with respect to the Upstream Facilities if the O&M Trust Account has not been funded in the manner required by this Paragraph.

H. The City shall submit monthly statements to the trustee of the O&M Trust Account ("Trustee") for payment. Each statement shall be broken down into the same cost categories as set forth in the Annual Budget. The statement shall include copies of all relevant documentation, including purchasing documents, backup documentation for all internal costs, and all invoices, including backup documentation to support all invoiced contracted-for costs, and a declaration by an authorized representative of the City that each amount requested in the statement is due and payable to a party who provided materials or services for O&M Activities with respect to the Upstream Facilities conducted in accordance with the Second Consent Decree and the Second Stage

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O&M Work Plan. The City shall simultaneously provide a copy of each monthly statement to the Cost Consultant, Lockheed Martin and EPA.

1. Any monthly statement seeking payment for an expenditure outside a cost category in the Annual Budget and any statement which will cause the applicable Annual Budget cost category amount to be exceeded must be accompanied by an explanation of the necessity for that expenditure.

2. Disbursements by the Trustee.

a. The Trustee shall promptly pay all amounts requested in a monthly statement that satisfies the requirements of this Section. Lockheed Martin and EPA shall have the right to invoke dispute resolution pursuant to Section XX (Dispute Resolution) of this Consent Decree with regard to the necessity for any expenditure for which an explanation is required, within thirty (30) days of receipt of the monthly statement. If either Lockheed Martin or EPA invokes dispute resolution as to any amount included in a monthly statement, EPA shall make a preliminary determination, within ten (10) working days of dispute resolution being invoked, concerning whether the disputed amount should be paid. Such amount shall be promptly reimbursed to Lockheed Martin if Lockheed Martin thereafter prevails in dispute resolution.

b. In the event that EPA decides to take over some or all of the work related to the Upstream Facilities required to be performed by the Settling Work Defendant pursuant to Section XXII (Covenants Not to Sue by Plaintiffs), Paragraph

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F, or Section XVIII (Indemnification and Insurance), Paragraph B, the Trustee shall reimburse EPA within thirty (30) days of EPA's written demand for EPA's costs not inconsistent with the National Contingency Plan which are incurred to take over and/or to perform such work. In the alternative, EPA may elect to be reimbursed for some or all of such costs as Future Site-Specific Response Costs pursuant to Section XVII (Reimbursement of Response Costs).

c. Notwithstanding whether EPA elects to be reimbursed for such costs pursuant to this Section or pursuant to Section XVII (Reimbursement of Response Costs), EPA shall not be subject to the requirements of this Section, including but not limited to Annual Budget and audit requirements, concerning such costs.

d. As is set forth in Section XXII (Covenants Not to Sue by Plaintiffs), Paragraph F of this Consent Decree, and subject to the limitations described in that Section and Paragraph, Lockheed Martin shall have the right to be reimbursed by Settling Work Defendant for that portion of such costs which is caused by the necessity for EPA to take over such work. As is set forth in Section XVIII (Indemnification and Insurance), Paragraph B, and subject to the limitations described in that Section and Paragraph, the City of Burbank shall not be required to reimburse Lockheed Martin for any portion of such costs if EPA takes over the work pursuant to that Section and Paragraph.

3. The Cost Consultant shall audit the City's requests for payments for expenditures on O&M Activities with

respect to the Upstream Facilities on an annual basis. The audit shall cover the one-year period ending one hundred eighty (180) days prior to the beginning of the period covered by the next Annual Budget and the Cost Consultant's audit report ("Audit Report") shall be provided to the City, Lockheed Martin and EPA at least one hundred fifty (150) days prior to the beginning of the period covered by the next Annual Budget. The purpose of the audit is to: (1) assist the Cost Consultant in preparing the Annual Budget; and (2) allow the parties to determine whether any unnecessary costs have been incurred.

4. Within sixty (60) days of receipt of an annual Audit Report, the City shall reimburse the O&M Trust Account for expenditures found to be unnecessary during the audited period.

5. Lockheed Martin, the City and EPA shall each have the right to invoke dispute resolution with respect to any finding in an Audit Report.

6. The Cost Consultant shall perform a final audit of the City's request for payments for O&M Activities with respect to the Upstream Facilities within ninety (90) days following EPA's approval of the Certificate of Completion pursuant to Section XV of this Decree. Lockheed and the City shall settle all accounts with the O&M Trust Account within thirty (30) days of the issuance of the Cost Consultant's final Audit Report. At that time, the Cost Consultant shall direct the Trustee and the Trustee shall be required to pay over all remaining funds in the O&M Trust Account, if any, to Lockheed Martin. Lockheed Martin, the City and EPA shall have the right to invoke dispute

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resolution with regard to the final accounting or the final Audit Report.

I. The City of Burbank shall utilize a competitive bidding process to secure all services and materials required to perform O&M Activities with respect to the Upstream Facilities that are susceptible to contract. Award of any contract to other than the "lowest responsible bidder" within the meaning of Burbank Municipal Code § 9-122 (Section 54 of the Charter of the City of Burbank, as amended January 14, 1971), shall require a justification by the City pursuant to applicable state and local law. Lockheed Martin hereby reserves all of its rights under state or local law concerning award of any such contract to any person or persons except the "lowest responsible bidder" within the meaning of Burbank Municipal Code § 9-122.

J. For operation of the Upstream Facilities, the City of Burbank shall utilize the lowest cost power source available under any of the following options: (1) under ordinances or resolutions of general application adopted by the City, (2) mandated by federal law, or (3) in accordance with Public Utilities Code section 9602 or other applicable state law. Should a separate power generation facility, or any other capital improvement not integral to the Upstream Facilities, be proposed by Lockheed Martin as a capital expenditure under Paragraph K below, the city will consider such a proposal on the same fair and equitable basis as it would treat any similar proposal by any other industrial power consumer in the City. Power for operating the Upstream Facilities, when provided by the City, shall be

billed by the City of Burbank at the lowest rate then charged by the City for comparable service conditions. As of September 1, 1996, "comparable service conditions" for the Upstream Facilities are Rate Class "Industrial" and Rate Code "P." If the City adopts a rate for "comparable service conditions" other than the rate charged by the City to any public or private school, or charged to any user under an agreement entered into in conjunction with a "redevelopment project" pursuant to the California Redevelopment Act, Health & Safety Code § 33000 et seq., which provides power at lower cost than Rate Code "P," the lower rate shall apply to power sold to the Upstream Facilities.

K. Lockheed Martin may at any time propose that a capital expenditure be incurred to reduce O&M expenditures with respect to the Upstream Facilities. Any such proposal shall be simultaneously submitted to the Cost Consultant, the City and EPA. Any such proposal shall be limited to facilities that can be fully accommodated within "Area F" (except necessary utilities) as shown on Appendix F to the First Consent Decree.

1. Settling Work Defendant shall have no obligation to operate any separate power generation facility. Nor shall Settling Work Defendant have any obligation to operate any capital improvement constructed pursuant to this Paragraph K, where such capital improvement is not integral to the Upstream Facilities. It shall be the obligation of Lockheed Martin to operate any such capital improvement.

2. A capital improvement shall be considered to be "integral to the Upstream Facilities" if such capital improvement

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either (a) would effectively replace a facility or portion of a facility constructed by Lockheed Martin pursuant to the First Consent Decree, or (b) would be intrinsically linked to a facility or portion of a facility constructed by Lockheed Martin pursuant to the First Consent Decree.

3. The Cost Consultant shall review the proposal and any comments submitted by the City and/or the O&M Contractor, and/or EPA, and determine, based on generally accepted cost engineering principles, whether the capital expenditure is economically justified based on the size of the expenditure, the projected O&M savings and the remaining life of the project. The Cost Consultant may meet with Lockheed Martin, the City and/or the O&M Contractor, and/or EPA, with respect to the proposal and comments thereon.

4. If the Cost Consultant determines that the capital expenditure is economically justified, Lockheed Martin may submit the proposal and a conceptual design of the proposed work to EPA for approval. The City and/or the O&M Contractor may submit comments to EPA regarding the proposal and the conceptual design.

5. EPA shall review the proposal and the conceptual design, and any comments submitted by the City and/or the O&M Contractor, and determine based on relevant regulations and policies (which may include but shall not be limited to the remedy selection criteria set forth in the National Contingency Plan), whether the proposed capital expenditure may be incorporated into the remedy. EPA shall document its decision in accordance with applicable laws and regulations. EPA may meet

with Lockheed Martin and/or the City and/or the O&M Contractor with respect to the proposal and conceptual design and any comments thereon. Nothing contained in this Paragraph shall be deemed or construed to limit or abrogate in any way the City's exercise of its police powers or EPA's authority under CERCLA.

6. If EPA approves the conceptual design, Lockheed Martin shall submit a final design for the proposed work. If EPA approves the final design, Lockheed Martin shall proceed to implement the capital improvement. Lockheed Martin shall be solely responsible for funding and constructing the capital improvement.

7. Lockheed Martin shall take reasonable measures to minimize any noise and other disruptions that may be associated with the construction of any capital improvements.

8. Lockheed Martin shall defend, indemnify and hold harmless the City of Burbank with respect to actions against the City based upon disturbances related to the installation of capital improvements.

L. With the exception of the four extraction wells (VO-1, 2, 3 and 4) located at the former Lockheed Martin Plant B-1 in Burbank, California, as depicted in Appendix 8 to this Consent Decree, both the Upstream Facilities and the Downstream Facilities shall be acknowledged by the City as its property for all purposes; provided, however, that any capital improvement constructed pursuant to Paragraph K of this Section that is not integral to the Upstream Facilities, including but not limited to any separate power generation facility, shall not be considered

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or deemed to be the property of the City. Any such capital improvement shall be the property of Lockheed Martin, unless the City or a third party agrees to own the improvement. On or before the Date of Commencement, the UAO Parties, Lockheed Martin and the City shall execute appropriate writings documenting the City's ownership interest in such property. As to the extraction wells located on Lockheed Martin property, there shall be a recorded right of access.

M. Commencing from the Date of Commencement, and for a period not to exceed the applicable state statutes of limitations or statutes of repose under which Lockheed Martin may bring such an action against its design contractors less sixty (60) days, the Settling Work Defendant may assert as against Lockheed Martin that any of the Upstream Facilities' failure (if any) to perform as originally designed is due to a Design Defect. Commencing upon the Effective Date of this Consent Decree (as defined in Section XXVIII), and for a period not to exceed the applicable state statutes of limitations or statutes of repose under which the UAO Parties may bring such an action against their design contractors less sixty (60) days, the Settling Work Defendant may assert as against the UAO Parties that the Blending Facility's failure (if any) to perform as originally designed is due to a Design Defect. The Parties agree that the date of substantial completion of the Upstream Facilities was March 1, 1994 and the date of the substantial completion of the Blending Facility was January 6, 1996.

1. The Settling Work Defendant, Lockheed, the UAO

Parties and EPA agree to the following procedures for the resolution of disputes arising from claims that the Upstream Facilities or the Blending Facility have failed to perform as originally designed due to a Design Defect. These disputes may include but are not limited to a determination as to whether or not a failure to perform as originally designed occurred, whether the failure (if any) was due to a Design Defect, the nature, extent and scope of the repair or other work required to cause the facility in question to meet designated operating standards, the reasonableness and necessity of the costs incurred or to be incurred for such work, and the reasonableness, necessity and timeliness of steps taken to address or mitigate such damage claims.

a. Upon the occurrence of a facility's failure to perform as originally designed which the Settling Work Defendant alleges to be due, in whole or in part, to a Design Defect in the Upstream Facilities or the Blending Facility:

(1) If the alleged occurrence or failure causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, the Settling Work Defendant shall take all actions and provide notifications required by Section XVI (Emergency Response). If the alleged occurrence or failure does not come within the provisions of Section XVI (Emergency Response), Settling Work Defendant shall immediately advise the EPA of the alleged occurrence or failure, by telephone or facsimile transmission.

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(2) Settling Work Defendant shall provide a written Notice of Design Defect to EPA within ten (10) days of the date when Settling Work Defendant knew, or reasonably should have known that the alleged occurrence or failure was caused by an alleged Design Defect. The written Notice of Design Defect shall include the basis for the allegation. The Settling Work Defendant shall concurrently provide a copy of the written Notice of Design Defect to either: 1) Lockheed Martin if the alleged Design Defect relates to the Upstream Facilities, or 2) the UAO Parties if the alleged Design Defect relates to the Blending Facility.

b. The Settling Work Defendant shall take such steps as EPA directs to commence repairs to the facility, and shall take reasonable steps to mitigate all damages and costs incurred as a result of the alleged Design Defect. Within five (5) days of undertaking such steps, the Settling Work Defendant shall advise EPA and all interested Parties, in writing and by facsimile transmission, of the repairs and steps it has taken or intends to undertake.

c. The Parties shall cooperate with one another and immediately make available to each other: all facilities pertaining to the failure and the alleged Design Defect; all records pertaining to the failure and the alleged Design Defect; all records pertaining to the operations and maintenance of the facility including all repair records, all work plans or designs for repair or mitigation of damages; all persons with information about the failure and the alleged Design Defect; and all systems

that are claimed to be defective. The information to be made available by the UAO Parties and Lockheed Martin shall include but shall not be limited to applicable contracts and correspondence with Lockheed Martin's or the UAO Parties' design contractors, internal documentation relating to the design of the facility with the alleged Design Defect, and "as-builts" of the facility with the alleged Design Defect. The Parties shall make good faith efforts to preserve evidence and information. The Settling Work Defendant's good faith efforts may include but shall not be limited to maintaining a videotape record or log of the status or condition of the facility prior to the performance of repairs or alterations, where practicable.

2. Not less than fifteen (15) nor more than thirty (30) days after receipt of the Settling Work Defendant's written Notice of Design Defect, the EPA shall make a Preliminary Finding.

a. Lockheed Martin or the UAO Parties may submit a written or oral response to the Settling Work Defendant's allegation within the fifteen (15) days.

b. The EPA's Preliminary Finding shall include a preliminary determination as to whether the affected facility or facilities failed to perform as originally designed; whether that failure was, in whole or in part, due to a Design Defect; a preliminary allocation of financial responsibility among the Settling Work Defendant, Lockheed Martin and the UAO Parties; and a preliminary finding as to the reasonableness and necessity of any repairs or other work done or proposed by the Settling Work

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Defendant as a result of the alleged Design Defect.

c. According to the preliminary allocation of financial responsibility in the EPA Preliminary Finding, the Settling Work Defendant, Lockheed Martin, and/or the UAO Parties shall finance the work deemed necessary by EPA to cause the affected facility to perform as originally designed, as follows.

(1) If EPA determines that the failure was caused, in whole or in part, by a Design Defect in any of the Upstream Facilities, Lockheed Martin shall, within twenty-five (25) days of receipt of the EPA Preliminary Finding, or within twenty-five (25) days of receipt of an itemized statement by the Settling Work Defendant of all repairs or other work performed or to be undertaken as a result of the alleged Design Defect, whichever is later, remit to the Settling Work Defendant the cost of all such work which Lockheed is required to finance pursuant to the preliminary allocation of financial responsibility.

(2) If EPA determines that the failure was caused, in whole or in part, by a Design Defect in the Blending Facility, the UAO Parties shall, within twenty-five (25) days of receipt of the EPA Preliminary Finding, or within twenty-five (25) days of receipt of an itemized statement by the Settling Work Defendant of all repairs or other work performed or to be undertaken as a result of the alleged Design Defect, whichever is later, remit to the Settling Work Defendant the cost of all such work which the UAO Parties are required to finance pursuant to the preliminary allocation of financial responsibility. Among the UAO Parties, the obligations of this Paragraph shall be joint

and several.

(3) If EPA determines that the failure of the affected facility was not caused, in whole or in part, by a Design Defect in the Upstream Facilities or the Blending Facility, the Settling Work Defendant and Lockheed Martin shall finance such work as these parties are required to finance pursuant to this Section, Paragraphs A-L.

(4) The Settling Work Defendant shall use such funds as are remitted by Lockheed Martin or the UAO Parties pursuant to the Preliminary Finding to pay for work necessary to cause the facility with the alleged Design Defect to perform as originally designed and for no other purpose.

(5) The Preliminary Finding may require a party whose facility has been determined to have a Design Defect to provide for advance or ongoing funding of any work necessary to cause the affected facility to perform as originally designed.

(6) The Preliminary Finding also may require the Settling Work Defendant to account for expenditures of funds remitted to it under this Paragraph, and to reimburse any party who has remitted such funds if the amount remitted exceeds the expenditures necessary to perform the work necessary to cause the affected facility to perform as originally designed.

(7) EPA shall have continuing jurisdiction over the implementation of the Preliminary Finding.

d. Subject to EPA's approval, the Settling Work Defendant shall perform such work as is necessary to cause the affected facility to perform as originally designed. EPA may

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require the Settling Work Defendant to submit a schedule and work plan for such work within a specified period of time. Such schedule(s) and work plan(s) shall be submitted, approved and implemented in accordance with Section XII (Submissions Requiring Agency Approval).

3. Not less than ninety (90) nor more than one hundred twenty (120) days after receipt of the Settling Work Defendant's Notice of Design Defect, the EPA shall make a further evaluation and issue a Further Determination based upon the following procedure:

a. The Settling Work Defendant, Lockheed Martin and/or the UAO Parties, upon receipt of a copy of a Notice of Design Defect pursuant to Paragraph M.1.a.2 of this Section shall have sixty (60) days from receipt of the statement to further inspect the facilities and submit a written statement to EPA. Any such Settling Defendant may request the opportunity to make an oral presentation to the EPA by sending written notice of such intent to EPA and other Settling Defendants who receive a copy of the Notice of Design Defect. EPA shall set a reasonable date, time and location for the presentation. The EPA, in its discretion, may require oral presentations from the affected Settling Defendants.

b. If any party submits a written statement as described in Paragraph M.3.a of this Section, EPA shall issue a Further Determination. In the Further Determination, if any, EPA shall determine whether or not a failure to perform as originally designed occurred; whether the failure (if any) was due, in whole

or in part, to a Design Defect; the nature, extent and scope of any repairs or other work required to cause the facility to perform as originally designed; the reasonableness and necessity of the costs incurred or to be incurred for such work; the reasonableness, necessity and timeliness of steps taken to address or mitigate damage claims; the comparative fault of Settling Work Defendant, Lockheed Martin and/or the UAO Parties; and an allocation of financial responsibility among Settling Work Defendant, Lockheed Martin and/or the UAO Parties. EPA shall provide written notice of its decision to the parties..

c. According to the allocation of financial responsibility in the EPA Further Determination:

(1) If EPA determines that the failure was caused, in whole or in part, by a Design Defect in any of the Upstream Facilities, Lockheed Martin shall, within twenty-five (25) days of receipt of the EPA Further Determination, or within twenty-five (25) days of receipt of an itemized statement by the Settling Work Defendant of all repairs or other work performed or to be undertaken as a result of the alleged Design Defect, whichever is later, 1) remit to the Settling Work Defendant the cost of all such work which Lockheed Martin is required to finance by the Further Determination, less any portion of such amounts previously remitted to the Settling Work Defendant pursuant to the Preliminary Finding, and 2) reimburse other Settling Defendant(s) if required by the Further Determination.

(2) If EPA determines that the failure was caused, in whole or in part, by a Design Defect in the Blending

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Facility, the UAO Parties shall, within twenty-five (25) days of receipt of the EPA Further Determination, or within twenty-five (25) days of receipt of an itemized statement by the Settling Work Defendant of all repairs or other work performed or to be undertaken as a result of the alleged Design Defect, whichever is later, 1) remit to the Settling Work Defendant the cost of all such work which the UAO Parties are required to finance pursuant to the Further Determination, less any portion of such amounts previously remitted to the Settling Work Defendant pursuant to the Preliminary Finding, and 2) reimburse other Settling Defendant(s) if required by the Further Determination. Among the UAO Parties, the obligations of this Paragraph shall be joint and several.

(3) If EPA determines that the failure of the affected facility was not caused, in whole or in part, by a Design Defect, the Settling Work Defendant and Lockheed Martin shall finance such work as these parties are required to finance pursuant to this Section, Paragraphs A-L. If required by the Further Determination, Settling Work Defendant shall reimburse Lockheed Martin or the UAO Parties for amounts advanced pursuant to the Preliminary Finding.

(4) The Settling Work Defendant shall use such funds as are remitted by Lockheed Martin or the UAO Parties pursuant to the Further Determination to pay for work necessary to cause the facility with the alleged Design Defect to perform as originally designed and for no other purpose.

(5) The Further Determination may require a

party whose facility has been determined to have a Design Defect to provide for advance or ongoing funding of any work necessary to cause the affected facility to perform as originally designed.

(6) The Further Determination shall require the Settling Work Defendant to account for expenditures of funds remitted to it under this Paragraph M, and to reimburse any party who has remitted such funds if the amount remitted exceeds the expenditures necessary to perform the work necessary to cause the affected facility to perform as originally designed. The Further Determination also shall require that the Settling Work Defendant make any such reimbursement within a reasonable, specified period of time.

(7) EPA shall have continuing jurisdiction over the Further Determination.

4. If a dispute exists among Settling Work Defendant, Lockheed Martin and/or the UAO Parties as to the EPA Further Determination, the Parties' participation in or satisfaction of the terms or conditions set forth in the EPA Preliminary Finding or Further Determination shall not act as a waiver of any claims or defenses by any party, and the Settling Work Defendant, Lockheed Martin and/or the UAO Parties may proceed to seek judicial review of such a dispute as follows:

a. The Settling Work Defendant, Lockheed Martin or the UAO Parties may seek a final resolution of the dispute between or among them concerning the EPA Further Determination by filing suit against one another in a court of competent jurisdiction. Nothing in this Section shall be construed to

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provide any party with a claim or cause of action against the United States or the State.

b. The court shall determine all issues regarding the dispute among the Settling Work Defendant, Lockheed Martin, and/or the UAO Parties concerning the EPA Further Determination de novo. Discovery and evidence as to such dispute(s) shall not be limited to the Administrative Record, except that nothing in this Paragraph shall be construed to affect the restrictions on judicial review set forth in CERCLA section 113 (j) and (k), 42 U.S.C. § 9613(j)-(k) or California Health & Safety Code section 25356.1(g), Cal. Health & Safety Code § 25356.1(g).

c. Upon the entry of a final judgment by the court or upon final resolution of the dispute as agreed upon by the parties, if the court's determination and allocation or the parties' final resolution differs from that set forth in the EPA's Further Determination, then each party shall be reimbursed or the responsible party shall pay another party's previous allocation so that each party's final share of total costs shall correspond to the court's judgment or the parties' final resolution. Any such reimbursement may include pre-judgment interest pursuant to California Civil Code section 3287, Cal. Civ. Code § 3287, unless otherwise agreed by the parties. The court's final judgment or the parties' final resolution shall supersede EPA's Further Determination. Should additional costs be incurred relating to the Design Defect(s) at issue after the court's final judgment or the parties' final resolution, the court's final judgment or the parties' final resolution shall be

followed by the parties and EPA.

N. Funding of Repairs Required by Earthquakes or Other Force Majeure Events

1. Definition of "Major Damage" As used in this Paragraph, "Major Damage" shall mean physical damage which EPA has determined was caused by a force majeure event pursuant to Section XIX (Force Majeure) of this Consent Decree and will cost more than the following amounts to repair or rebuild with respect to the affected Plant Facilities:

a. more than one million dollars ($ 1,000,000) with respect to the Upstream Facilities; or

b. more than one hundred and fifty thousand dollars ($ 150,000) with respect to the Blending Facility.

2. Definition of "Uninsurable Force Majeure Event"

"Uninsurable Force Majeure Event" shall mean a force majeure event as defined in Section XIX (Force Majeure) of this Consent Decree, other than an earthquake or damage resulting from an earthquake, that causes physical damage to any of the Plant Facilities which is not covered by any insurance maintained by the Settling Work Defendant, the O&M Contractor or its subcontractors, including but not limited to insurance maintained pursuant to this Consent Decree or Exhibit 3 hereto, and which EPA has determined such persons could not have insured at a commercially reasonable cost.

3. Earthquake

In the event of an earthquake which causes damage to any of the Plant Facilities, including but not limited to Major Damage

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to the Upstream Facilities and/or the Blending Facility, and EPA determines that the damage should be repaired:

a. Lockheed Martin shall fund the repair and/or rebuilding of the affected Upstream Facilities up to the first one million dollars ($ 1,000,000) of necessary expenditure, and/or the repair and/or rebuilding of the Blending Facility up to the first one hundred and fifty thousand dollars ($ 150,000) of necessary expenditure; and

b. The City of Burbank shall fund the repair and/or rebuilding of the other affected Downstream Facilities.

4. Uninsurable Force Majeure Event

In the event of an Uninsurable Force Majeure Event that causes damage, including but not limited to Major Damage to the Upstream Facilities and/or the Blending Facility, and EPA determines that the damage should be repaired:

a. Lockheed Martin shall fund the repair and/or rebuilding of the affected Upstream Facilities;

b. The Settling Cash Defendants shall fund the repair and/or rebuilding of the Blending Facility up to the first one hundred and fifty thousand dollars ($ 150,000) of necessary expenditure.. The obligations of this Paragraph shall be joint and several among the Settling Cash Defendants; and

c. The City of Burbank shall fund the repair and/or rebuilding of the other affected Downstream Facilities.

5. Force Majeure Events Other Than Earthquake or Uninsurable Force Majeure Events

In the event of a force majeure event (as is defined in Section XIX (Force Majeure)), other than an earthquake or

Uninsurable Force Majeure Event, which causes damage, including but not limited to Major Damage to the Upstream Facilities and/or the Blending Facility, Lockheed Martin and/or the City of Burbank shall fund the repair and/or rebuilding of the affected Plant Facilities pursuant to their respective funding obligations as described in this Section (Funding of Response Activities), and otherwise in accordance with this Consent Decree, including but not limited to Sections VI (Performance of the Work), VII (Additional Work), and XIX (Force Majeure).

6. In the event of Major Damage to the Upstream Facilities and/or the Blending Facility as the result of an earthquake or to the Blending Facility as the result of an Uninsurable Force Majeure Event, and except as to those Settling Defendants described in Appendix 3 to this Consent Decree, EPA reserves all of its rights against Settling Defendants pursuant to Section XXII (Covenants Not to Sue by Plaintiffs), including but not limited to the right to issue an administrative order to require the complete repair and/or rebuilding of the affected Plant Facilities.

7. If EPA exercises its rights pursuant to Paragraph N.6 of this Section, the Settling Defendants agree between and among themselves that:

a. In the event of an earthquake, Lockheed Martin and the Settling Cash Defendants shall not seek funding, contribution or reimbursement from the City of Burbank for funding any repairs and/or rebuilding that EPA determines should be made to the Upstream Facilities and/or the Blending Facility;

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and the City shall not seek funding, contribution or reimbursement from Lockheed Martin or the Settling Cash Defendants for funding any repairs and/or rebuilding that EPA determines should be made to the Downstream Facilities; and

b. In the event of an Uninsurable Force Majeure Event, the Settling Cash Defendants shall not seek funding, contribution or reimbursement from the City of Burbank or Lockheed Martin for funding any repairs and/or rebuilding that EPA determines should be made to the Blending Facility; the City shall not seek funding, contribution or reimbursement from Lockheed Martin or the Settling Cash Defendants for any repairs and/or rebuilding that EPA determines should be made to the Downstream Facilities; and Lockheed Martin shall not seek funding, contribution or reimbursement from the Settling Work Defendant or the Settling Cash Defendants for any repair and/or rebuilding that EPA determines should be made to the Upstream Facilities.

8. Lockheed Martin's, the City of Burbank's, and/or the Settling Cash Defendants' obligations to make repairs or to rebuild pursuant to this Paragraph shall cease if EPA notifies the affected party that EPA does not intend to require the repair and/or rebuilding of the affected Plant Facilities.

9. Any repairs that EPA determines should be made to the Plant Facilities pursuant to this Paragraph shall be performed by the City of Burbank and funded as provided in this Paragraph.

10. Any disputes between EPA and any of the Parties,

or between or among any of the Settling Defendants concerning the cause, cost or necessity for any repairs and/or rebuilding of the affected Plant Facilities pursuant to this Paragraph shall be subject to dispute resolution pursuant to Section XX of this Consent Decree (Dispute Resolution). Notwithstanding the foregoing:

a. If the City of Burbank claims that an earthquake or Uninsurable Force Majeure Event necessitates the repair and/or rebuilding of the Plant Facilities, and EPA determines that the repair and/or rebuilding should be made, EPA shall make an initial determination whether such work is required as the result of an earthquake or Uninsurable Force Majeure Event. As appropriate, EPA may also make an initial determination as to the means and manner of funding to be provided by the designated Party or Parties responsible for funding such work pursuant to this Paragraph.

b. The Parties shall fund and/or perform such repairs as EPA determines are necessary according to EPA's initial determination, and otherwise in accordance with their respective obligations under this Section (Funding Of Response Activities). If a Party prevails in dispute resolution on the contention that it should not have been required to fund repairs pursuant to this Paragraph, such Party shall be promptly reimbursed by the appropriate Party or Parties determined to be responsible for funding such repairs in accordance with the final decision in the Dispute Resolution.

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XV. CERTIFICATION OF COMPLETION

Defendants' obligations for performance of the work pursuant to Section VI of this Consent Decree and Funding of Response Activities pursuant to Section XIV of this Consent Decree shall be deemed satisfied upon issuance of the Certification of Completion. It is anticipated by the Parties that the certification process set forth below will occur eighteen (18) years after the Date of Commencement.

A. Completion of the O&M Activities.

1. At least ninety (90) days prior to the date that Settling Work Defendant anticipates that the work will have been fully performed, Settling Work Defendant shall submit a written report requesting certification to EPA for approval, with a copy to the State, pursuant to Section XII (Submissions Requiring Agency Approval). During the 90-day period, EPA shall determine whether dismantling and/or decommissioning of any facilities constructed pursuant to the First Consent Decree or UAO 92-12 is required pursuant to Section VI (Work to be Performed), Paragraph C.6 of this Consent Decree.

2. In the Settling Work Defendant's report seeking Certification of Completion, a registered professional engineer and the Settling Work Defendant's Project Coordinator shall state that the O&M Activities, except for dismantling and/or decommissioning activities, will be complete in full satisfaction of the requirements of this Consent Decree. The written report shall include all appropriate and necessary information to a determination of completion, including the date upon which

completion is anticipated, and if appropriate, drawings signed and stamped by a professional engineer. The report shall contain the following statement, signed by the Settling Work Defendant's authorized Project Coordinator:

> "To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

3. If EPA deems necessary, EPA may conduct a pre-certification inspection concerning completion of the O&M Activities. If, after review of the written report and conducting a pre-certification inspection, if EPA deems such an inspection necessary, and after reasonable opportunity to review and comment by the State, EPA determines that the O&M Activities or any portion thereof except dismantling and/or decommissioning activities will not be completed in accordance with this Consent Decree on the date anticipated by Settling Work Defendant, EPA will notify the Settling Work Defendant in writing of the activities that must be undertaken to complete the O&M Activities except dismantling and/or decommissioning activities.

4. EPA will set forth in the notice to the Settling Work Defendant a schedule for performance of such activities consistent with this Consent Decree and the Second Stage O&M Work Plan or require the Settling Work Defendant to submit a schedule to EPA for approval pursuant to Section XII (Submissions Requiring Agency Approval). Settling Work Defendant shall perform all activities described in the notice in accordance with

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the specifications and schedules established pursuant to this Paragraph, subject to its right to invoke the dispute resolution procedures set forth in Section XX (Dispute Resolution).

5. If EPA concludes, based on the initial or any subsequent report(s) requesting Certification of Completion and after a reasonable opportunity for review and comment by the State, that the O&M Activities, except for dismantling or decommissioning activities, have been fully performed in accordance with this Consent Decree, EPA will so certify in writing to all Settling Defendants. This certification shall constitute the Certification of Completion of the O&M Activities for purposes of this Consent Decree, including, but not limited to, Section XXII (Covenants Not to Sue by Plaintiffs). Certification of Completion of the O&M Activities shall not affect Settling Work Defendant's or any other Settling Defendant's other obligations under this Consent Decree, including, but not limited to, Lockheed Martin's obligation to dismantle or decommission the treatment and blending facilities, if such dismantling and/or decommissioning activities are not complete at the time the Certification of Completion issues.

6. As to Lockheed Martin, the Certification of Completion shall not apply until Lockheed Martin has completed any dismantling and/or decommissioning activities EPA may require pursuant to this Section.

B. Dismantling and/or Decommissioning of Facilities.

1. If, during the 90-day period referenced in Paragraph A.1 of this Section, EPA determines that dismantling

and/or decommissioning of the treatment and/or blending facilities is required, Lockheed Martin shall, if requested by EPA, submit a work plan for such activities to EPA, with a copy to the State, in accordance with Section XII of this Consent Decree (Submissions Requiring Agency Approval). At least ninety (90) days prior to the date Lockheed Martin anticipates that dismantling and/or decommissioning activities will have been fully completed, Lockheed Martin shall submit a written report to EPA requesting approval of such work, and confirmation that such work is complete, with a copy to the State, pursuant to Section XII (Submissions Requiring Agency Approval).

2. The report and EPA's response to the report, including but not limited to an inspection of the work and/or a notice concerning additional work to be performed, shall conform to the applicable requirements, as determined by EPA, of Paragraph A.2-5 of this Section.

3. If EPA has determined that dismantling and/or decommissioning is required and confirms that such work is complete, EPA shall promptly issue a Certificate of Completion to Lockheed Martin, with a copy to the State. If EPA has determined that dismantling and/or decommissioning is not required, it shall issue a Certificate of Completion to Lockheed Martin promptly upon making that determination.

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XVI. EMERGENCY RESPONSE

In the event of any action or occurrence during the performance of the O&M Activities which causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, Settling Work Defendant shall, subject to this Section, immediately take all appropriate action to prevent, abate, or minimize such release or threat of release. Settling Work Defendant shall report such a situation to the appropriate regulatory authorities as required by law. As soon as possible and reasonable under the circumstances, but in no event more than one Working Day after making the report required by law, Settling Work Defendant shall notify EPA's Project Coordinator, or if the Project Coordinator is unavailable, EPA's Alternate Project Coordinator. If neither of these individuals is available, Settling Work Defendant shall notify the Emergency Response Unit, EPA, Region IX. Settling Work Defendant shall take such actions in consultation with EPA's Project Coordinator or other available authorized EPA officer and in accordance with all applicable provisions of the Health and Safety Plans, the Contingency Plans, and any other applicable plans or documents developed pursuant to the Second Stage SOW or the Second Stage O&M Work Plan. In the event that Settling Work Defendant fails to take appropriate response action as required by this Section, and EPA or, as appropriate, the State takes such action instead, Settling Work Defendant shall reimburse EPA and the State all costs of the response action not inconsistent with

the NCP pursuant to Section XVII (Reimbursement of Response Costs).

Nothing in the preceding Paragraph or in this Consent Decree shall be deemed to limit any authority of the United States, or the State, to take, direct, or order all appropriate action or to seek an order from the Court to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste Material on, at, or from the Site.

XVII. REIMBURSEMENT OF RESPONSE COSTS

A. Within sixty (60) days of the Effective Date of this Consent Decree as defined in Section XXVIII (Effective Date), Lockheed Martin shall:

1. Pay to the United States $ 11,827,869 in the form of an EFT to the U.S. Department of Justice Lockbox referencing the San Fernando Valley Superfund Site/Burbank Operable Unit, and referencing CERCLA Number SSID #59, DOJ Case Number 90-11-2-442 and USAO File No. 91-03-463 in reimbursement of Past Basin-wide Response Costs.

2. Provide written verification to EPA regarding EFT transfers pursuant to this Section as specified in Section XXVII (Notices and Submissions).

3. Pay to the State $ 22,348.60 in reimbursement of Past Basin-wide Response Costs incurred by the State and $ 25,264.14 in reimbursement of Past Site-Specific Response Costs incurred by the State in the form of a certified check or checks made payable to the State of California, Department of Toxic

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Substances Control, Project No. 300173. Lockheed Martin shall send the certified check(s) to: Department of Toxic Substances Control, Accounting Office, 400 P Street, 4th floor, Sacramento, California, 95814.

B. Lockheed Martin shall reimburse the United States and the State for all Future Site-Specific Response Costs not inconsistent with the National Contingency Plan incurred by the United States and the State. The United States and the State will send Lockheed Martin bills for Future Site-Specific Response Costs incurred by EPA, DOJ, the State and their contractors no more frequently than annually; provided, however, that failure to include all such costs in the submittal during any calendar year will not preclude EPA or the State from submitting such costs in any subsequent year. EPA's Agency Financial Management System Summary Data (SCORES) Report or equivalent shall constitute documentation of EPA's costs. Lockheed Martin shall make payment within sixty (60) days of the date of each bill requiring payment, except as otherwise provided in this Section, Paragraphs C and D. Lockheed Martin shall make all payments required by this Paragraph in the following manner: Lockheed Martin shall transmit such amounts in the form of a EFT to the U.S. Department of Justice Lockbox referencing the San Fernando Valley Superfund Site/Burbank Operable Unit, and referencing CERCLA Number SSID # L6, DOJ Case Number 90-11-2-442 and USAO File No. 91-03-463.

C. Lockheed Martin may contest a bill for Future Site-Specific Response Costs under this Section and Paragraph if it determines that the United States or the State has made an

accounting error or if it alleges that a cost item that is included represents costs that are inconsistent with the NCP. Such objection shall be made in writing within sixty (60) days of receipt of the bill and must be sent to the United States (if the United States' accounting is being disputed) or the State (if the State's accounting is being disputed) pursuant to Section XXVII (Notices and Submissions). Any such objection shall specifically identify the contested Future Site-Specific Response Costs and the basis for objection. In the event of such an objection, Lockheed Martin shall within the sixty (60) day period pay all uncontested Future Site-Specific Response Costs to the United States or the State in the manner described in this Section, Paragraph B. Simultaneously, Lockheed Martin shall establish an interest-bearing escrow account in a federally-insured bank duly chartered in the State of California and remit to that escrow account funds equivalent to the amount of the contested Future Site-Specific Response Costs. Lockheed Martin shall send to the United States, as provided in Section XXVII (Notices and Submissions), and the State a copy of the transmittal letter and check paying the uncontested Future Site-Specific Response Costs, and a copy of the correspondence that establishes and funds the escrow account, including, but not limited to, information containing the identity of the bank and bank account under which the escrow account is established as well as a bank statement showing the initial balance of the escrow account. Simultaneously with establishment of the escrow account, within the sixty (60) day period, Lockheed Martin shall initiate the

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dispute resolution procedures in Section XX (Dispute Resolution). If the United States or the State prevails in the dispute or concerning any aspect of the contested costs in dispute, within five (5) days of the resolution of the dispute, Lockheed Martin shall pay the sums due (with accrued Interest) to the United States in the manner described in this Section, Paragraph B, or the State, if State costs are disputed, in the manner described in this Section, Paragraph A.3. If Lockheed Martin prevails concerning any aspect of the contested costs, Lockheed Martin shall pay that portion of the costs (plus associated accrued Interest) as to which it did not prevail to the United States or the State, if State costs are disputed in the manner described in this Section, Paragraph A.3 or B, as applicable; Lockheed Martin shall be disbursed any balance of the escrow account. The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XX (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding Lockheed Martin's obligation to reimburse the United States and the State for their Future Site-Specific Response Costs, including without limitation allegations of accounting errors or allegations that costs billed are inconsistent with the NCP.

D. In the event that any payment required by this Section, Paragraph A.1 is not made within sixty (60) days of the Effective Date of this Consent Decree (as defined by Section XXVIII), Lockheed Martin shall pay Interest on the unpaid balance. The Interest to be paid shall begin to accrue sixty (60) days after

the Effective Date of this Consent Decree. Interest shall accrue at the rate specified through the date of Lockheed Martin's payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to Plaintiffs by virtue of a failure to make timely payments under this Section.

XVIII. INDEMNIFICATION AND INSURANCE

The United States and the State do not assume any liability by entering into this Consent Decree or by virtue of any designation of Settling Work Defendant or any other defendant who performs work pursuant to this Consent Decree as EPA's authorized representative under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e). Settling Work Defendant, with respect to response activities performed by Settling Work Defendant, and other Settling Defendants with respect to response activities performed by them, if any, shall indemnify, save and hold harmless the United States, the State and their officials, agents, employees, contractors, subcontractors, or representatives for or from any and all claims or causes of action arising from, or on account of, acts or omissions of such Settling Defendant, its officers, employees, agents, contractors, subcontractors, and any persons acting on its behalf or under its control, in carrying out activities pursuant to this Consent Decree, including, but not limited to, any claims arising from the designation of Settling Work Defendant or any other Settling Defendant as EPA's authorized representative under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e). Further, such Settling Defendant agrees to pay

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the United States and the State all costs they incur including, but not limited to, attorneys fees and other expenses of litigation and settlement arising from, or on account of, claims made against the United States or the State based on acts or omissions of such Settling Defendant, its officers, employees, agents, contractors, subcontractors, and any persons acting on its behalf or under its control, in carrying out activities pursuant to this Consent Decree. Neither the United States nor the State shall be held out as a party to any contract entered into by or on behalf of such Settling Defendant in carrying out activities pursuant to this Consent Decree. Neither such Settling Defendant nor any such contractor shall be considered an agent of the United States or the State.

A. Settling Defendants waive all claims against the United States and the State for damages or reimbursement or for set-off of any payments made or to be made to the United States or the State arising from or on account of any contract, agreement, or arrangement between such Settling Defendants and any person for performance of O&M Activities on or relating to the Site, including, but not limited to, claims on account of construction delays. In addition, such Settling Defendant shall indemnify and hold harmless the United States and the State with respect to any and all such claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between any one or more of Settling Defendants and any person for performance of O&M Activities on or relating to the Site, including, but not limited to, claims on account of construction delays.

B. No later than thirty (30) days prior to the Date of Commencement, Settling Work Defendant shall secure, and shall maintain until the first anniversary of EPA's Certification of Completion pursuant to Section XV (Certification of Completion), comprehensive general liability insurance with limits of not less than $ 20 million dollars ($ 20,000,000) combined single limit each occurrence, and in the annual aggregate, ten million ($ 10,000,000) of which is dedicated to the Interim Remedial Action, naming as additional insureds the United States and the State. In addition, for the duration of this Consent Decree, Settling Work Defendant shall satisfy, or shall ensure that its contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the O&M Activities on behalf of Settling Work Defendant in furtherance of this Consent Decree. Prior to commencement of the O&M Activities under this Consent Decree, Settling Work Defendant shall provide to EPA and the State certificates of such insurance and a copy of each insurance policy. Settling Work Defendant shall resubmit such certificates and copies of policies each year on the anniversary of the Date of Commencement. If Settling Work Defendant demonstrates by evidence satisfactory to EPA and the State that its contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, then, with respect to that contractor or subcontractor, Settling Work Defendant need provide only that portion of the insurance described above which is not maintained by the

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contractor or subcontractor. If Settling Work Defendant fails to submit proof of insurance as described in this Paragraph, and no other Settling Defendant submits such proof, EPA shall have the right to take over all of the work required by this Consent Decree with respect to the Upstream Facilities, and the City of Burbank shall continue to fund and perform all of the work required by this Consent Decree with respect to the Downstream Facilities. If EPA takes over the work required by this Consent Decree with respect to the Upstream Facilities pursuant to this Section and Paragraph, Lockheed Martin shall fund EPA's performance of such work pursuant to Section XIV (Funding of Response Activities), Paragraph H.2.b-c of this Consent Decree. If EPA takes over such work pursuant to this Section and Paragraph, the City of Burbank shall not be required to reimburse Lockheed Martin for any portion of the costs incurred by EPA to take over and/or to perform such work.

C. If Settling Work Defendant obtains insurance as described in this paragraph, and such insurance is subsequently cancelled, Settling Work Defendant shall so notify EPA within ten (10) days of Settling Work Defendant's receipt of notice that such insurance had been cancelled. Furthermore, in the event of such cancellation, equivalent insurance for the O&M Activities shall be obtained as soon as reasonably practicable, and proof of such insurance shall be submitted by Settling Work Defendant to EPA within ten (10) days of such insurance being obtained. Delays in the O&M Activities or EPA's decision to take over the work due to the failure to obtain or submit proof of insurance

shall not constitute a force majeure event under this Consent Decree.

D. In its bid documents, Settling Work Defendant shall require that all contractors submitting bids to become O&M Contractor agree to provide comprehensive general liability insurance in the amount specified in Paragraph B of this Section. Settling Work Defendant shall condition awarding the bid for O&M Contractor upon a contractor's ability to provide the comprehensive general liability insurance specified in Paragraph B of this Section. The contract entered into between the Settling Work Defendant and the O&M Contractor shall require the O&M Contractor to provide worker's compensation insurance in compliance with all applicable laws and regulations and comprehensive general liability insurance as specified in Paragraph B of this Section. Settling Work Defendant's compliance with this Paragraph shall constitute compliance with its obligation in Paragraph B of this Section to secure and retain insurance, provided the O&M Contractor complies with its obligations to provide the comprehensive general liability insurance specified in Paragraph B of this Section.

E. In addition to the insurance required by this Section, Lockheed Martin, the Settling Work Defendant, and the UAO Parties hereby agree among themselves that the Upstream Facilities and Blending Facility shall be insured by additional coverages as set forth in Exhibit 3 to this Consent Decree, and Lockheed Martin agrees to fund such coverages through the O&M Trust Fund.

1. The Settling Work Defendant will promptly and

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diligently make and pursue claims against any available insurance for reimbursement of costs and expenses of any repairs or other work required as a result of an alleged Design Defect as described in Section XIV, Paragraph M, will not receive reimbursement under Section XIV, Paragraph M for any such costs and expenses that are recovered from insurance, and will refund to Lockheed Martin and/or the UAO Parties any monies paid by Lockheed Martin and/or the UAO Parties for costs and expenses which are subsequently paid by insurance.

2. The obligations set forth in Paragraph E.1 of this Section shall not be the subject of stipulated penalties or enforceable by Plaintiffs.

3. EPA agrees that disputes arising with regard to Exhibit 3 to this Consent Decree may be submitted to dispute resolution under Section XX (Dispute Resolution), Paragraph G of this Consent Decree.

4. Nothing in this Paragraph shall affect the obligations of Lockheed Martin, Settling Work Defendant or the UAO Parties pursuant to Section XIV of this Consent Decree (Funding of Response Activities).

XIX. FORCE MAJEURE

A. "Force majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of a Settling Defendant or of any entity controlled by such Settling Defendant, including, but not limited to, its contractors and subcontractors, that delays or prevents the performance of any obligation under this Consent Decree despite such Settling

Defendant's best efforts to fulfill the obligation. The requirement that the Settling Defendant exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any potential force majeure event (1) as it is occurring and (2) following the potential force majeure event, such that the delay is minimized to the greatest extent possible. "Force majeure" does not include financial inability to complete the O&M Activities or a failure to attain the Performance Standards.

B. If any event occurs or has occurred that may delay the performance of any O&M Activities under this Consent Decree, or any other response activities performed under this Consent Decree, whether or not caused by a force majeure event, the Settling Defendant responsible for performing the activities shall notify orally EPA's Project Coordinator or, in his or her absence, EPA's Alternate Project Coordinator or, in the event both of EPA's designated representatives are unavailable, the Director of the Superfund Division, EPA Region IX, as soon as possible under the circumstances. It shall be presumed that notice not made within two (2) Working Days of when such Settling Defendant first knew or should have known that the event might cause a delay is untimely unless evidence credible to EPA and to the contrary is provided to EPA by the Settling Work Defendant. Within ten (10) days thereafter, such Settling Defendant shall provide in writing to EPA and the State an explanation and description of the reasons for the delay; the anticipated

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duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; the Settling Defendant's rationale for attributing such delay to a force majeure event if it intends to assert such a claim; and a statement as to whether, in the opinion of the Settling Defendant, such event may cause or contribute to an endangerment to public health, welfare or the environment. The Settling Defendant shall include with any notice all available documentation supporting its claim that the delay was attributable to a force majeure. Unless the force majeure event is a natural catastrophe or similar event which inherently justifies departure from the above requirements, failure to comply with the above requirements shall preclude Settling Defendant from asserting any claim of force majeure for that event. A Settling Defendant shall be deemed to have notice of any circumstance of which its contractors or subcontractors had or should have had notice.

C. If EPA, after a reasonable opportunity for review and comment by the State, agrees that the delay or anticipated delay is attributable to a force majeure event, the time for performance of the obligations under this Consent Decree that are affected by the force majeure event will be extended by EPA, after a reasonable opportunity for review and comment by the State, for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the force majeure event shall not, of

itself, extend the time for performance of any other obligation. If EPA, after a reasonable opportunity for review and comment by the State, does not agree that the delay or anticipated delay has been or will be caused by a force majeure event, EPA will notify the Settling Defendant claiming force majeure in writing of its decision. If EPA, after a reasonable opportunity for review and comment by the State, agrees that the delay is attributable to a force majeure event, EPA will notify the Settling Defendant claiming force majeure in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure event. Notification to EPA of any other claimed force majeure event affecting other obligations of parties to this Consent Decree shall be made by the party claiming force majeure in writing to EPA within five (5) Working Days of when such party knew or should have known that the event might cause a delay in such party's obligations. It shall be presumed that notice not made within such time is untimely unless evidence credible to EPA and to the contrary is provided to EPA by such party.

D. If the Settling Defendant claiming force majeure elects to invoke the dispute resolution procedures set forth in Section XX (Dispute Resolution), it shall do so no later than fifteen (15) days after receipt of EPA's notice. In any such proceeding, the Settling Defendant shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were

exercised to avoid and mitigate the effects of the delay, and that the Settling Defendant complied with the requirements of this Section, Paragraphs A and B, above or was excused from such compliance under the terms of this Decree. If the Settling Defendant carries this burden, the delay at issue shall be deemed not to be a violation by such Settling Defendant of the affected obligation of this Consent Decree identified to EPA and the Court.

XX. DISPUTE RESOLUTION

A. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. However, the procedures set forth in this Section shall not apply to actions by the United States to enforce obligations of a Settling Defendant that have not been disputed in accordance with this Section.

B. Any dispute which arises under or with respect to this Consent Decree shall in the first instance be the subject of informal negotiations between the parties to the dispute. The period for informal negotiations shall not exceed twenty (20) days from the time the dispute arises, unless it is modified by written agreement of the parties to the dispute. The dispute shall be considered to have arisen when one party sends the other party a written Notice of Dispute.

C. In the event that the parties cannot resolve a dispute by informal negotiations under the preceding Paragraph, then the position advanced by EPA shall be considered binding unless,

within ten (10) days after the conclusion of the informal negotiation period, the Settling Defendant asserting that there is a dispute invokes the formal dispute resolution procedures of this Section by serving on the United States a written Statement of Position on the matter in dispute, including, but not limited to, any factual data, analysis or opinion supporting that position and any supporting documentation relied upon by such Settling Defendant. The Statement of Position shall specify the Settling Defendant's position as to whether formal dispute resolution should proceed under this Section XX, Paragraph F or G.

D. Within fourteen (14) days after receipt of the Settling Defendant's Statement of Position, EPA will serve on such Settling Defendant its Statement of Position, including, but not limited to, any factual data, analysis, or opinion supporting that position and all supporting documentation relied upon by EPA. EPA's Statement of Position shall include a statement as to whether formal dispute resolution should proceed under this Section XX, Paragraph F or G.

E. If there is disagreement between EPA and a Settling Defendant asserting there is a dispute as to whether dispute resolution should proceed under Section XX, Paragraph F or G, the parties to the dispute shall follow the procedures set forth in the Paragraph determined by EPA to be applicable. However, if the Settling Defendant ultimately appeals to the Court to resolve the dispute, the Court shall determine which Paragraph is applicable in accordance with the standards of applicability set

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forth in Section XX, Paragraphs F and G.

F. Formal dispute resolution for disputes pertaining to the selection or adequacy of any response action and all other disputes that are accorded review on the administrative record under applicable principles of administrative law shall be conducted pursuant to the procedures set forth in this Paragraph. For purposes of this Paragraph, the adequacy of any response action includes, without limitation: (1) the adequacy or appropriateness of plans, procedures to implement plans, or any other items requiring approval by EPA under this Consent Decree; and (2) the adequacy of the performance of response actions taken pursuant to this Consent Decree. Nothing in this Consent Decree shall be construed to allow any dispute by Settling Defendants regarding the validity of the ROD's provisions.

1. An administrative record of the dispute shall be maintained by EPA and shall contain all Statements of Position, including supporting documentation, submitted pursuant to this Paragraph. Where appropriate, EPA may allow submission of supplemental Statements of Position by the parties to the dispute.

2. The Director of the Superfund Division, EPA Region IX, will issue a final administrative decision resolving the dispute based on the administrative record described in this Section, Paragraph F.1. This decision shall be binding upon the Settling Defendant asserting that there is a dispute, subject only to the right to seek judicial review pursuant to this Section, Paragraphs F.3 and F.4.

3. Any administrative decision made by EPA pursuant to this Section, Paragraph F.2 shall be reviewable by this Court, provided that a notice of judicial appeal is filed by the Settling Defendant with the Court and served on all parties within thirty (30) days of receipt of EPA's decision. The notice of judicial appeal shall include a description of the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Decree. The United States may file a response to the Settling Defendant's notice of judicial appeal.

4. In proceedings on any dispute governed by this Paragraph, the Settling Defendant asserting that there is a dispute shall have the burden of demonstrating that the decision of the Superfund Division Director is arbitrary and capricious or otherwise not in accordance with law. Judicial review of EPA's decision shall be on the administrative record compiled pursuant to this Section, Paragraph F.1.

G. Formal dispute resolution for disputes that neither pertain to the selection or adequacy of any response action nor are otherwise accorded review on the administrative record under applicable principles of administrative law, shall be governed by this Paragraph.

1. Following receipt of the Settling Defendant's Statement of Position submitted pursuant to Section XX, Paragraph C, the Director of the Superfund Division, EPA Region IX, will issue a final written decision resolving the dispute. The

Superfund Division Director's decision shall be binding on the Settling Defendant asserting that there is a dispute unless, within thirty (30) days of receipt of the decision, such Settling Defendant files with the Court and serves on the other party or parties a notice of judicial appeal setting forth the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of the Consent Decree. The United States may file a response to Settling Defendant's notice of judicial appeal.

2. Notwithstanding Paragraph R of Section I (Background) of this Consent Decree, judicial review of any dispute governed by this Paragraph shall be governed by applicable provisions of law.

H. The invocation of formal dispute resolution procedures under this Section shall not extend, postpone or affect in any way any obligation not directly in dispute of the Settling Defendant asserting that there is a dispute under this Consent Decree, unless EPA or the Court agrees otherwise. If a Settling Defendant prevails, the deadlines for any requirements which it could not practicably meet because of the dispute resolution proceedings shall be extended to account for any delays because of such proceedings. Stipulated penalties with respect to the disputed matter shall continue to accrue but payment shall be stayed pending resolution of the dispute as provided in Section XXI (Stipulated Penalties), Paragraph I. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first

day of noncompliance with any applicable provision of this Consent Decree. In the event that the Settling Defendant does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XXI (Stipulated Penalties), unless EPA in its discretion elects not to assess some or all of such penalties.

XXI. STIPULATED PENALTIES

Unless excused by EPA or a force majeure event, a Settling Defendant shall be liable for stipulated penalties to the United States, as set forth in this Section, for each failure by such Settling Defendant to comply with the requirements of this Consent Decree. "Compliance" by the Settling Work Defendant shall include completion of the O&M activities under this Consent Decree or any work plan or deliverable approved under this Consent Decree or incorporated by this Consent Decree, in accordance with all applicable requirements of law, this Consent Decree, the Second Stage O&M Work Plan and any plans or other documents approved by EPA pursuant to this Consent Decree or any such work plan or deliverable, and within the specified time schedules established by and approved under this Consent Decree or any such work plan or deliverable.

A. Unless expressly stated otherwise in this Consent Decree, any reports, plans, specifications, schedules, deliverables, appendices, and attachments required by this Consent Decree, or implemented in whole or in part by this Consent Decree, are, upon approval by EPA, incorporated into this Consent Decree. A failure by the Settling Work Defendant to

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comply with applicable EPA-approved reports, plans, specifications, schedules, deliverables, appendices or attachments shall be considered a failure to comply with this Consent Decree and shall subject such Settling Work Defendant to stipulated penalties as provided in Paragraphs D through F of this Section.

B. Failure to comply with this Consent Decree shall also include but is not limited to the following:

1. Failure by Settling Work Defendant to submit deliverables specified in this Consent Decree in an acceptable manner and by the date due pursuant to this Consent Decree; provided, however, that if the failure to comply results from a determination by EPA that a written deliverable is inadequate, the Settling Work Defendant shall have ten (10) working days from receipt of EPA's written notice of disapproval, or such other longer time period as provided by EPA in the notice of disapproval, within which to correct the inadequacy and resubmit the deliverable for approval. Any disapproval by EPA shall include an explanation of why the deliverable is inadequate. If the resubmitted deliverable is inadequate, the Settling Work Defendant shall be deemed to be in violation of this Consent Decree.

2. Failure by Settling Work Defendant to use best efforts to obtain any permits necessary for offsite work which Settling Work Defendant is required to perform or failure by Settling Work Defendant to use best reasonable efforts to obtain necessary access agreements.

3. Failure by Settling Work Defendant to comply with

any permit obtained for the purpose of implementing the requirements of this Consent Decree in any offsite location.

C. Stipulated penalties for failure to perform any requirement of this Consent Decree for which a deadline is specified shall begin to accrue on the first day after the deadline. Stipulated penalties for any other violation of this Consent Decree shall begin to accrue on the first day after a Settling Defendant subject to penalties receives notice from EPA of such violation. For any violation, stipulated penalties shall continue to accrue up to and including the day on which the non-compliance is corrected. EPA, in its sole discretion, may waive or reduce stipulated penalties. If EPA does not waive stipulated penalties, EPA shall provide the Settling Defendant subject to penalties with written notice of the alleged deficiency in compliance with this Consent Decree, and accrued stipulated penalties shall become payable thirty (30) days after such Settling Defendant's receipt of EPA's written notice of deficiency; provided, however, that if EPA provides notice of an alleged deficiency, and that deficiency continues, EPA shall not be required to provide any additional notice in order for stipulated penalties to continue to accrue and become payable.

D. Stipulated penalties shall accrue in the following amounts for the violations described in this Paragraph, and a Settling Defendant subject to such penalties may not dispute the amount of stipulated penalties due per type of violation:

1. Monthly Progress Reports and Other Periodic Reports

Settling Work Defendant shall pay a stipulated

penalty of $ 750 per day for the submission of a late or deficient periodic progress report.

2. MCL Effluent Violations

a. At any time if the concentration of TCE in the treated water is greater than 5.0 parts per billion ("ppb"), Settling Work Defendant shall be considered to have been out of compliance for each day for which the representative treated water sample indicates that the concentration of TCE was greater than 5.0 ppb. Settling Work Defendant shall be subject to stipulated penalties in the amount of $ 3,750 per day for each such day of noncompliance.

b. At any time if the concentration of PCE in the treated water is greater than 5.0 ppb, Settling Work Defendant shall be considered to have been out of compliance for each day for which the representative treated water sample indicates that the concentration of PCE was greater than 5.0 ppb. Settling Work Defendant shall be subject to stipulated penalties in the amount of $ 3,750 per day for each such day of noncompliance.

c. At any time if the concentration of a volatile organic compound ("VOC") other than TCE or PCE in the treated water is greater than the MCL in effect at that time for such VOC, Settling Work Defendant shall be considered to have been out of compliance for each day for which the representative treated water sample indicates that the concentration of that VOC was greater than the MCL in effect, provided that the MCL in effect was promulgated on or before the Effective Date of this Consent Decree. Settling Work Defendant shall be subject to stipulated

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penalties in the amount of $ 3,750 per day for each such day of noncompliance.

d. At any time after the first sixty (60) days after an analytical sample result shows that the concentration of a contaminant in the treated water other than a VOC or nitrate is greater than the MCL in effect at that time for such contaminant, Settling Work Defendant shall be considered to have been out of compliance for each day for which the representative treated water sample indicates that the concentration of that contaminant was greater than the MCL in effect, provided that the MCL in effect was promulgated on or before the Effective Date of this Consent Decree. Settling Work Defendant shall be subject to stipulated penalties in the amount of $ 2,250 per day for each such day of noncompliance.

E. Class I Violations

Stipulated penalties shall accrue in the following amounts for the violations described in this Paragraph, and a Settling Defendant subject to such penalties may not dispute the amount of stipulated penalties due per type of violation:

Period of Noncompliance	Penalty Per Day Per Violation
Days 1 - 5	$ 750
Days 6 - 30	$ 2,250
After 30 Days	$ 3,750

1. Each failure to comply in a timely and adequate manner with the terms of this Consent Decree or any work plan implemented in whole or in part by this Consent Decree, that is not specifically listed as a violation elsewhere under this

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Section, and specifically including any failure to comply with the substantive standards of any applicable or relevant and appropriate requirement ("ARAR") identified in the ROD (as modified by the ESD and SOW) and not identified as a violation under Paragraphs D through F of this Section.

2. Failure by Settling Work Defendant to submit any of the following:

i. Draft Second Stage Operations and Maintenance Work Plan

ii. Draft Second Stage Operations and Maintenance Staffing Plan

iii. Draft Second Stage Operations and Maintenance Time Line and Schedule

iv. Draft Quality Assurance Project Plan

v. Draft Health and Safety Plan

3. Violation by Settling Work Defendant of ARARs, other than MCL violations, and South Coast Air Quality Management District Regulation XIII.

F. Class II Violations

Stipulated penalties shall accrue in the following amounts for the violations described in this Paragraph, and a Settling Defendant subject to such penalties may not dispute the amount of stipulated penalties due per type of violation:

Period of Noncompliance	Penalty Per Day Per Violation
Days 1 - 5	$ 1,500
Days 6 - 30	$ 3,500
After 30 Days	$ 10,000

Each violation by Settling Work Defendant of the following:

i. Obligation to hold Final Inspection(s)

Failure by Settling Work Defendant to submit any of the following:

i. Second Stage Operations and Maintenance Work Plan

ii. Second Stage Operations and Maintenance Staffing Plan

iii. Second Stage Operations and Maintenance Time Line and Schedule

iv. Notification of Selection of O&M Contractors/Subcontractors

v. Quality Assurance Project Plan

vi. Health and Safety Plan

Failure by Settling Work Defendant to comply with any of the following:

i. Quality Assurance Project Plan

ii. Health and Safety Plan

iii. Second Stage O&M Work Plan

G. Payments of stipulated penalties shall be made by a Settling Defendant as follows:

1. Stipulated penalties assessed for failure to make full and timely payment to the O&M Trust Account pursuant to Section XIV (Funding of Response Activities) or to the United States pursuant to Section XVII (Reimbursement of Response Costs) shall be paid by Lockheed Martin. Lockheed Martin shall not be subject to stipulated penalties for failure to fund insurance costs for insurance coverages described solely in Exhibit 3 to

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this Consent Decree.

2. Stipulated penalties for failure to make full and timely payment pursuant to Paragraph M of Section XIV (Funding of Response Activities) of this Consent Decree shall be paid by Lockheed Martin or the UAO Parties according to the EPA Preliminary Finding and/or Further Determination required by that Section and Paragraph. Stipulated penalties for failure to make payments pursuant to Paragraph N of Section XIV (Funding of Response Activities) shall be paid by Lockheed Martin, the Settling Cash Defendants or the City of Burbank in accordance with their obligations under that Section and Paragraph.

3. Except for stipulated penalties which arise due to Lockheed Martin's or the UAO Parties' failure to comply with their obligations under Section XIV (Funding of Response Activities) as described in this Paragraph, all other stipulated penalties assessed for failure to comply with Section VI (Performance of the Work By Settling Defendants) shall be the responsibility of and be paid by the City of Burbank. No such stipulated penalties shall be paid or reimbursed from the O&M Trust Account.

H. If a Settling Defendant fails to pay stipulated penalties in accordance with this Section, the United States may institute proceedings in this action or a new action to collect the penalties and any Interest due. Notwithstanding the stipulated penalties provided for in this Section, and to the extent authorized by law, EPA may elect to assess civil penalties or bring an action in District Court to enforce the provisions of

this Consent Decree. Payment of stipulated penalties shall not preclude EPA from electing to pursue any other remedy or sanction it may have to enforce this Consent Decree, and nothing in this Decree shall preclude EPA from seeking statutory penalties against a Settling Defendant who violates statutory or regulatory requirements, except that the total civil penalties (including stipulated penalties) collected by EPA for any such violation shall not exceed $ 25,000 per day per violation.

I. A Settling Defendant may dispute any notice of deficiency issued to it. Penalties shall continue to accrue as provided in this Section but need not be paid until the following:

1. If the dispute is resolved by agreement or by decision or order of EPA which is not appealed to this Court, accrued penalties, plus Interest, shall be paid to EPA within thirty (30) days of the agreement or Settling Defendant's receipt of EPA's decision or order;

2. If the Settling Defendant appeals EPA's decision pursuant to Section XX (Dispute Resolution) and prevails upon final resolution of the dispute, no stipulated penalties or Interest thereon will be payable and any assessment of stipulated penalties and Interest thereon shall be set aside in writing by EPA;

3. If the Settling Defendant appeals EPA's decision pursuant to Section XX (Dispute Resolution) and does not prevail upon final resolution of the dispute, all accrued stipulated penalties, plus Interest shall be paid within thirty (30) days of

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a final Court order.

4. If a Settling Defendant appeals EPA's decision to this Court and the Court's decision is appealed by any Party, the Settling Defendant shall pay all accrued penalties determined by the District Court to be owing to the United States into an interest-bearing escrow account within sixty (60) days of receipt of the Court's decision or order. Penalties determined by the Court to be accruing shall be paid into this account as they continue to accrue, at least every sixty (60) days. Within fifteen (15) days of receipt of the final appellate court decision, the escrow agent shall pay the balance of the account to EPA or to the Settling Defendant to the extent that it prevails.

J. In the event that EPA assumes performance of a portion or all of the O&M Activities pursuant to Paragraph F of Section XXII (Covenants Not to Sue by Plaintiffs), Settling Work Defendant shall remain liable for any stipulated penalties that have accrued or that may accrue under this Consent Decree.

K. All penalties owed to the United States under this section shall be due and payable within thirty (30) days of the Settling Defendant's receipt from EPA of a demand for payment of the penalties, unless the Settling Defendant invokes the dispute resolution procedures under Section XX (Dispute Resolution). All payments under this Section shall be transmitted via EFT to the U.S. Department of Justice Lockbox, and shall reference CERCLA Number SSID # L6, DOJ Case Number 90-11-2-442 and USAO File NO. 91-03-463. Written verification of EFTs pursuant to this Section

shall be sent to the United States as provided in Section XXVII (Notices and Submissions).

L. The payment of penalties shall not alter in any way the Settling Work Defendant's obligation to complete the performance of the O&M Activities required under this Consent Decree.

M. If a Settling Defendant fails to pay stipulated penalties when due, the United States may institute proceedings to collect the penalties, as well as Interest. The Settling Defendant shall pay Interest on the unpaid balance, which shall begin to accrue thirty (30) days after the date of demand made pursuant to this Section, Paragraph K.

N. Nothing in this Consent Decree shall be construed as prohibiting, altering, or in any way limiting the ability of the United States or the State to seek any other remedies or sanctions available by virtue of a Settling Defendant's violation of this Consent Decree or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Section 122(l) of CERCLA, 42 U.S.C. § 9622(l).

XXII. COVENANTS NOT TO SUE BY PLAINTIFFS

In consideration of the actions that will be performed and/or the payments that will be made by the Settling Defendants under the terms of the Consent Decree, and except as specifically provided in this Section, the United States covenants not to sue or to take administrative action against Settling Defendants and/or the Released Parties pursuant to Sections 106 and 107(a) of CERCLA and Section 7003 of RCRA, and the State covenants not to sue or to take administrative action pursuant Section 107(a)

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of CERCLA, and to Chapters 6.5, Sections 25100 et seq., and 6.8 Sections 25300 et seq. of the California Health and Safety Code for all Covered Matters expressly specified in Section XXIV (Effect of Settlement; Contribution Protection), Paragraph C. As to each Settling Defendant and its related Released Parties, these covenants not to sue are conditioned upon the complete and satisfactory performance by such Settling Defendant of its then-current obligations under this Consent Decree and shall remain in effect as to each Settling Defendant and its related Released Parties until and unless such Settling Defendant is not in compliance with the obligations imposed upon it by this Consent Decree. As to each Settling Defendant, Related Settling Defendant, or Related Released Party, as described in Appendix 1 to this Consent Decree, these covenants not to sue are conditioned upon the complete and satisfactory performance by that party's principal Settling Defendant of its then-current obligations pursuant to Section XIV (Funding of Response Actions) of this Consent Decree. These covenants not to sue extend only to each Settling Defendant and its related Released Parties. These covenants not to sue do not extend to any other person. No person otherwise liable independent of liability associated with its status as a corporate or institutional predecessor or successor to a Settling Defendant or Related Released Party shall benefit from this provision.

A. United States' Pre-certification Reservations.

Except as to the parties listed in Appendix 3, and notwithstanding any other provision of this Consent Decree, the

United States reserves, and this Consent Decree is without prejudice to, the right to institute proceedings in this action or in a new action, or to issue an administrative order seeking to compel Settling Defendants, Released Parties, or any of them (1) to perform further response actions relating to the Site or (2) to reimburse the United States for additional costs of response if, prior to Certification of Completion of O&M Activities pursuant to Section XV (Certification of Completion) of this Consent Decree:

(i) conditions at the Site, previously unknown to EPA, are discovered, or

(ii) information, previously unknown to EPA, is received, in whole or in part,

and these previously unknown conditions or information together with any other relevant information indicate that the Remedial Action or the O&M Activities are not protective of human health or the environment.

B. Except as to the parties listed in Appendix 3, the United States also reserves the right to institute proceedings in this action or in a new action, or to issue an administrative order seeking to compel Settling Defendants, Released Parties, or any of them to (1) perform further response actions relating to the Site or (2) to reimburse the United States for additional costs of response if, prior to Certification of Completion of the O&M Activities, (a) the Settling Work Defendant substantially fails and/or refuses to perform the O&M Activities, or (b) an earthquake or Uninsurable Force Majeure Event causes Major Damage

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(as defined in Section XIV (Funding of Response Activities), Paragraph N) to the Plant Facilities, and EPA has reserved its rights in such circumstances in that Section and Paragraph.

C. United States' Post-certification Reservations. Except as to the parties listed in Appendix 3, and notwithstanding any other provision of this Consent Decree, the United States reserves, and this Consent Decree is without prejudice to, the right to institute proceedings in this action or in a new action, or to issue an administrative order seeking to compel Settling Defendants, Released Parties, or any of them (1) to perform further response actions relating to the Site or (2) to reimburse the United States for additional costs of response if, subsequent to Certification of Completion of the O&M Activities pursuant to Section XV (Certification of Completion) of this Consent Decree:

(i) conditions at the Site, previously unknown to EPA, are discovered, or

(ii) information, previously unknown to EPA, is received, in whole or in part,

and these previously unknown conditions or this information together with any other relevant information indicate that the Remedial Action or the O&M Activities are not protective of human health or the environment.

D. For purposes of this Section, Paragraph A, the information and the conditions known to EPA shall include only that information and those conditions set forth in the ROD for the Site, the administrative record supporting the ROD, and information required to be and actually submitted to EPA pursuant

to the First Consent Decree or UAO 92-12 prior to the date of lodging of this Consent Decree. For purposes of this Section, Paragraph C, the information received by and the conditions known to EPA shall include only that information and those conditions set forth in the ROD, the administrative record supporting the ROD, and any information received by or required to be and actually submitted to EPA pursuant to the requirements of the First Consent Decree, this Consent Decree or UAO 92-12 prior to Certification of Completion of the O&M Activities.

E. General Reservations of Rights. The covenants not to sue set forth above do not pertain to any matters other than the Covered Matters expressly specified in Section XXIV (Effect of Settlement; Contribution Protection), Paragraph C. The United States and the State reserve, and this Consent Decree is without prejudice to, all rights against a Settling Defendant or a Released Party with respect to all other matters, including but not limited to, the following:

(1) claims based on a failure by such Settling Defendant to meet a requirement of this Consent Decree;

(2) liability arising from the past, present, or future disposal, release, or threat of release of hazardous substances outside of the Site;

(3) liability for damages for injury to, destruction of, or loss of natural resources;

(4) liability for response costs that have been or may be incurred by any federal or State of California agency which is the trustee for natural resources and which has, or

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may in the future, spend funds relating to the Site;

(5) criminal liability;

(6) liability for violations of federal or State of California law which occur during or after implementation of the Remedial Action or O&M Activities;

(7) liability for additional response actions as may be required pursuant to Section VII (Additional Response Actions) or VIII (Periodic Review) of this Consent Decree, to the extent Settling Defendants do not agree in this Consent Decree to fund and/or perform such response actions under this Consent Decree;

(8) liability for additional operable units or interim remedies at the Site, for other operable units outside the Site, or any interim or final Basin-wide response action; and

(9) liability for Future Basin-wide Response Costs, and any costs that the United States or the State will incur or have incurred related to the Site which are not within the definition of Past Site-Specific Response Costs, Future Site-Specific Response Costs, or Past Basin-wide Response Costs.

F. In the event EPA determines that Settling Work Defendant has failed to implement any provisions of the O&M Activities in an adequate or timely manner, EPA may perform any and all portions of the O&M Activities as EPA determines necessary. In such event, Lockheed Martin shall fund EPA's performance of such O&M Activities pursuant to Section XIV

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(Funding of Response Activities), Paragraph H.2.b-c. Settling Work Defendant shall reimburse Lockheed Martin for that portion of EPA's costs incurred to fund EPA's takeover and/or performance of O&M Activities which is caused by the necessity for EPA to take over such O&M Activities from the Settling Work Defendant pursuant to this Section and Paragraph. If EPA takes over the performance of some or all of the O&M Activities pursuant to this Section and Paragraph, EPA shall issue a determination at the request of Settling Work Defendant or Lockheed Martin concerning which costs incurred by EPA were due to the necessity for EPA to take over such O&M Activities from the Settling Work Defendant. In no event shall the accounting of such costs for which the Settling Work Defendant may be required to reimburse Lockheed Martin pursuant to this Paragraph continue for a period longer than one year from EPA's takeover of such O&M Activities. Settling Work Defendant or Lockheed Martin may invoke the procedures set forth in Section XX (Dispute Resolution) to dispute EPA's determination concerning such costs.

G. Settling Work Defendant may invoke the procedures set forth in Section XX (Dispute Resolution) to dispute EPA's determination that the Settling Work Defendant failed to implement a provision of the O&M Activities in an adequate or timely manner as arbitrary and capricious or otherwise not in accordance with law. Such dispute shall be resolved on the administrative record. Except as is necessary to address an imminent and substantial endangerment to human health or the environment, EPA shall provide Settling Work Defendant with ten

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(10) days written notice of its intent to perform a portion or all of the O&M Activities. In the notice, EPA shall also describe the alleged deficiency. If the Settling Work Defendant disagrees with EPA's determination that it has failed to perform, in an adequate and timely manner, the O&M Activities required to be performed by this Consent Decree, and Settling Work Defendant desires to dispute EPA's determination in this regard, Settling Work Defendant shall invoke the dispute resolution provisions of Section XX (Dispute Resolution) within thirty (30) days of receiving written notice of EPA's intent. Invocation of dispute resolution shall not divest EPA of its right to perform the O&M Activities during the dispute. Upon receipt of notification that EPA intends to take over the performance of a portion or all of the O&M Activities, Settling Work Defendant's obligations to perform such O&M Activities pursuant to this Consent Decree shall terminate and stipulated penalties, if any are being incurred due to Settling Work Defendant's failure to perform such O&M Activities in a timely or adequate manner, shall cease to accrue against Settling Work Defendant for such failure.

H. Notwithstanding any other provision of this Consent Decree, the United States and the State retain all authority and reserve all rights to take any and all response actions authorized by law. However, the obligation, if any, of the Settling Defendants to reimburse the United States for taking such actions shall be governed by the provisions of this Consent Decree to the extent Settling Defendants comply with their obligations to fund or perform such response actions pursuant to

this Consent Decree.

XXIII. COVENANTS BY SETTLING DEFENDANTS

A. Settling Defendants hereby covenant not to sue and agree not to assert any claims or causes of action against the United States with respect to the Site or this Consent Decree, including, but not limited to, any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507) through CERCLA Sections 106(b)(2), 111, 112, 113, 42 U.S.C. §§ 9606(b)(2), 9611, 9612, and 9613, or any other provision of law, any claim against the United States, including any department, agency or instrumentality of the United States under CERCLA Sections 107 or 113, 42 U.S.C. §§ 9607 or 9613, related to the Site except as expressly reserved in this Section, Paragraphs (A)(1), (2), or (3) of this Consent Decree or Section XVII, Paragraph B of the First Consent Decree, or any claims arising out of response activities at the Site. However, the Settling Defendants reserve, this Consent Decree is without prejudice to, and nothing in this Consent Decree shall be interpreted as waiving, abrogating or resolving:

(1) any claims which any Settling Defendant has or may have based upon any alleged liability of the United States Department of Defense, any branch or division thereof ("DOD"), or any predecessor agency to DOD for conditions at the Site pursuant to CERCLA Sections 106, 107, 113, 120 or 310, 42 U.S.C. §§ 9606, 9607, 9613, 9620 or 9659 or RCRA Section 7002, 42 U.S.C. § 6972;

(2) any claims which any Settling Defendant has or may

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have with respect to the Site against the United States pursuant to any contract between any Settling Defendant and the United States or between any Settling Defendant and any government contractor(s) related to the Site; or

(3) actions against the United States based on negligent actions taken directly by the United States (not including oversight or approval of the Settling Defendants' plans or activities) that are brought pursuant to any statute other than CERCLA and for which the waiver of sovereign immunity is found in a statute other than CERCLA.

(4) actions against the State based on negligent actions taken directly by the State (not including oversight or approval of the Settling Defendants' plans or activities) that are brought pursuant to any statute or law other than CERCLA, RCRA, and Chapters 6.5, Sections 25100 et seq., and 6.8, Sections 25300 et seq. of the California Health & Safety Code.

B. In agreeing to these reservations, the United States and the State do not admit liability on any such claims and expressly reserve any and all defenses that either of them may have to any such claims.

C. Except as expressly set forth in this Consent Decree, Settling Defendants do not waive any claim against and do not release or covenant not to sue the United States or the State with respect to any matter. Nothing in this Consent Decree shall be deemed to constitute preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

D. Settling Defendants hereby covenant not to sue and agree not to assert any claims or causes of action against the State with respect to the Site or this Consent Decree, including, but not limited to, (1) any direct or indirect claim for reimbursement from the Hazardous Waste Control Account, Hazardous Substance Account, or Hazardous Substance Cleanup Fund through Health and Safety Code section 25375 or any other provision of law; (2) any claim against the State under Sections 107 or 113 of CERCLA, 42 U.S.C. §§ 9607 or 9613, or Section 7003 of RCRA, 42 U.S.C. § 9673; or (3) any other claims arising out of Settling Defendants' response activities at the Site, including but not limited to nuisance, trespass, taking, equitable indemnity and indemnity under California law, contribution under California and federal law, or strict liability under California law.

XXIV. EFFECT OF SETTLEMENT; CONTRIBUTION PROTECTION

A. Nothing in this Consent Decree shall be construed to create any rights in, or grant any cause of action to, any person not a Settling Defendant or a Released Party under this Consent Decree. The preceding sentence shall not be construed to waive or nullify any rights that any person not a signatory to this Consent Decree may have under applicable law. Each of the Parties expressly reserves any and all rights (including, but not limited to, any right to contribution), defenses, claims, demands, and causes of action which each party may have with respect to any matter, transaction, or occurrence relating in any way to the Site against any person not a Settling Defendant or Released Party under this Consent Decree.

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B. At such time as a judgment is entered and becomes final judicially approving this Consent Decree, each Settling Defendant hereby expressly waives any and all rights (including, but not limited to, any right to contribution, defenses, claims, demands, and causes of action under State of California or federal law) against all other Settling Defendants and Released Parties with respect to Covered Matters specified in Paragraph C of this Section. Notwithstanding the foregoing, any funding of the repair of earthquake damage ("Earthquake Funding") by Lockheed Martin pursuant to Section XIV (Funding of Response Activities), Paragraph N of this Consent Decree, is without prejudice to its right to assert claims against other Settling Defendants (except the Appendix 3 parties and Settling Work Defendant) for reimbursement of Earthquake Funding. No Settling Defendant (except the Appendix 3 parties and Settling Work Defendant) shall assert that any agreement which exists between any of the Settling Defendants at the time of entry of this Second Consent Decree acts as a bar or provides a defense to any reimbursement or contribution claim by any other Settling Defendant for Earthquake Funding. The provisions of this Paragraph specifically supersede the provisions of Paragraph B of Section XXII (Contribution Protection) of the First Consent Decree. With regard to claims by third parties for contribution against Settling Defendants and/or Released Parties for such Covered Matters specified in Paragraph C of this Section, the Parties hereto agree that the Settling Defendants and Released Parties are entitled to such protection from contribution actions or

claims as is provided by CERCLA Section 113(f)(2), 42 U.S.C. § 9613(f)(2). Certain defendants have entered into private agreements with regard to certain matters which relate to those that form the subject matter of this Consent Decree; the waiver expressed in this Paragraph shall not operate to preclude enforcement of those private agreements.

C. The Covered Matters in this Consent Decree are:

1. EPA's and the State's Past Site-Specific Response Costs and Past Basin-wide Response Costs,

2. EPA's and the State's Future Site-Specific Response Costs,

3. all matters addressed in the First Consent Decree and this Consent Decree,

4. all matters addressed in UAO 92-12 through the period covered during this Consent Decree, and

5. all costs of implementing the O&M Activities and any other response activity to be performed under this Consent Decree, except to the extent this Consent Decree does not provide for one or more of the Settling Defendants to fund and/or to perform any part of such activities.

D. The Settling Defendants agree that with respect to any suit or claim for contribution brought by them for Covered Matters they will notify the United States and the State in writing no later than sixty (60) days prior to the initiation of such suit or claim.

E. The Settling Defendants also agree that with respect to any suit or claim for contribution brought against them for

Covered Matters they will notify the United States and the State in writing within sixty (60) days of service of the complaint on them. In addition, Settling Defendants shall notify the United States and the State in writing within ten (10) days of service or receipt of any Motion for Summary Judgment and within ten (10) days of receipt of any order from a court setting a case for trial.

F. In any subsequent administrative or judicial proceeding initiated by the United States or the State for injunctive relief, recovery of response costs, or other appropriate relief relating to the Site, Settling Defendants shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States or the State in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the enforceability of the covenants not to sue set forth in Section XXII (Covenants Not to Sue by Plaintiffs).

G. Payment of all sums which a Settling Cash Defendant is obligated to pay pursuant to Section XIV (Funding of Response Activities) of this Consent Decree, comprises full settlement as to that Settling Cash Defendant, any related Released Party as described in Appendix 1, and any Related Settling Defendant as described in Appendix 1, for all Covered Matters and thus, such Settling Cash Defendants, Related Settling Defendants and related Released Parties are entitled to such protection from

contribution actions or claims as is provided by CERCLA Section 113(f)(2), 42 U.S.C. § 9613(f)(2).

XXV. ACCESS TO INFORMATION

A. Settling Defendants shall provide to EPA and the State, upon request, copies of all documents or portions thereof which are not privileged by the attorney-client privilege, the attorney work product doctrine, or any other privilege recognized by law, and information within their possession or control or that of their contractors or agents relating to response actions at the Site or to the implementation of this Consent Decree including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the O&M Activities. Settling Defendants shall also make available to EPA and the State, for purposes of investigation or information gathering, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the O&M Activities.

B. Settling Defendants may assert confidentiality claims covering part or all of the documents or information submitted to Plaintiffs under this Consent Decree to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Documents or information determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies documents or information when they are submitted to EPA and the State, or if EPA has notified

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Settling Defendants that the documents or information are not confidential under the standards of Section 104(e)(7) of CERCLA, the public may be given access to such documents or information without further notice to Settling Defendants.

C. The Settling Defendants may assert that certain documents, records and other information are privileged under the attorney-client privilege, the attorney work product doctrine, or any other privilege recognized by law. In the case of documents, if a Settling Defendant asserts such a privilege in lieu of providing documents, it shall provide the Plaintiffs with the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of the author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the contents of the document, record, or information: and (6) the privilege asserted by such Settling Defendant. However, no documents, reports or other information created or generated pursuant to the requirements of this Consent Decree shall be withheld on the grounds that they are privileged. If a claim of privilege applies only to a portion of a document, the document shall be provided to EPA in redacted form.

D. No claim of confidentiality or privilege shall be made with respect to any document that falls within Section 104(e)(7)(F) of CERCLA, 42 U.S.C. § 9604(e)(7)(F).

XXVI. RETENTION OF RECORDS

A. Until ten (10) years after the Settling Defendants' receipt of EPA's notification pursuant to Paragraph B.2 of Section XV (Certification of Completion of the Work), each Settling Defendant shall preserve and retain all records and documents now in its possession or control or which come into its possession or control that relate in any manner to the performance of the O&M Activities or liability of any person for response actions conducted and to be conducted at the Site, regardless of any document retention policy to the contrary. Until ten (10) years after Settling Defendants' receipt of EPA's notification pursuant to Paragraph A.2 of Section XV (Certification of Completion), Settling Defendants shall also instruct their contractors and agents to preserve all documents, records, and information of whatever kind, nature or description relating to the performance of the O&M Activities.

B. At the conclusion of this document retention period, Settling Defendants shall notify the United States and the State at least ninety (90) days prior to the destruction of any such records or documents, and, upon request by the United States or the State such Settling Defendant shall deliver any such records or documents to EPA or the State. A Settling Defendant may assert that certain documents, records and other information are privileged under the attorney-client privilege, the attorney work product doctrine, or any other privilege recognized by law. In the case of documents, if a Settling Defendant asserts such a privilege, it shall provide the Plaintiffs with the following:

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(1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of the author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the subject of the document, record, or information: and (6) the privilege asserted by the Settling Defendant. However, no documents, reports or other information created or generated pursuant to the requirements of this Consent Decree shall be withheld on the grounds that they are privileged. If a claim of privilege applies only to a portion of the document, it shall be provided to EPA in redacted form.

C. Each Settling Defendant hereby certifies, individually, that it has not willfully and for an improper purpose altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents or other information relating to its potential liability regarding the Site since notification of potential liability by the United States or the State or the filing of suit against it regarding the Site and that to the best of its knowledge, that it has fully complied with any and all EPA requests for information pursuant to Section 104(e) and 122(e) of CERCLA, 42 U.S.C. § 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927.

XXVII. NOTICES AND SUBMISSIONS

A. Whenever, under the terms of this Consent Decree, written notice is required to be given or a report or other document is required to be sent by one party to another, it shall be directed to the individuals at the addresses specified below,

unless those individuals or their successors give notice of a change to the other parties in writing. All notices and submissions shall be considered effective upon receipt, unless otherwise provided. Written notice as specified herein shall constitute complete satisfaction of any written notice requirement of the Consent Decree with respect to the United States, EPA, the State, and the Settling Defendants, respectively.

As to the United States:

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
Re: DJ # 90-11-2-442

and

Director, Waste Management Division
United States Environmental Protection Agency
Region IX
75 Hawthorne St.
San Francisco, CA 94105

As to EPA:

EPA Project Coordinator, San Fernando Valley
Burbank Operable Unit
United States Environmental Protection Agency
Region IX
75 Hawthorne Street, H-6-4
San Francisco, CA 94105

As to the State:

Hamid Saebfar, Chief
Site Mitigation Cleanup Operations
Department of Toxic Substances Control
Region 3
1011 N. Grandview Avenue
Glendale, CA 91201

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As to the Settling Work Defendant:

City of Burbank
Peter Frankel, P.E.
Supervising Civil Engineer
City of Burbank
Public Service Department
165 West Magnolia Boulevard
Burbank, CA 91503-0631

As to the Settling Defendants Other Than Settling Work Defendant:

As set forth in Appendix 7.

XXVIII. EFFECTIVE DATE

A. The Effective Date of this Consent Decree shall be the date upon which it is entered by the Court, except as otherwise provided herein.

XXIX. RETENTION OF JURISDICTION

A. This Court retains jurisdiction over both the subject matter of this Consent Decree and the Settling Defendants for the duration of the performance of the terms and provisions of this Consent Decree for the purpose of enabling any of the Parties to apply to the Court at any time for such further order, direction, and relief as may be necessary or appropriate for the construction or modification of this Consent Decree, or to effectuate or enforce compliance with its terms, or to resolve disputes in accordance with Section XX (Dispute Resolution) hereof.

XXX. APPENDICES

A. The following appendices are attached to and incorporated into this Consent Decree:

Appendix 1 is the complete list of the Settling Cash Defendants and Released Parties and/or other Settling Defendants

who are related to a Settling Cash Defendant, to Lockheed Martin or to the City of Burbank in the manner described in Appendix 1.

Appendix 2 is the complete list of the Owner Settling Defendants and the properties they own within the Site.

Appendix 3 is the complete list of Settling Defendants who are excepted from the operation of Section XXII (Covenants not to Sue by Plaintiffs), Paragraphs A, B and C.

Appendix 4 is the Second Stage Statement of Work.

Appendix 5 is ESD2.

Appendix 6 is a list of the Settling Defendants and for each Settling Defendant, the person to whom notices and submissions shall be sent pursuant to Section XXVII (Notices and Submissions) of this Consent Decree.

Appendix 7 is a plot plan or plans which depict extraction wells VO-1, 2, 3 and 4 as described in Paragraph L of Section XIV (Funding of Response Activities), and the City's liquid phase GAC wellfield located at 164 West Magnolia Boulevard, Burbank, California, as described in Paragraph G of Section V (General Provisions) and Paragraph H.4 of Section VI (Performance of the Work).

B. The following exhibits are attached to this Consent Decree for reference purposes and are not incorporated herein

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unless otherwise noted.

Exhibit 1 is the First Consent Decree.

"Appendix A" to the First Consent Decree is the ROD prior to its modification in ESD1, the First Consent Decree, and ESD2.

"Appendix B" to the First Consent Decree is ESD 1.

"Appendix C" to the First Consent Decree is the Map of Corrected Well Locations.

"Appendix D" to the First Consent Decree is the SOW.

"Appendix E" to the First Consent Decree is Schematics.

"Appendix F" to the First Consent Decree is a Plot Map.

Exhibit 2 is Unilateral Administrative Order 92-12 and the April 26, 1992 Amendment to Unilateral Administrative Order 92-12.

Exhibit 3 is a Scope of Work regarding Plant Facilities Insurance.

XXXI. COMMUNITY RELATIONS

A. Settling Work Defendant shall participate and cooperate with to EPA and the State concerning its participation in the community relations plan ("Plan") for the Site to be developed or which has been previously developed by EPA. In consultation with Settling Work Defendant, EPA will determine the appropriate role for the Settling Work Defendant under the Plan. Settling Work Defendant shall cooperate with EPA and the State in implementing the Plan and pursuant thereto, in providing information regarding the O&M Activities to the public. As requested by EPA, or the State, Settling Work Defendant, Lockheed Martin, and/or the

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Settling Cash Defendants (including the UAO Parties) shall participate in the preparation of information for dissemination to the public and in public meetings which may be held or sponsored by EPA or the State to explain activities at or relating to the Site.

XXXII. MODIFICATION

A. Schedules specified in this Consent Decree, in the Second Stage Statement of Work, or in any work plan approved by EPA pursuant to this Consent Decree for completion of the O&M Activities or any other response activities may be modified by agreement of EPA and the Settling Work Defendant, and any other Settling Defendant whose rights and/or obligations would be substantially affected thereby. All such modifications shall be made in writing.

B. No modifications shall be made to the Second Stage Statement of Work without written notification to and consent by any Settling Defendant whose rights or obligations would be substantially affected thereby, and written approval of the United States. Prior to providing its approval to any modification, the United States will provide the State with a reasonable opportunity to review and comment on the proposed modification.

C. Nothing in this Consent Decree shall be deemed to alter EPA's authority to make changes to the interim remedy for the Burbank Operable Unit in compliance with CERCLA, the National Contingency Plan, and any other applicable laws or regulations, or to require court approval of such changes.

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D. Nothing in this Consent Decree shall be deemed to alter the Court's power to enforce, supervise or approve modifications to this Consent Decree.

XXXIII. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

A. This Consent Decree shall be lodged with the Court for a period of not less than thirty (30) days for public notice and comment in accordance with Section 122(d)(2) of CERCLA, 42 U.S.C. § 9622(d)(2), and 28 C.F.R. § 50.7. The United States also shall publish notice of the proposed settlement described in this Consent Decree in the Federal Register pursuant to section 122(l) of CERCLA, 42 U.S.C. § 9622(l). The United States hereby gives notice and opportunity to the public for a public meeting in the affected area, and a reasonable opportunity to comment on the proposed settlement prior to its final entry, pursuant to section 6973(d) of RCRA, 42 U.S.C. § 7003(d).

B. The United States reserves the right to withdraw or withhold its consent or suggest modifications to this Consent Decree if the comments regarding the Consent Decree disclose facts or considerations which indicate that the Consent Decree is inappropriate, improper, or inadequate. Settling Defendants consent to the entry of this Consent Decree without further notice. However, Settling Defendants' consent to the entry of this Consent Decree is not consent to any modifications, and no Settling Defendant shall be bound by modifications to this Consent Decree without its prior written consent.

C. If for any reason the Court should decline to approve this Consent Decree in the form presented, this Consent Decree is

voidable as to any party at the sole discretion of such party and the terms of this Consent Decree may not be used as evidence in any litigation between the Parties.

XXXIV. SIGNATORIES/SERVICE

A. Each undersigned representative of a Settling Defendant to this Consent Decree, Plaintiffs, and the Assistant Attorneys General for the Environment and Natural Resources Division of the Department of Justice and for the State of California, certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind such Party to this document.

B. Each Settling Defendant hereby agrees not to oppose entry of this Consent Decree by this Court or to challenge any provision of this Consent Decree unless the United States has notified the Settling Defendants in writing that it no longer supports entry of this Consent Decree.

C. Each Settling Defendant shall identify, on the attached signature page, the name, address and telephone number of an agent who is authorized to accept service of process by mail on behalf of that Party with respect to all matters arising under or relating to this Consent Decree. Concerning any action brought by the United States or the State to enforce the terms of this Consent Decree, Settling Defendants hereby agree to accept service in that manner and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure and any applicable local rules of this Court, including, but not limited to, service of a summons. Concerning

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the lodging and entry of this Consent Decree, Settling Defendants agree to accept in lieu of service by mail or the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure, service by the United States and the State by mail of one (1) copy of any document(s), motions or related matters upon the following persons:

For Lockheed Martin:

Gregory McClintock, Esq.
McClintock, Weston, Benshoof
Rochefort, Rubalcava, MacCuish
444 South Flower Street, 43rd floor
Los Angeles, CA 90071

For the City of Burbank:

Benjamin Kaufman, Esq.
Freilich, Kaufman, Fox & Sohagi
11755 Wilshire Blvd., Suite 1230
Los Angeles, CA 90025-1518

For the remaining Settling Defendants:

Robert Yahiro, Esq.
Rodi, Pollock, Pettker, Galbraith & Phillips
801 South Grand Avenue, Suite 400
Los Angeles, CA 90017

SO ORDERED THIS 22 DAY OF June, 1998

Marianna R. Pfaelzer
United States District Judge

THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of United States v. Lockheed Martin Corporation, et al., Civ. No. 91-4527-MRP(Tx) relating to the San Fernando Valley North Hollywood, Area 1, Burbank Operable Unit Superfund Site.

FOR THE UNITED STATES OF AMERICA

Date: 11/5/97

Lois Schiffer
Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice
Washington, D.C. 20530

Date: 4/25/98

William Weinischke
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
Washington, D.C. 20530

Date: _____

Monica Miller
Assistant United States Attorney
Central District of California
U.S. Department of Justice
Federal Building
300 North Los Angeles Street
Los Angeles, CA 90012

Date: _____

Felicia Marcus
Regional Administrator, Region IX
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of United States v. Lockheed Martin Corporation, et al., Civ. No. 91-4527-MRP(Tx) relating to the San Fernando Valley North Hollywood, Area 1, Burbank Operable Unit Superfund Site.

FOR THE UNITED STATES OF AMERICA

Date: _____

Lois Schiffer
Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice
Washington, D.C. 20530

Date: _____

William Weinischke
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
Washington, D.C. 20530

Date: _____

Monica Miller
Assistant United States Attorney
Central District of California
U.S. Department of Justice
Federal Building
300 North Los Angeles Street
Los Angeles, CA 90012

Date: 7/24/97

Felicia Marcus
Regional Administrator, Region IX
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

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Date: 7/24/97

Marie M. Rongone
Assistant Regional Counsel
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105

FOR THE STATE OF CALIFORNIA

Date: _____

Hamid Saebfar
Chief, Site Mitigation Cleanup Operations
Department of Toxic Substances Control
Southern California Branch

Date: _____

Ann Rushton
Deputy Attorney General
State of California

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Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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APPENDIX I

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Appendix I
Settling Cash Defendants, related Settling Defendants and related Released Parties

SETTLING CASH DEFENDANTS (as indicated) (in capital letters)
RELATED SETTLING DEFENDANTS (as indicated) (in capital letters)
Related Released Parties (indented and in upper and lower case letters)

Accratronics Seals Corporation:
ACCRATRONICS SEALS CORPORATION, a California corporation (Settling Cash Defendant)
WILLIAM H. FISCH TRUST, DATED OCTOBER 29, 1993, a trust (related Settling Defendant)
JONES FAMILY TRUST, DATED MAY 14, 1993, a trust (related Settling Defendant)
William H. Fisch, as an individual and as trustee of the William H. Fisch Trust
Delbert E. Jones, as an individual and as trustee of the Jones Family Trust

Adler Screw Products, Inc.:
ADLER SCREW PRODUCTS, INC., a California corporation (Settling Cash Defendant)

EIRIK LIRHUS (related Settling Defendant)
BERGLJOT LIRHUS (related Settling Defendant)
LIRHUS FAMILY TRUST, a trust (related Settling Defendant)

Aeroquip Corporation:
AEROQUIP CORPORATION, a Michigan corporation (Settling Cash Defendant)
TRINOVA CORPORATION, an Ohio corporation (related Settling Defendant)

A-H Plating, Inc.:
A-H PLATING, INC., a California corporation (Settling Cash Defendant)
THE WASCHAK FAMILY TRUST, a trust (related Settling Defendant)
JOHN P. WASCHAK, as trustee of The Waschak Family Trust (related Settling Defendant)
MELBA R. WASCHAK, as trustee of The Waschak Family Trust (related Settling Defendant)

Aviall Services, Inc.:
AVIALL SERVICES, INC., a Delaware corporation (Settling Cash Defendant)

Avica, Inc.:
AVICA, INC., a Texas corporation (Settling Cash Defendant)
(FORMERLY GENERAL CONNECTORS, INC.)
McENTEE FAMILY PARTNERSHIP, a partnership (related Settling Defendant)
James N. McEntee and Mary G. McEntee, as individuals and as trustees of
the James N. McEntee and Mary G. McEntee Trust, dated August 26, 1982, a trust

B.J. Grinding, Inc.:
B.J. GRINDING, INC., a California corporation (Settling Cash Defendant)
ROBERT J. HOISETH AND GLENDA HOISETH (related Settling Defendant)
HOISETH FAMILY TRUST, a trust (related Settling Defendant)

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Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

Appendix 1
Settling Cash Defendants, related Settling Defendants and related Released Parties

Joseph F. Bangs:
JOSEPH F. BANGS DBA BANGS MANUFACTURING COMPANY, a sole proprietorship (Settling Cash Defendant)
BANGS TRUST, DATED OCTOBER 3, 1990, a trust (related Settling Defendant)
Joseph F. and Doris B. Bangs, as individuals and as trustees of the Bangs Trust, dated October 3, 1990

Mel Bernie & Company, Inc.:
MEL BERNIE & COMPANY, INC., a California corporation, DBA ACCESSORY PLATING and 1928 JEWELRY LTD. (Settling Cash Defendant)
LAURIE S. BERNIE AND MELVYN J. BERNIE, AS INDIVIDUALS (related Settling Defendant)
LAURIE S. BERNIE AND MELVYN J. BERNIE, AS TRUSTEES OF THE BERNIE TRUST (related Settling Defendant)
THE BERNIE TRUST, a trust (related Settling Defendant)

Burmar Metal Finishing Corp.:
BURMAR METAL FINISHING CORP., a California corporation
DBA BARRON ANODIZING AND PAINT (Settling Cash Defendant)

Crane Co.:
CRANE CO., a Delaware corporation/HYDRO-AIRE DIVISION (Settling Cash Defendant)
Hydro-Aire, formerly a California corporation

Deltron Engineering, Inc.:
DELTRON ENGINEERING, INC., a California corporation (Settling Cash Defendant)
FILIJAN AND KUEBLER PROPERTIES, a California partnership (related Settling Defendant)
MICHAEL FILIJAN (related Settling Defendant)
TONY KUEBLER (related Settling Defendant)

Hydra-Electric Company:
HYDRA-ELECTRIC COMPANY, a California corporation (Settling Cash Defendant)
Hydra Electric International Limited, a United Kingdom corporation
Hidra Control S.A de C.V., a Mexico corporation
Cryogenic Applications Inc., a California corporation
DAVIS INDUSTRIES, INC., a Nevada corporation (related Settling Defendant)
Davis Trust No. 1, a trust, Allen V.C. Davis, trustee

Janco Corporation:
JANCO CORPORATION, a California corporation (Settling Cash Defendant)
BKT ENTERPRISES, INC., a California corporation (related Settling Defendant)

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Appendix 1
Settling Cash Defendants, related Settling Defendants and related Released Parties

Joslyn Sunbank Company:
JOSLYN COMPANY, LLC FKA JOSLYN COPRORATION, a Delaware corporation (Settling Cash Defendant)
JOSYLN SUNBANK COMPANY, LLC, FKA JOSLYN SUNBANK CORPORATION, a Delaware corporation (related Settling Defendant)
Sunbank Family of Companies, Inc., a California corporation

Ocean Technology, Inc.:
OCEAN TECHNOLOGY, INC., a California corporation (Settling Cash Defendant)
TEXTRON INC., Delaware corporation (related Settling Defendant)
HR TEXTRON INC., a Delaware corporation (related Settling Defendant)

Pacific Partnership:
PACIFIC PARTNERSHIP, a California partnership (Settling Cash Defendant)

Sargent Industries, Inc./Kahr Bearing Division:
SARGENT INDUSTRIES, INC., a Delaware corporation/KAHR BEARING DIVISION (Settling Cash Defendant)
ANTONINI FAMILY TRUST, a trust (Settling Cash Defendant)
MARIO E. ANTONINI AND MARISI A. ANTONINI, as trustees (Settling Cash Defendant)

Sierracin Corporation:
SIERRACIN CORPORATION, a California corporation (Settling Cash Defendant)
INDUSTRIAL BOWLING CORPORATION, a California corporation (related Settling Defendant)
Harrison Corporation, a California corporation

R&G Sloane Manufacturing Co., Inc.:
R&G SLOANE MANUFACTURING CO., INC., a Delaware corporation (Settling Cash Defendant),

Space-Lok, Inc.:
SPACE-LOK, INC., a California corporation, LERCO DIVISION (Settling Cash Defendant)

THE ESTATE OF ALBINA BREBBIA (related Settling Defendant)
CHRISTINA COGAR, INDIVIDUALLY AND AS EXECUTRIX FOR THE ESTATE OF ALBINA BREBBIA (related Settling Defendant)

Stainless Steel Products, Inc.:
STAINLESS STEEL PRODUCTS, INC., a California corporation (Settling Cash Defendant)
ZIMMERMAN HOLDINGS, INC., a California corporation (related Settling Defendant)
THE UHLMANN OFFICES, a California corporation, SUNHILL PARTNERS, a California partnerhsip (related Settling Defendant)

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Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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Appendix 1
Settling Cash Defendants, related Settling Defendants and related Released Parties

Steve's Plating Corporation:
STEVE'S PLATING CORPORATION, a California corporation (Settling Cash Defendant)
TERRY S. KNEZEVICH (related Settling Defendant)
UNIFACTOR, INC., a California corporation (related Settling Defendant)
WALTON R. EMMICK (Settling Cash Defendant)
- Walton R. Emmick Living Trust, a trust
- Emmick Investment Company, an unincorporated entity
- Emmick Investment Company Partnership #1, a partnership
- Harold Emmick
- Zola Emmick
- S.D.S. Family Trust, a trust
- S.D.S. Joint Venture, a partnership
- SDS Management Corporation, a California corporation

CLELTA SPELMAN (Settling Cash Defendant)
- Spelman Family Trust, a trust

Surface Finishing, Inc.:
DIANE BARR (Settling Cash Defendant)
ELAINE S. BARR (Settling Cash Defendant), as an individual and as trustee of the Homer R. Barr and Elaine S. Barr Family Trust
THE HOMER R. BARR AND ELAINE S. BARR FAMILY TRUST, a trust (Settling Cash Defendant)
- Surface Finishing, Inc., a California corporation
- Glenart Enameling Co., Inc., a California corporation

L.A. Gauge Company, Inc.:
L.A. GAUGE COMPANY, INC., a California corporation (Settling Cash Defendant)
- [The Triumph Group Operations, Inc., a Delaware corporation]

THE TRIUMPH GROUP OPERATIONS, INC., DBA L.A. GAUGE COMPANY, INC.
- ALCO Standard Corporation, an Ohio corporation
- Nicholas P. and Margaret Trist

Twiss Heat Treating Co., Inc.:
TWISS HEAT TREATING CO., INC., a California corporation,
DBA TWISS HEAT TREATING CO. (Settling Cash Defendant)
THE WILLIAM E. AND EVELYN TWISS FAMILY TRUST, a trust (related Settling Defendant)
WILLIAM E. TWISS AND EVELYN TWISS (related Settling Defendant)
W AND E TWISS TRUST, a trust (related Settling Defendant)

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Appendix 1
Settling Cash Defendants, related Settling Defendants and related Released Parties

Valley Enamelling Corp.:
VALLEY ENAMELLING CORP., a California corporation (Settling Cash Defendant)
WALTON R. EMMICK (Settling Cash Defendant)
- Walton R. Emmick Living Trust, a trust
- Emmick Investment Company, an unincorporated entity
- Emmick Investment Company Partnership #1, a partnership
- Harold Emmick
- Zola Emmick
- S.D.S. Family Trust, a trust
- S.D.S. Joint Venture, a partnership
- SDS Management Corporation, a California corporation

DENISE E. MCLAUGHLAN (Settling Cash Defendant)
- Emmick Investment Company Partnership #1, a partnership
- Emmick Investment Company, a partnership/Meriam Emmick

SHARYN E. SCHRICK (Settling Cash Defendant)
- Emmick Investment Company Partnership #1, a partnership
- Emmick Investment Company, a partnership/Meriam Emmick

SANDRA E. BOWMAN (Settling Cash Defendant)
- Sandra Emmick
- Sandra E. Bowman Trust, a trust
- Emmick Investment Company Partnership #1, a partnership
- Emmick Investment Company, a partnership/Meriam Emmick
- Meriam Emmick

Weber Aircraft, Inc.:
HM HOLDINGS, INC., a Delaware corporation (Settling Cash Defendant)
PH BURBANK HOLDINGS, INC., a Delaware corporation (Settling Cash Defendant)
WEBER AIRCRAFT, INC., a Delaware corporation (related Settling Defendant)

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Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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Appendix 1
Settling Work Defendant, Lockheed Martin Corporation and
their related Released Parties

CITY OF BURBANK, a charter city (Settling Work Defendant)
The Burbank Housing Authority
The Burbank Youth Endowment Services Fund
The Burbank Redevelopment Agency
The Burbank Public Improvement Corporation
The Burbank Parking Authority

LOCKHEED MARTIN CORPORATION, a Maryland corporation
And its current and former subsidiaries, divisions, and affiliates, including not limited to the following:
Lockheed-California Company
Lockheed Martin Aeronautical Systems, fka Lockheed Aeronautical Systems Company
Lockheed Martin Skunk Works, fka Lockheed Advanced Development Company
Lockheed Missiles and Space Company, Inc.
Lockheed Corporation

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APPENDIX II

Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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Appendix 2
Owner Settling Defendants

ACCRATRONICS SEALS CORPORATION site:
William H. Fisch Trust, dated 10/29/93
Jones Family Trust, dated 5/14/93
2211-2121 Kenmere Avenue
Burbank, CA 91504.

ADLER SCREW PRODUCTS, INC.
Lirhus Family Trust
3047 North California Street
Burbank, CA 91504

A-H PLATING, INC. site:
The Waschak Family Trust
John P. Waschak, trustee
Melba R. Waschak, trustee
1837 Victory Place
Burbank, CA 91504

ALIGN-RITE CORPORATION site:
Denise E. McLaughlan
Sharyn E. Schrick
Sandra E. Bowman Trust
Sandra E. Bowman, Trustee
2420, 2422, 2424, 2428 North Ontario Street
Burbank, CA 91504

AVICA, INC. site:
McEntee Family Partnership
3205 Burton Avenue
Burbank, CA 91504

B.J. GRINDING, INC. site:
Hoiseth Family Trust
Robert J. Hoiseth and Glenda I. Hoiseth, Trustees
2632 North Ontario Street
Burbank, CA 91504

JOSEPH F. BANGS DBA BANGS MANUFACTURING COMPANY site:
Bangs Trust
Joseph F. Bangs and Doris B. Bangs, Trustees
1601 West Burbank Boulevard
Burbank, CA 91506

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Appendix 2
Owner Settling Defendants

MEL BERNIE AND CO., INC., DBA 1928 JEWELRY LTD. AND ACCESSORY PLATING sites:
The Bernie Trust
Laurie S. Bernie, trustee
Melvyn J. Bernie, trustee
3000 Empire Avenue
Burbank, CA 91505

1928 Jewelry, Ltd.
2701, 2703, 2707, 2721, 3110, 3120 West Empire Avenue
2215 North Naomi Avenue
2216 North Catalina
2220 North Fairview Street
Burbank, CA 91505

CRANE CO./HYDRO-AIRE DIVISION site:
Crane Co.
3000 Winona Avenue
Burbank, CA 91504

DELTRON ENGINEERING, INC. site:
Filijan and Kuebler Properties
2800 North San Fernando Boulevard
Burbank, CA 91504

HYDRA-ELECTRIC COMPANY site:
Davis Industries, Inc.
3151 Kenwood Street
Burbank, CA 91505

JANCO CORPORATION site:
BKT Enterprises, Inc.
3111 Winona Avenue
Burbank, CA 91508

SARGENT INDUSTRIES, INC./KAHR BEARING DIVISION site:
Antonini Family Trust
3010 North San Fernando Boulevard
Burbank, CA 91504

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Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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Appendix 2
Owner Settling Defendants

SIERRACIN CORPORATION site:
Industrial Bowling Corporation
3020 Empire Boulevard
Burbank, CA

SPACE-LOK, INC. site:
Estate of Albina Brebbia
2526 North Ontario Street
Burbank, CA 91504

STAINLESS STEEL PRODUCTS, INC. site:
The Uhlmann Offices, a California corporation./
Sunhill Partners, a California partnership
2980 San Fernando Road
Burbank, CA 91504

STEVE'S PLATING CORPORATION site:
Walton R. Emmick Living Trust
Walton R. Emmick, Trustee
Spelman Family Trust
Cleita Spelman, Trustee
3101, 3111 and 3113 San Fernando Road
Burbank, CA 91504

SURFACE FINISHING, INC./GLENART ENAMELING CO., INC. site:
Homer R. Barr and Elaine S. Barr Family Trust
2501 North Ontario Street
Burbank, CA 91504

L.A. GAUGE CO., INC. site:
L.A. Gauge Company, Inc.
7440 San Fernando Road
Sun Valley, CA 91352-4398

TWISS HEAT TREATING CO., INC. site:
The William E. and Evelyn Twiss Family Trust
William E. Twiss, Trustee
Evelyn Twiss, Trustee
2503 North Ontario Street
Burbank, CA 91504

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Appendix 2
Owner Settling Defendants

VALLEY ENAMELLING CORP. site:
Denise E. McLaughlan
Sharyn E. Schrick
Sandra E. Bowman Trust
Sandra E. Bowman, Trustee
2509 North Ontario Street
Burbank, CA 91504

WEBER AIRCRAFT, INC. site:
PH Burbank Holdings, Inc.
2801, 2820, 2913, 2917, 2923, 2925 2927, and 2929 North Ontario Street
3000 North San Fernando Road
3056 and 3068 North California Street
Burbank, CA 91504

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Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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Appendix 2
Settling Work Defendant and Lockheed Martin Corporation as
Owner Settling Defendants

CITY OF BURBANK site:
164 West Magnolia Boulevard
Burbank, CA 91504

LOCKHEED MARTIN CORPORATION site:
Plant A-1
2555 North Hollywood Way
Burbank, CA 91505

Building 32
3401 West Empire Avenue
Burbank, CA 91504

Building 76, 76A
2311 North Hollywood Way
Burbank, CA 91506

Building B-1
1706 North Victory Place
Burbank, CA 91504

Building 170
2500 West Empire Avenue
Burbank, CA 91504

Building 199
1085 West Victory Boulevad
Burbank, CA 91506

Plant B-6
2801 North Hollywood Way
Burbank, CA 91505

Building 360
7575 North San Fernando Road
Burbank, CA 91505

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APPENDIX III

Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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Appendix 3
Settling Defendants
excepted from Section XXII
(Covenants not to Sue by Plaintiffs),
Paragraphs A, B and C

ACCRATRONICS SEALS CORPORATION
WILLIAM H. FISCH TRUST, DATED OCTOBER 29, 1993
JONES FAMILY TRUST, DATED MAY 14, 1993

ADLER SCREW PRODUCTS, INC.
EIRIK LIRHUS
BERGLJOT LIRHUS
LIRHUS FAMILY TRUST

AVICA, INC.
(FORMERLY GENERAL CONNECTORS, INC.)
MCENTEE FAMILY PARTNERSHIP

B.J. GRINDING, INC.
ROBERT J. HOISETH AND GLENDA HOISETH
HOISETH FAMILY TRUST

JOSEPH F. BANGS DBA BANGS MANUFACTURING COMPANY
BANGS TRUST

LAURIE S. BERNIE AND MELVYN J. BERNIE, AS INDIVIDUALS AND AS
TRUSTEES OF THE BERNIE TRUST
MEL BERNIE & CO., INC.
DBA ACCESSORY PLATING AND 1928 JEWELRY LTD.
THE BERNIE TRUST

BURMAR METAL FINISHING CORP.
DBA BARRON ANODIZING AND PAINT

DELTRON ENGINEERING, INC.
FILIJAN AND KUEBLER PROPERTIES
MICHAEL FILIJAN
TONY KUEBLER

PACIFIC PARTNERSHIP

R&G SLOANE MANUFACTURING CO., INC.

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Appendix 3
Settling Defendants
excepted from Section XXII
(Covenants not to Sue by Plaintiffs),
Paragraphs A, B and C

SPACE-LOK, INC.
THE ESTATE OF ALBINA BREBBIA
CHRISTINA COGAR INDIVIDUALLY AND
AS EXECUTRIX FOR THE ESTATE OF ALBINA BREBBIA

DIANE BARR
ELAINE S. BARR
THE HOMER R. BARR AND ELAINE S. BARR FAMILY TRUST

TWISS HEAT TREATING CO., INC. DBA TWISS HEAT TREATING CO.
THE WILLIAM E. AND EVELYN TWISS FAMILY TRUST
WILLIAM E. TWISS AND EVELYN TWISS
W AND E TWISS TRUST

VALLEY ENAMELLING CORP.
WALTON R. EMMICK
DENISE E. MCLAUGHLAN
SHARYN E. SCHRICK
SANDRA E. BOWMAN
CLELTA SPELMAN

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Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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APPENDIX IV

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San Fernando Valley Superfund Site
Burbank Operable Unit

Second Explanation of Significant Differences
to the
Record of Decision

United States Environmental Protection Agency
Region IX - San Francisco, CA
February 12, 1997

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Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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SECOND
EXPLANATION OF SIGNIFICANT DIFFERENCES
DECLARATION

SITE NAME AND LOCATION
San Fernando Valley Area 1
Burbank Operable Unit
Los Angeles County, California

I. Statement of Basis and Purpose

This decision document presents the Second Explanation of Significant Differences (ESD2) to the interim remedial action selected by the Burbank Operable Unit (Burbank OU) Record of Decision (ROD) signed June 1989. The Burbank OU ROD was previously modified by an Explanation of Significant Differences dated November 1990 (ESD1). Additional changes to the remedy were made in a 1992 Consent Decree, which was approved by the Central District of California federal court. ESD2 has been developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. Section 9601 et. seq.) and the National Contingency Plan (40 C.F.R. Section 300 et. seq.).

II. Description of the Selected Remedy in the ROD and ESD1

The Burbank OU ROD selected the interim remedy for an area of groundwater contamination, located within the San Fernando Valley Area 1 Superfund Site, which encompasses wellfields which were operated by the City of Burbank prior to being shut down as a result of the contamination. The ROD selected extraction of contaminated groundwater, treatment by air or steam stripping, and use of the treated water as a public water supply by the City of Burbank. The interim remedy was estimated to cost $69 million over 20 years (in 1989 dollars).

The ROD selected as the interim remedy the extraction and treatment of groundwater at a rate of 12,000 gallons per minute (gpm). This was considered to be the extraction rate necessary to hydraulically control, i.e. to prevent the spreading of, groundwater at concentrations of 100 parts per billion (ppb) of trichloroethylene (TCE) and 5 ppb of perchloroethylene (PCE). Extraction wells were to be placed in locations which would control plume migration while initiating aquifer restoration. The treatment technology specified was either air stripping or steam stripping, with off-gas control.

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The ROD states that the treated water must meet all existing federal and state Maximum Contaminant Levels (MCLs) and State Action Levels (SALs). It also states that the water must meet all drinking water treatment technology requirements. The ROD states a preference for delivering the treated water to the City of Burbank's distribution system for use as a public water supply. Using the treated water in this manner was considered preferable to discharging the water to waste because it represents a beneficial use of the groundwater resource in a water-poor region.

III. Summary of ESD1

ESD1 clarified and superseded certain parts of the Burbank OU ROD, as follows.

Based on new information regarding the occurrence of nitrate in the groundwater (nitrate levels turned out to be higher than anticipated), it became clear that additional treatment measures would be required in order for the extracted and treated groundwater to be used as a public water supply. EPA decided to require blending of the extracted and treated Burbank OU groundwater with a water supply lower in nitrates, such that the MCL is achieved in water served to the public.

The nitrate blending requirement increased the total amount of water produced by the interim remedy. The total amount to be produced was high enough that the possibility was raised that the City of Burbank would not be able to accept the total quantity of water produced at the Burbank OU. Other local water purveyors were unwilling to commit to accept excess water produced by the Burbank OU treatment plant. Therefore, in order to ensure that the interim remedy would continue to extract contaminated groundwater at the intended capacity, EPA decided to require reinjection of any excess water.

EPA clarified that the interim remedy could be designed, constructed, and operated in phases. Phasing the project allows for initial completion of a portion of the total extraction wellfield and treatment plant capacity. Operation of this first phase of the project allows collection of data on aquifer response and treatment plant efficiency. This data helps the design engineer to optimize the design of the following project phases, and helps to optimize overall groundwater containment and treatment efficiency for the project.

EPA clarified statements in the ROD pertaining to containment of groundwater containing TCE at 100 ppb and PCE at 5 ppb. These levels are not treatment goals to be attained in groundwater, but

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Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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are to be used in designing the containment area to be developed by the extraction wellfield.

Because of the addition of reinjection as a component of the project, ARARs pertaining to reinjection of extracted and treated groundwater were identified. Specifically mentioned was the "Statement of Policy with Respect to Maintaining High Quality of Waters in California," which requires that reinjected water not degrade existing water quality.

The additional cost due to ESD1 changes in the interim remedy were estimated at $8.8 million over 20 years (in 1990 dollars).

IV. Summary of Additional Significant Differences (ESD2)

Based on additional study of the local (Burbank OU) groundwater system by Lockheed Martin, and by EPA's consultant CH2M Hill, EPA has concluded that an extraction rate of 9,000 gpm results in substantially the same level of groundwater containment as an extraction rate of 12,000 gpm. Overall costs are reduced at the lower extraction rate, because the need to construct and operate expensive reinjection facilities is eliminated. Cost effectiveness is improved because the lower extraction rate makes it less likely that the upper groundwater zone will become de-watered, and thus will allow EPA to achieve its goal of preferentially pumping the most contaminated zones. Based on these factors, EPA has lowered the interim remedy extraction rate to 9,000 gpm.

EPA has decided to eliminate reinjection as a requirement based on projections that there will essentially be no excess water at the revised groundwater extraction rate. The City of Burbank can substantially accept, and has committed to accept, an average of 9,000 gpm from the interim remedy facilities.

Due to elimination of reinjection from the project, the Burbank OU groundwater extraction rate will not be a continuous 9,000 gpm. The instantaneous extraction rate will fluctuate with the City of Burbank's water demand. In recognition of the likelihood that it will not be possible to extract groundwater at a rate of 9,000 gpm, twenty-four hours a day, three hundred and sixty-five days a year, EPA is specifying that the new extraction rate will be achieved as an average rate, not an instantaneous rate.

EPA has also decided to suspend the 9,000 gpm extraction rate requirement during times when nitrate levels in the extracted groundwater exceed 50 mg/l as nitrate. The ability to maintain an annual extraction rate of 9,000 gpm is not only dependent on the City of Burbank's water demand, but also upon nitrate concentrations in the extracted groundwater. It is possible that

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these concentrations may rise high enough such that, during periods of low water demand, it is not possible to extract an average of 9,000 gpm and also meet the nitrate MCL. EPA's analysis suggests that even under the worst case scenario for nitrates, an average of 8,500 gpm would be pumped. EPA believes the interim remedy will continue to be protective of human health and the environment even at this slightly reduced groundwater extraction rate, which, if it occurs, will only occur on an occasional basis.

EPA estimates that changes to the interim remedy effected by ESD2 will reduce implementation costs by $49 million (1995 dollars).

Further, the City of Burbank holds a public water supply operating permit, issued by the California Department of Health Services. This permit has been amended to cover operation of the Burbank OU treatment facilities. The requirements of this permit will govern off-site requirements for drinking water protectiveness.

V. Declaration

The selected remedy, as modified by this ESD, is protective of human health and the environment, attains federal and state requirements that are applicable, or relevant and appropriate, to this interim remedial action, and is cost-effective. This remedy satisfies the statutory preference for remedies that employ treatment which permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances as a principal element. It also complies with the statutory preference for remedies that utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. As part of the remedy, groundwater monitoring will be conducted to track contaminant levels at the Burbank Operable Unit and to monitor the performance of the extraction and treatment system in order to ensure adequate protection of human health and the environment.

Keith Takata — 2-12-97

Keith Takata
Director, Superfund Division

Date

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San Fernando Valley Area 1, Burbank Operable Unit

SECOND EXPLANATION OF SIGNIFICANT DIFFERENCES
February 12, 1997

I. Introduction

On June 30, 1989, the U.S. Environmental Protection Agency (EPA) signed a Record of Decision (ROD) for the San Fernando Valley Area 1 Superfund Site, Burbank Operable Unit (Burbank OU). On November 21, 1990, EPA signed an Explanation of Significant Differences (ESD1) modifying the interim remedial action selected in the ROD. The purpose of this Second Explanation of Significant Differences (ESD2) is to explain additional modifications to the interim remedial action.

Under Section 117 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendment and Reauthorization Act of 1986, and pursuant to 40 C.F.R. Sec. 300.435(c)(2)(i)(55 Fed. Reg. 8666, 8852 (March 8, 1990)), EPA is required to publish an Explanation of Significant Differences when significant (but not fundamental) changes are made to a final remedial action plan as described in a ROD.

This document provides a brief background of the Site, a summary of the remedy selected in the Burbank OU ROD, a summary of changes made to the remedy by ESD1, a description of the changes to the remedy EPA is making in this ESD2 (including how the changes affect and better refine the remedy selected in the ROD), and an explanation of why EPA is making these changes.

EPA is issuing ESD2 in order to take into account technical data received after ESD1 was signed in November, 1990. The changes are: (1) Based on additional study of the local (Burbank OU) groundwater system, EPA has concluded that an extraction rate of 9,000 gallons per minute (gpm) results in substantially the same level of groundwater containment as an extraction rate of 12,000 gpm. Therefore, the interim remedy extraction rate has been reduced to 9,000 gpm; (2) EPA is specifying that the new extraction rate will be achieved as an average rate, not an instantaneous rate; (3) EPA has decided to eliminate reinjection as a requirement based on projections that, on an annual basis, there will be no excess water at the revised groundwater extraction rate; and, (4) EPA has decided that the specified average extraction rate need not be met during times when nitrate levels in the extracted groundwater exceed 50 mg/l, because under this circumstance a greater quantity of blending water will be

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required, leaving the City of Burbank less capacity to accept extracted groundwater for use as a public water supply.

ESD2 and the supporting documentation will become part of the Burbank OU Administrative Record. Copies of the Administrative Record have been placed at the following locations:

City of Burbank Public Library
110 North Glenoaks Boulevard
Burbank, CA 91502
818-953-9737

City of Glendale Public Library
222 East Harvard Street
Glendale, CA 91205
818-956-2027

II. Background

A. Site background and description

The following gives a brief background of the Burbank OU and a short summary of the remedy selected in the ROD and modified by ESD1. Further background information can be found in the ROD (dated June 30, 1989), and in ESD1 (dated November 20, 1990), as well as in other documents in the Burbank OU Administrative Record.

In June 1986, EPA evaluated the threat posed by groundwater contamination at a number of water supply wellfields within the San Fernando Valley and Verdugo groundwater basins. The chief contaminants of concern are trichloroethylene (TCE) and perchloroethylene (PCE). As a result of its investigation, EPA designated four wellfield areas as National Priorities List (NPL) sites. EPA is managing the four sites as a single project consistent with CERCLA Section 104(d)(4).

The San Fernando Valley Groundwater Basin has historically been an important source of drinking water for the Los Angeles metropolitan area, including the City of Burbank. The groundwater basin provides enough water to serve approximately 600,000 residents.

Groundwater extracted from the basin is especially important during years of drought. Due to contamination by volatile organic chemicals (VOCs), including TCE and PCE, beneficial use of the groundwater resource has been partially lost. Surface water supplies have replaced the lost resource, but are costly, and may not be available in the future due to periodic drought conditions and the potential for changing water rights policy.

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The Burbank OU is located within the San Fernando Valley groundwater basin and encompasses wellfields which were operated by the City of Burbank prior to being shut down as a result of contamination. The Burbank OU was specifically developed to address this areal extent of groundwater contamination.

The City of Burbank's production wells have been shut down since the early 1980s because of the presence of TCE and PCE in concentrations exceeding federal and state Maximum Contaminant Levels (MCLs). Consequently, the city purchases close to one hundred percent of its water from the Metropolitan Water District of Southern California, which supplies surface water imported from outside the San Fernando basin. (The city does operate a granular activated carbon groundwater extraction and treatment plant during parts of the year, but the contribution of this plant toward meeting the overall water demand is small.)

B. Selected remedy as modified by ESD1

The Burbank OU ROD selected the interim remedy for an area of groundwater contamination generally located within the San Fernando Valley Area 1 Superfund Site. The ROD selected extraction of contaminated groundwater, treatment by air or steam stripping, and use of the treated water as a public water supply by the City of Burbank. The interim remedy was estimated to cost $69 million over the 20 year planned length of the interim remedy. ESD1 added the requirement to blend the extracted, treated, water with a lower nitrate source in order to meet nitrate MCLs. ESD1 also added the requirement for reinjection of excess water that the city could not accept due to water demand limitations. The changes to the interim remedy caused by ESD1 were estimated to cost $8.8 million, raising the total estimated project cost to $77.8 million (in 1989/1990 dollars).

Based on analyses conducted by the Los Angeles Department of Water and Power, through their consultant James M. Montgomery, in the Burbank OU Feasibility Study, the ROD specified that groundwater would be extracted and treated at a rate of 12,000 gpm. This rate was considered necessary in order to control plume migration and to initiate aquifer restoration. The 12,000 gpm rate was projected to hydraulically contain groundwater having a concentration of 100 parts per billion (ppb) of TCE and 5 ppb of PCE. ESD1 clarified that these levels are not treatment goals to be attained in groundwater, but are to be used in designing the containment area to be developed by the extraction wellfield.

The ROD states that the treated water must meet all existing federal and state MCLs and State Action Levels (SALs). It also states that the water must meet all drinking water treatment technology requirements. The treated water is being delivered to

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the City of Burbank's distribution system for use as a public water supply. Use of the treated water in this manner is considered preferable to discharging the water to waste because it restores the groundwater resource to beneficial use.

With respect to meeting drinking water standards, ESD1 concluded that, based on new information suggesting high nitrate levels in the groundwater, additional measures were required to meet the MCL for nitrate in the extracted and treated water. EPA decided to require blending of the extracted and treated groundwater with a water supply lower in nitrates, such that the MCL is achieved in water served to the public.

Addition of the nitrate blending requirement raised the possibility that the City of Burbank would not be able to accept the total quantity of water produced by the interim remedy. This is because nitrate blending raises water production, from the initially anticipated rate of 12,000 gpm, to a rate as high as 24,000 gpm. Under ESD1, EPA decided to require reinjection of any excess water, or water the City of Burbank could not use as a public water supply due to insufficient demand. EPA also identified Applicable or Relevant and Appropriate Requirements (ARARs) pertaining to reinjection of extracted and treated groundwater, specifically, the "Statement of Policy with Respect to Maintaining High Quality of Waters in California," which requires that reinjected water not degrade existing water quality.

Under ESD1, EPA also clarified that the interim remedy could be designed, constructed, and operated in phases. Phasing the project allows for initial completion of a portion of the total extraction wellfield and capacity treatment plant capacity. Operation of this first phase of the project allows collection of data on aquifer response and treatment plant efficiency. This data helps the design engineer to optimize the design of the following project phases, and helps to optimize overall groundwater containment and treatment efficiency for the project.

Portions of the Burbank OU ROD and ESD1 have already been implemented through a 1992 Consent Decree and a Unilateral Administrative Order. EPA also made additional operational changes in the interim remedy in the 1992 consent decree, which was approved by the Central District of California federal court. The 1992 consent decree, captioned United States of America v. Lockheed Corporation et al., Civil Action No. 91-4527 MRP(Tx), is included in the Administrative Record.

Under the Consent Decree, Lockheed Martin and the City of Burbank have constructed the first phase of the interim remedy. Under the Unilateral Administrative Order, a group of parties associated with six other Burbank facilities have constructed the

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blending facility, the purpose of which is to reduce nitrates in the extracted, treated groundwater. The first phase of the interim remedy was completed and became operational in January 1996. The first phase consists of groundwater extraction and treatment at a rate of 6,000 gpm, blending with Metropolitan Water District water, and use of the treated, blended water as a public water supply.

III. Summary of Significant Differences

ESD2 provides for the following changes to the interim remedy:

1) EPA has lowered the interim remedy extraction rate to 9,000 gpm. Based on additional study of the local (Burbank OU) groundwater system during the Remedial Design phase, EPA has concluded that an extraction rate of 9,000 gpm results in substantially the same level of groundwater containment as an extraction rate of 12,000 gpm. Cost effectiveness is improved at the lower extraction rate, not only due to the reduced cost of pumping less water, but because the need to construct and operate expensive reinjection facilities is eliminated. In addition, the lower extraction rate makes it less likely that the upper groundwater zone will become de-watered, and thus will allow EPA to achieve its goal of preferentially pumping the most contaminated zones.

2) EPA has decided to eliminate reinjection as a requirement. This decision is based on projections that, under existing aquifer conditions, there will be no excess water (i.e. water that cannot be used by the City of Burbank as a public water supply) produced at the revised groundwater extraction rate. The City of Burbank has committed to accept an annual average of 9,000 gpm from the interim remedy facilities.

3) EPA is specifying that the 9,000 gpm extraction rate will be achieved as an average rate, not as an instantaneous rate. Due to elimination of reinjection, the instantaneous rate will fluctuate with the City of Burbank's water demand. EPA recognizes that it will not be possible to extract groundwater at a rate of 9,000 gpm, twenty-four hours a day, three hundred and sixty-five days a year. However, EPA's analysis suggests that under the worst case scenario for nitrates, groundwater can be extracted at a minimum rate of 8,500 gpm. EPA believes protectiveness of human health and the environment is maintained even at this slightly reduced rate, which, if necessary, will only be necessary on an occasional basis. In order to maximize the amount of groundwater pumped, EPA has decided to count groundwater extraction from the city's granular activated carbon treatment plant toward the 9,000 gpm average rate. This wellfield will most likely be used by the city during the summer

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to meet peak water demand. The City of Burbank has agreed to maximize its use of treated groundwater. These decisions and agreements are to be included in a second consent decree between EPA, the city, and numerous Burbank parties.

4) EPA has decided to suspend the 9,000 gpm extraction rate requirement during times when nitrate levels in the extracted groundwater exceed 50 mg/l as nitrate. This decision is being made to ensure that under no circumstances will the MCL for nitrate be exceeded in the treated water. The ability to maintain an annual extraction rate of 9,000 gpm is not only dependent on the City of Burbank's water demand, but also upon nitrate concentrations in the extracted groundwater and in the blending water. It is possible that these concentrations may rise high enough such that, during periods of low water demand, it is not possible to extract an average of 9,000 gpm and also meet the nitrate MCL. However, as mentioned in the above paragraph, the City of Burbank has agreed to maximize its use of treated groundwater.

Lockheed Martin has estimated that changes to the interim remedy effected by ESD2 will reduce implementation costs by 49 million dollars (1995 dollars), and EPA is in agreement with this estimate..

IV. Explanation and Detailed Description of Changes and Clarifications

After the ROD and ESD1 were signed, EPA received and reviewed new data from its Alternative Remedial Contracting Strategy (ARCS) contractor CH2M Hill, from the City of Burbank, and from the Lockheed Martin Corporation, regarding the Burbank OU groundwater system. This new information included both data collected in the field (from groundwater monitoring wells) and the output from computer modeling exercises. Reports and technical memoranda were generated compiling this data, which project that the implementation of ESD2 will not reduce the protectiveness of the Burbank OU interim remedy. Thus, EPA's conclusion in the ROD and ESD1 that the interim remedy is protective of human health and the environment has not changed. The new and existing technical information that EPA relied upon to prepare ESD2 is identified in the discussion which follows, and this information can be found in the Burbank OU Administrative Record.

A. Background

Based on this new information, EPA has concluded that a lower pumping rate than originally projected will result in the desired degree of containment of the VOC contaminant plume in the vicinity of the Burbank OU. This projection results from an

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improved ability on EPA's part to predict aquifer response to pumping, made possible because real operating data is now available from Phase 1 of the Burbank OU interim remedy, which includes a 6,000 gpm groundwater extraction wellfield. In addition, the local groundwater flow models designed by CH2M Hill and by Lockheed Martin have undergone additional improvement and verification since the ROD was written. Results from both models predict that a 9,000 gpm extraction rate achieves the goals of the ROD.

EPA believes it is important to implement this change not only because it is based on sound scientific analysis, but also because of cost savings to the project. Reducing the pumping rate allows for elimination of costly reinjection facilities required under ESD1. The lower pumping rate also ensures that EPA will be able to pump from the most contaminated zones of the aquifer without dewatering the aquifer.

EPA, with the assistance of CH2M Hill, the City of Burbank, and Lockheed Martin, performed the following analysis in reaching these conclusions.

B. Options

While CERCLA Section 117(c) and 40 C.F.R. Section 300.435(c)(2)(i) merely require an explanation of significant differences and the reason for these differences, ESD2 sets out in detail four options regarding the rate of groundwater extraction, along with EPA's analysis of these options. The four options are as follows:

1. Extraction and treatment of an annual average of 6,000 gpm of groundwater from the existing Phase 1 Burbank OU wellfield, with use of the treated water by the City of Burbank (this phase of the project is currently in operation; therefore, if Option 1 were selected, no further construction would be required at the Burbank OU);

2. Extraction and treatment of an annual average of 9,000 gpm of groundwater from the existing Phase 1 Burbank OU wellfield, and the planned Phase 2 wellfield, with use of the treated water by the City of Burbank;

3. Extraction and treatment of an annual average of 12,000 gpm of groundwater from the existing Phase 1 and proposed Phase 2 and Phase 3 Burbank OU wellfields, with use of the treated water by the City of Burbank, with conveyance of excess water to other purveyors;

4. Extraction and treatment of an annual average of 12,000 gpm of groundwater from the existing Phase 1 and proposed Phase 2 and

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Phase 3 Burbank OU wellfields, with use of the treated water by the City of Burbank, and reinjection of excess water (this is the option selected by the ROD as modified by ESD1).

C. Analysis of options

The four options presented above were compared with each other based on the nine criteria listed and explained in the National Contingency Plan (NCP), 40 C.F.R. Section 300.430(e)(9)(iii). The nine criteria and the results of the comparison of the options are presented in this subsection. The nine criteria are as follows:

1. compliance with ARARs
2. overall protection of human health and the environment
3. short-term effectiveness in protecting human health and the environment
4. long-term effectiveness and permanence in protecting human health and the environment
5. reduction of toxicity, mobility, and volume of contaminants
6. technical and administrative feasibility of implementation
7. capital and operation and maintenance costs
8. state acceptance
9. community acceptance

An analysis of the four options in terms of the above criteria follows.

1. Compliance with ARARs

The Burbank OU ROD recognizes that chemical-specific ARARs for the groundwater itself will be addressed in the final remedy. The remedial action adopted pursuant to the ROD, ESD1, and ESD2, is an interim action; therefore, chemical-specific ARARs for the groundwater contaminant plume do not apply to the activities taken pursuant to the ROD, ESD1, and ESD2.

However, for each of the four options being considered, drinking water standards, including state and federal MCLs, source water monitoring protocols, and treatment technology requirements, must be met. The existing treatment plant designed under Phase 1 has been shown to meet these standards during operation at flows up to 6,000 gpm. Option 1 is essentially Phase 1 of the Burbank OU interim remedy, which EPA has previously concluded meets drinking water ARARs.

The Phase 1 Burbank OU treatment plant is currently being operated to meet all standard state drinking water requirements

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and several special conditions, as specified in the public water supply operating permit issued to the City of Burbank by the California Department of Health Services (DHS). Since the treatment plant was designed with excess capacity, and can produce up to 9,000 gpm with no loss in treatment efficiency, EPA is confident that Option 2 will also meet drinking water ARARs. Options 3 and 4 would require modification to the treatment plant, but EPA is also confident that such modifications could be performed such that these standards would be met.

The treatment standards applicable to the Burbank OU treatment system were initially established in the ROD. The ROD required that the treatment system meet MCLs for all constituents (other than nitrates). Because water from the Burbank OU treatment system is conveyed offsite for use as a public water supply, and applicable drinking water standards may change, the consent decrees governing operation of the treatment plant recognize that EPA may identify requirements promulgated after the date of the ROD as ARARs in accordance with section 300.430(f)(1)(ii)(B)(1) of the NCP. That section requires attaining (or waiving) requirements promulgated after the date of the ROD where necessary to protect human health or the environment. This ESD does not change the treatment standards for operation of the treatment plant.

With respect to groundwater reinjection, ARARs include the California Regional Water Quality Control Board's (RWQCB) Non-degradation Policy, and Resource Conservation and Recovery Act (RCRA) Section 3020. The only option studied which involves reinjection is Option 4.

Any water reinjected on-site must meet all action-specific ARARs for reinjection. The reinjection must meet the "Statement of Policy With Respect to Maintaining High Quality of Waters in California," which requires that reinjected water not unreasonably degrade existing water quality. Nitrates are of concern with respect to reinjection; to avoid degradation, water from the Burbank OU treatment plant would have to be reinjected into an area of the aquifer containing as high or higher nitrate concentrations.

RCRA Section 3020 provides that the ban on the disposal of hazardous waste into a formation which contains an underground source of drinking water shall not apply to the injection of contaminated groundwater into the aquifer if: (i) such reinjection is part of a response action under CERCLA; (ii) such contaminated groundwater is treated to substantially reduce hazardous constituents prior to such reinjection; and (iii) such response action will, upon completion, be sufficient to protect human health and the environment.

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Compliance with reinjection ARARs could be problematic for implementation of Option 4 due to high nitrate levels in the extracted and treated groundwater, and limited areas of the aquifer available for reinjection based on ARARs criteria.

Based on consideration of drinking water ARARs, Options 1, 2, and 3 are considered equivalent. Option 4 is considered less favorable than Options 1-3 due to potential difficulties in meeting reinjection ARARs.

2. Overall protection of human health and the environment

Options 1-4 are all protective of human health and the environment. In each case, direct threat of human contact with contaminated groundwater has been minimized. Extracted groundwater is being treated to meet drinking water standards before being served to the public. Therefore, the selection of any of the four options for interim remedial action would result in no change in protection to human health and the environment from that achieved under the interim remedial action established in the ROD and ESD1.

Options 1-4 all inhibit the spreading of the VOC plume to downgradient wellfields, and along with federal and state source water monitoring requirements minimize the likelihood that contaminated water from downgradient wells would be served to the public. As far as the degree of overall containment is concerned, based on studies performed by CH2M Hill and Lockheed, EPA believes that protection of the aquifer is adequate under Options 2, 3, and 4, and may be adequate under Option 1. This issue is discussed further in the section on long-term protectiveness below.

Options 1-4 all protect the environment from contact with contaminated groundwater. Under all four options, extracted groundwater is being treated and used as a public water supply and is not being discharged to the land surface. Option 4 differs from the other three options in that it requires reinjection of excess water. As long as reinjection ARARs are followed, Option 4 will not result in degradation of groundwater quality.

3. Short-term effectiveness in protecting human health and the environment

The analysis regarding short-term effectiveness of the Burbank OU interim remedy in protecting human health and the environment does not differ from the above analysis of overall protection of human health and the environment. Options 1-4 are all protective in the short-term. Phase 1 of the Burbank OU project has already been constructed, and treated groundwater is being provided to

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the residents of the City of Burbank without negative impact; therefore, Option 1 would not produce additional short-term impacts.

Options 2-4 would require additional construction activity. The only potential additional short-term impact to human health and the environment would be limited to minor, standard, construction concerns such as exposure to wind-blown dust, and noise impacts. The well drilling activities necessitated under these three options would be limited to one to two months in duration, would produce very little airborne dust, and noise would be limited to daytime hours. Option 2 would not produce any other short-term impacts. Options 3 and 4 would require an upgrade of the Burbank OU treatment plant, but this would consist of modifications to an existing plant and would not require significant excavation or earth moving activities, merely the addition or modification of existing physical components to the plant.

EPA believes any construction impacts would be minimal, and that Options 1-4 are all protective of human health and the environment in the short-term.

4. Long-term effectiveness and permanence in protecting human health and the environment

Options 1-4 would all maintain reliable protection of human health and the environment over time. Minor differences arise in the permanence of the various options. Since this is an interim remedial action, and the action itself is not considered permanent, permanence has not been considered a major factor in this evaluation.

However, in ranking the options with respect to permanence, EPA has evaluated to what degree they would contribute to aquifer restoration. Option 2 results in the greatest mass removal of PCE and TCE, suggesting that the combination of pumping rate and location of extraction wells is optimized under this alternative. The other options result in a similar degree of mass removal, with differences of only a few percent. This suggests that the 20 year period of groundwater extraction, which is not changed by this ESD, may be the controlling factor for mass removal. One unknown factor in this analysis is how much mass will continue to enter the groundwater system over the 20 year period of time. The final remedy will attempt to assess this effect and will attempt to address permanence in a more thorough analysis.

A comparison of mass removal for Options 1-4 over 20 years is presented below. These figures derive from an analysis performed by Lockheed Martin Corporation and reviewed by EPA, and EPA's consultant CH2M Hill. (See the Administrative Record: document entitled Evaluation_of_Extraction_Scenarios_for_the_BOU, dated

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March 20, 1995, prepared by Hydro-Search, Inc.) The comparison of percent removal uses as a baseline the Burbank OU groundwater plume as defined by the 5 ppb contour line. Percent removal refers to the percentage of the mass within the 5 ppb contour which is removed by the Burbank OU extraction wells over the 20 year projected length of the interim remedy.

As noted, the amount of mass removed is greater at a 9,000 gpm extraction rate (Option 2) than at a 12,000 gpm extraction rate (Option 4). This is due to the need to meet reinjection ARARs for nitrates under Option 4. The locations where reinjection wells may be placed to meet ARARs are not favorable for mass removal, because under Option 4, the treated water must be reinjected in an area close to the extraction wells. The reinjected water actually displaces and dilutes contaminated water such that overall removal efficiency for TCE and PCE decreases.

Table_1_-_Mass_Removal_Over_Twenty_Years

	% mass PCE removed	% mass TCE removed
Option 1[1]	89	73
Option 2[2]	92	78
Option 3[3]	91	78
Option 4[4]	88	75

The only other long-term protectiveness issue relates to air emissions from the Burbank OU treatment plant. The off-gas from the plant's aeration towers contains TCE and PCE molecules which have been stripped from the groundwater. Although this off-gas is treated with the use of air-phase granular activated carbon, a small quantity of TCE and PCE (less than 1% of the total present in the off-gas) is released to the atmosphere at an elevation of approximately sixty feet above the ground surface. The South Coast Air Quality Management District has reviewed the emission levels and found them well within ARARs for air emissions. EPA believes that emissions from Options 1-4 will not negatively impact human health and the environment, due to the low level of emissions, and due to their emission at a significant height above ground surface, away from people.

[1]6,000 gpm pumping rate, no reinjection

[2]9,000 gpm pumping rate, no reinjection

[3]12,000 gpm pumping rate, no reinjection

[4]12,000 gpm pumping rate, with reinjection

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Nonetheless, Options 1-4 can be ranked in terms of overall emissions. The lower the groundwater extraction rate, the lower the rate of TCE and PCE removal, and the lower the rate of TCE and PCE emissions. Option 1 at a groundwater extraction rate of 6,000 gpm results in the least air emissions. Option 2 performs the next best in this respect. Options 3 and 4 result in slightly higher emissions.

5. Reduction of toxicity, mobility, and volume of contaminants

As stated above, EPA has evaluated to what degree the four options will contribute to mass removal. Mass removal of contaminants relates very closely to reduction in toxicity and volume of contaminants in the groundwater. Based on EPA's evaluation, all four options would result in similar degrees of reduction in toxicity and volume.

An assessment has also been made regarding the degree of hydraulic control Options 1-4 would exert over the groundwater contamination (Evaluation of Extraction Scenarios for the BOU, dated March 20, 1995, prepared by Hydro-Search). The degree of hydraulic control achieved relates very closely to reduction in mobility of the contaminants. The following comparison of hydraulic control is made based upon the groundwater plume as defined by the 5 ppb contour line (percent control refers to the percentage of the area within the 5 ppb contour which is contained, i.e. which does not move downgradient):

Table 2 - Hydraulic Control Over Twenty Years

	% control PCE	% control TCE
Option 1[5]	66	51
Option 2[6]	72	60
Option 3[7]	74	68
Option 4[8]	71	58

Based on this analysis, Option 3 would result in the greatest reduction in mobility, particularly with respect to control of the TCE plume. Options 2, 3, and 4 control to a similar degree the PCE plume. Option 1 clearly results in a lesser degree of

[5]6,000 gpm pumping rate, no reinjection

[6]9,000 gpm pumping rate, no reinjection

[7]12,000 gpm pumping rate, no reinjection

[8]12,000 gpm pumping rate, with reinjection

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control. Option 3 turns out to be more efficient than Option 4, despite the fact that these options use the same pumping rate of 12,000 gpm, because based on current projections nitrate levels in the aquifer will not accommodate reinjection in hydraulically advantageous locations. A hydraulically advantageous location would be one where the reinjected water would assist in plume containment. ARARs requirements would restrict the placement of reinjection wells in areas where groundwater quality would not be degraded, meaning in areas where nitrates in groundwater are higher than nitrates in the water to be reinjected. If reinjection wells could be placed in the most hydraulically advantageous locations, Option 4 would be slightly superior to Option 3 in this regard.

When the interim remedial action is complete, EPA projects that contamination will remain in the groundwater under each of the four options. The final remedial action will determine how to address this remaining contamination.

Based on current data, Options 2 and 3 appear superior in terms of this criterion, but all options fulfill the goal of the ROD to partially control the movement and spread of groundwater contaminants in the Burbank OU area, while contributing to aquifer restoration.

6. Technical and administrative feasibility of implementation

The technical differences between the four options are as follows:

Option 1 would require no additional construction. (Option 1 has already been implemented as Phase 1 of the interim remedy; therefore, it has been proven feasible.)

Option 2 would require construction of 3,000 gpm of additional extraction wellfield capacity.

Option 3 would require construction of 6,000 gpm of additional extraction wellfield capacity, plus a 3,000 gpm upgrade to treatment facility capacity.

Option 4 would require construction of 6,000 gpm of additional extraction wellfield capacity, plus a 3,000 gpm upgrade to treatment facility capacity, plus construction of a 8,500 gpm reinjection wellfield.

In general, technical implementability increases in complexity as construction tasks are added to a project. Some construction tasks are more complex than others; for example, construction of a reinjection wellfield is more complicated than construction of an extraction wellfield due to more complex well specifications

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intended to reduce clogging of the well screens. Using this rationale, Option 4 is more complex than Option 3, which is more complex than Option 2, which is more complex than Option 1. As stated above, Option 1 has already been implemented technically (as well as administratively).

Ease of operation also factors into implementability. Application of proven technology generally reduces uncertainty of implementability, while application of a new technology increases uncertainty. Options 1, 2, and 3 all use common technology, while Option 4, by adding reinjection, uses a technology that has not been implemented widely in the geographic region of the Burbank OU.

Administratively, Options 1, 2, and 3, would be relatively simple because they would follow the framework developed during start-up of Phase 1 of the Burbank OU interim remedy. As part of Phase 1 start-up, EPA, the City of Burbank, Lockheed Martin Corporation, and DHS reached agreement on operational plans for the facility. Once again, Option 1, since it has been constructed and placed in operation, is not expected to present any administrative difficulties.

Construction of additional facilities, which would be necessary under Options 2, 3, and 4, would require amending the City of Burbank's public water supply operating permit, issued by DHS. Although this would be an additional administrative task, EPA is confident that additional permit conditions required by virtue of the addition of such facilities, would be achievable.

Option 3 would have the administrative complication of committing additional purveyors to accept water the City of Burbank could not accept. It is not likely that these additional purveyors would be willing to sign a consent decree, the chosen implementation document for the interim remedy. Lockheed Martin Corporation and the City of Burbank have both attempted, without success as of the date of this ESD2, to obtain the commitment of other local purveyors to accept Burbank OU water. Without this commitment, there is a good deal of uncertainty whether 12,000 gpm of groundwater could be purveyed on a routine basis, during periods when the City of Burbank could not accept the entire production of the Burbank OU facilities.

Option 4 would be more complicated to implement administratively due to the likely increased involvement of a regulatory agency, RWQCB, in the process. RWQCB has previously expressed reservations about reinjection based on water quality degradation concerns. However, EPA believes this additional administrative step would not present a barrier to implementation.

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Based on technical and administrative considerations, Options 1 and 2 are considered superior. Options 3 and 4 have administrative complications, which would need to be resolved prior to implementation. Option 3 may present a barrier to implementation while Option 4 probably does not.

7. Capital and operation and maintenance costs

The following discussion compares the costs of Options 1-4 on a net present value basis. Costs include construction and 20 years of operation and maintenance. These costs are not based on the original estimates set forth in the ROD and in ESD1, but are based on more recent estimates prepared by a consultant to Lockheed Martin Corporation, the entity which has undertaken design and construction of the interim remedy under EPA oversight. (See the Administrative Record: document entitled Burbank Operable Unit Costs Comparison Summary, dated March 20, 1995, prepared by Parks, Palmer, Turner & Yemenidjian.) These estimates were independently reviewed by CH2M Hill, EPA's ARCS contractor. Therefore, the actual cost of the Phase 1 Burbank OU treatment facilities constructed by Lockheed Martin, the City of Burbank, and six other businesses, has been incorporated into these estimates. CH2M Hill's analysis is presented in a memorandum entitled Review of Burbank Operable Unit Costs Comparison Summary, dated November 11, 1996. EPA has concluded that the cost estimates prepared by Lockheed Martin used appropriate assumptions and are therefore appropriate for purposes of comparison of alternatives.

Option 1 is the least expensive of the four options. The capital cost for this option is estimated at $31 million in 1996 dollars. The present value of the 20 years of operation and maintenance is estimated at $88 million. Therefore, the total net present value of Option 1 is estimated at $119 million. Economic assumptions used by Lockheed Martin's consultant in this analysis are as follows: a discount rate of 8% was used; an inflation rate of 3% was used; calculations are in 1995 dollars.

Option 2 is more expensive than Option 1 but less expensive than Option 3. The capital cost for this option is estimated at $38 million in 1996 dollars. The present value of 20 years of operation and maintenance is estimated at $93 million. Therefore, the total net present value for Option 2 is estimated at $131 million.

Option 3 is more expensive than option 2 but less expensive than Option 4. The capital cost for this option is estimated at $49 million in 1996 dollars. The present value of 20 years of operation and maintenance is estimated at $97 million. Therefore, the total net present value for Option 3 is estimated at $146 million.

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Option 4 is the most expensive of the four options. The capital cost for this option is estimated at $70 million in 1996 dollars. The present value of 20 years of operation and maintenance is estimated at $110 million. Therefore, the total net present value for Option 4 is estimated at $180 million.

For purposes of comparison, this information is set out in the following table:

Table 3 - Cost Comparison

Option	Capital	O&M	Total
1[9]	$31 million	$ 88 million	$119 million
2[10]	$38 million	$ 93 million	$131 million
3[11]	$49 million	$ 97 million	$146 million
4[12]	$70 million	$110 million	$180 million

8. State acceptance

EPA has coordinated with state agencies throughout this project, specifically RWQCB, the California Department of Toxic Substances Control (DTSC), and DHS. These agencies either accepted, or did not object to, the interim remedy originally designated by the ROD and ESD1. The Administrative Record details the communications between EPA and these State agencies throughout the interim remedy selection process.

Regarding the remedy discussed in the ROD and ESD1, the record reflects that the RWQCB supports the use of the treated water as drinking water, provided that all requirements for the serving of public drinking water are met. RWQCB agrees that reinjection may be implemented as long as compliance is achieved with respect to the "Statement of Policy With Respect to Maintaining High Quality Waters in California." (See the Administrative Record: letter dated June 8, 1990, from Hank Yacoub, RWQCB, to Alisa Greene, EPA; letter dated June 20, 1990, from Robert Ghirelli, RWQCB, to Alisa Greene, EPA.)

The record reflects that neither DTSC nor DHS stated a preference or rejection of any of the options presented in the ROD and ESD1. (See the Administrative Record: letter dated May 15, 1990, from

[9]6,000 gpm pumping rate, no reinjection

[10]9,000 gpm pumping rate, no reinjection

[11]12,000 gpm pumping rate, no reinjection

[12]12,000 gpm pumping rate, with reinjection

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Hamid Saebfar, DTSC, to Alisa Greene, EPA, and letter dated June 11, 1990, from Gary Yamamoto, DHS, to Alisa Greene, EPA.)

In addition to reviewing the Administrative Record through the ROD and ESD1, EPA notified the state agencies regarding the proposed changes which would be made by ESD2. Neither RWQCB nor DTSC provided written comments on the options presented in ESD2. However, as stated above, EPA also has presented EPA's position on the ESD2 options to the state and other agencies at quarterly Management Committee meetings. EPA's understanding based on exchanges with representatives from these agencies is that neither RWQCB nor DTSC objects to EPA's approach.

DHS did provide written comments on the changes proposed by ESD2, but did not state a preference for any of the options presented herein. (See the Administrative Record: letter dated September 6, 1996, from Gary Yamamoto, DHS, to David Seter, EPA.) DHS raised the issue that "limiting the pumping rate to a maximum of 9,000 gpm and the elimination of the re-injection option may limit U.S. EPA's future success in containing the contaminant plume." In response to this comment, EPA believes the analysis presented in this ESD2, in terms of the nine NCP criteria, thoroughly considers the impact of the various options including the impact on plume containment.

Specifically, the nitrate levels currently projected in the aquifer do not accommodate reinjection in hydraulically advantageous locations. The City of Burbank has already agreed to maximize its use of treated groundwater, which will be an average of 9,000 gpm. An extraction rate of 9,000 gpm without reinjection thus accomplishes better hydraulic control than an extraction rate of 12,000 gpm with reinjection.

9. Community acceptance

The basic groundwater extraction and treatment concepts being evaluated in ESD2 do not differ greatly from the concepts evaluated in the ROD and in ESD1. The same degree of treatment will be applied to water made available as a public water supply. During the thirty day comment period provided for by EPA during the development of ESD1, there were no comments submitted by the public.

In addition, EPA will publish notice of availability of this ESD2 in a local newspaper of general circulation, and will consider any comments submitted by the public as required by 40 C.F.R. Section 300.825(c).

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D. Decision on options

Based on the above analysis of Options 1-4, EPA has chosen Option 2, which consists of groundwater extraction at an average rate of 9,000 gpm, treatment by air stripping and granular activated carbon to remove VOCs, nitrate reduction by blending with a low nitrate water source, and use of the treated and blended water by the City of Burbank as a public water supply.

Option 2 was chosen because:

1) it performs equally as well as Options 3 and 4 and better than Option 1 at removing contaminant mass over a 20 year period of time;
2) it performs substantially as well as Option 3 and better than Options 1 and 4 at retarding migration of the groundwater contamination plume;
3) its total implementation cost is
   $15 million less than Option 3
   $49 million less than Option 4;
4) it avoids the potential administrative difficulties of Options 3 (identifying additional water purveyors) and 4 (resolving reinjection regulatory issues);
5) it complies with ARARs;
6) it is protective of human health and the environment.

This is an interim remedy. In the future, after the Burbank OU facilities have been operational for a substantial period of time, the optimal extraction rate may be better determined. This information will eventually factor into a decision on the final remedy. But for the purposes of ESD2, the data suggest that a groundwater extraction rate of 6,000 gpm may be too low to meet the groundwater containment objective. However, the data do not justify the added expense of raising pumping to a rate of 12,000 gpm. EPA has concluded that the Option 2 rate of 9,000 gpm is a reasonable, efficient, and cost-effective solution.

Although under ideal conditions pumping 12,000 gpm would provide greater containment than pumping 9,000 gpm, the reality of the ground water system as it exists in Burbank presents certain limitations. Under ideal conditions, nitrate levels would be low enough to meet ARARS reinjection requirements in areas determined to be hydraulically advantageous to reinjection. This is not the case, and is not likely to be the case throughout the time frame for implementation of the interim remedy. Because reinjection must take place in hydraulically disadvantageous locations, the effectiveness of Option 4 is lessened.

The Option 2 pumping rate is 9,000 gpm, which represents a 25% reduction in pumping versus Options 3 and 4. Yet, according to analyses performed by Lockheed Martin with which EPA concurs,

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Option 2 is superior in containment to Option 4 and provides only slightly less containment than Option 3.[13] Furthermore, cost savings for Option 2 are significant (a savings of 27% versus Option 4).

Although additional cost savings are projected from further reducing the pumping rate to 6,000 gpm (Option 1), EPA believes that, should water levels increase in the aquifer system, capture could fall below acceptable levels under this option. As long as 9,000 gpm can be extracted and used without being wasted or reinjected, EPA concludes that Option 2 presents the best balance of reducing mobility of contaminants and cost-effectiveness.

As described above, EPA has also concluded that, for the purposes of long-term containment, groundwater extraction need not equal 9,000 gallons per minute each day. This is why EPA has set a goal of 9,000 gallons per minute as an annual average instead of an instantaneous average. EPA also believes its approach of allowing reduced groundwater extraction during periods of high nitrate concentration increases protectiveness to public health without adversely affecting long-term containment.

V. Support Agency Comments

The State of California agencies discussed in Section IV.C.8. above are the support agencies for this action. Their comments are addressed in that section.

VI. Summary of Selected Remedy

The interim remedy for the Burbank Operable Unit, as selected in the ROD and as modified by ESD1 and ESD2, consists of groundwater extraction at an average rate of 9,000 gpm, treatment by air stripping and granular activated carbon to remove VOCs, nitrate reduction by blending with a low nitrate water source, and use of the treated and blended water by the City of Burbank as a public water supply.

VII. Statutory Determinations

Considering the new information that has been developed, the EPA believes that the interim remedy as modified by ESD2 remains

[13]This comparison was made based upon the degree of hydraulic control exerted by the various options on the TCE/PCE groundwater plume.

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protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to this interim remedial action, and is cost effective. In addition, this remedy satisfies the statutory preference for remedies that employ treatment which permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances as a principal element. It also complies with the statutory preference for remedies that utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The changes and clarifications contained in ESD2 are significant but do not fundamentally change the remedy. They do not change the decision to conduct an interim pump and treat action to inhibit the spreading of the contaminated groundwater plume and to begin aquifer restoration. They also do not alter the technologies used in the interim remedy.

VIII. Public Participation Activities

EPA has presented these changes to the remedy in the form of an Explanation of Significant Differences because the changes are of a significant, but not fundamental, nature. The basic groundwater extraction and treatment concepts being evaluated in ESD2 do not differ greatly from the concepts evaluated in the ROD and in ESD1. ESD2 and underlying information have been added to the Burbank OU Administrative Record. Additional provisions for public comment are not required for an ESD (see 40 C.F.R. Section 300.435(c)(2)(i)), and EPA is not providing a formal public comment period for ESD2. However, EPA has published notice of the availability of ESD2 in a local newspaper as required by 40 C.F.R. Section 300.435(c)(2)(i)(B), and per 40 C.F.R. Section 300.825, will consider any significant comments submitted in a timely manner.

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APPENDIX V

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Appendix 5

Statement of Work

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BURBANK OPERABLE UNIT
SECOND STAGE STATEMENT OF WORK
(LONG TERM O&M)

I. General Provisions

A. Definitions: All words, as defined in the Consent Decree, have the same meaning when used herein.

B. Warranty: EPA has exercised its best efforts to include in this Statement of Work all activities necessary to fulfill Operation and Maintenance requirements for the Burbank Operable Unit. However, the settling parties acknowledge and agree that nothing in this Statement of Work or any deliverable approved by EPA pursuant hereto constitutes a warranty or representation, either express or implied, by the United States that compliance with this document and/or deliverables approved pursuant to this document will result in the achievement of the Performance Standards that the Settling Work Defendant is required to meet under the Consent Decree. Nothing in this Statement of Work or in deliverables approved pursuant hereto shall be deemed to limit EPA's rights pursuant to Subpart D (General Reservation of Rights) of Section XXII of the Consent Decree.

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C. EPA Approval: EPA approval of any submittal by a Settling Defendant within the context of this Consent Decree, including but not limited to plans, specifications, and reports, is administrative in nature and designed to permit the Settling Defendants to proceed with the deliverables. The Settling Defendants acknowledge and agree that EPA's approval of deliverables does not constitute a warranty or representation, as discussed in Paragraph B above.

II. Schedule

A. Dates: The schedule of deliverables for this Statement of Work is presented in Attachment 1 and shall be referred to as the Work Schedule. In the Work Schedule, EPA has provided an approximation of its review time; however, failure to review a deliverable within the estimated time shall not constitute a violation of the Consent Decree by the United States. Settling Defendants are required to submit deliverables within the time periods stated, and failure to do so constitutes a violation of the Consent Decree. See Consent Decree, Section XII (Submissions Requiring Agency Approval).

B. Items Triggered by Date of Entry of Consent Decree:

1. Designation of Project Coordinator: Pursuant to Section XIII (Project Coordinators) of the Consent Decree, within

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30 days of the date of entry of the Consent Decree, the Settling Work Defendant (City of Burbank), Lockheed Martin, the UAO Parties, and EPA shall submit to one another, in writing, the name, title, and qualifications of their proposed respective Project Coordinators and Alternate Project Coordinators. The coordinators for the Settling Defendants may be members of the Settling Defendants' staff or an independent contractor.

2. Designation and Review of Supervising Contractor: Pursuant to Section VI (Performance of the Work) of the Consent Decree, within 180 days of the date of entry of the Consent Decree, the Settling Work Defendant shall notify EPA and the State in writing of the name, title, and qualifications of its proposed Supervising Contractor. Prior to this date, the Settling Work Defendant may submit to EPA and the State a list of contractors for pre-qualification. It is the Settling Work Defendant's responsibility to provide any pre-qualification information to EPA and the State in a time frame that allows for timely designation of the Supervising Contractor. The Supervising Contractor may come from within the ranks of the Settling Work Defendant's staff. The factors to be considered in approving or disapproving the Supervising Contractor shall include: professional and ethical reputation; professional

registration; demonstrated project management experience; experience and qualifications in the field of water treatment and supply; sufficient capacity (professional, technical and support staff) to accomplish the project tasks according to the Work Schedule; and sufficient business background and financial resources to provide uninterrupted services throughout the life of the project. Upon its approval of the Supervising Contractor, EPA will issue an authorization to proceed.

3. Progress Reports: These reports shall be prepared by the Settling Work Defendant pursuant to Section XI (Reporting Requirements) of the Consent Decree. The schedule for submittal of progress reports is summarized in Attachment 2 and shall be referred to as the Reporting Schedule. Progress Reports shall include at a minimum:

a. A brief narrative describing any noteworthy accomplishments or problems encountered at the Plant Facilities during the reporting period (including but not limited to: the implementation of process improvements; non-routine maintenance; and a summary of any violations of the Consent Decree, the cause of such violations, and the steps being taken to avoid future violations);

b. Status of expenditures in comparison to the

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Annual Budget;

c. The quantity of water pumped by each Burbank OU extraction well, and each GAC Wellfield extraction well;

d. A daily summary of water production broken down into categories of: Burbank OU Treatment Plant; GAC Wellfield; Blending Water; and Total Production;

e. A compliance calculation of the project's water budget showing whether the 9,000 gpm average groundwater extraction rate is being met; and specifically, the status of the Cumulative Pumping Credit for the reporting period, including designation of any days on which the Cumulative Pumping Credit fell below zero gallons;

f. Copies or summaries of compliance data submitted by the Settling Work Defendant to the California Department of Health Services;

g. Status of Maintenance Credits; and

h. Report of nitrate levels in: the extracted groundwater; the blending water; and the product water.

4. Second Stage O&M Work Plan: Pursuant to Section VI (Performance of the Work) of the Consent Decree, the Settling Work Defendant shall submit, within one year of the date of entry of the Consent Decree, the Second Stage O&M Work Plan. The

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Second Stage O&M Work Plan shall incorporate Operation and Maintenance activities to be performed on all portions of the Plant Facilities to ensure that the facilities continue to run according to specification. The Second Stage O&M Work Plan shall include: a detailed description, including drawings, of the Plant Facilities; manufacturer specifications for the Plant Facilities and equipment; easily understood, stepwise standard operating procedures for the Plant Facilities at all foreseeable flow rates; startup and shutdown procedures for all facilities, including emergency shutdown procedures; a detailed description of manual and electronic control systems; and any other elements pertaining to efficient and safe operation of the Plant Facilities. The Second Stage O&M Work Plan shall describe in detail: the routine maintenance activities to be performed on each element of the Plant Facilities; a schedule for these routine maintenance activities; a schedule of visual inspection of the Plant Facilities; a schedule of equipment overhauling per manufacturers specifications; a description and schedule of cleaning and backflushing; detailed chemical handling procedures; and any other elements pertaining to efficient and safe maintenance of the Plant Facilities. The Second Stage O&M Work Plan shall incorporate by reference the Staffing Plan, Health and

Safety Plan, Operational Sampling Plan, and Contingency Plan. The Second Stage O&M Work Plan in conjunction with the Staffing Plan shall delineate clear lines of responsibility for performing the activities referenced within the plan, designating which activities are the responsibility of the O&M Contractor, especially with respect to emergency shutdown and implementation of the Contingency Plan if it becomes necessary.

5. Staffing Plan: Pursuant to Section VI (Performance of the Work) of the Consent Decree, the Settling Work Defendant shall submit, within one year of the date of entry of the Consent Decree, the Staffing Plan. The Staffing Plan shall identify the supervisory chain of command for the project; shall provide an organizational chart identifying specific individuals in the chain of command where possible; and shall define the roles of the Settling Work Defendant, the Supervising Contractor, and the O&M Contractor. The position of the Settling Work Defendant's Project Coordinator in the chain of command shall be made clear. The plan shall also estimate staffing levels required to implement the O&M activities, including the levels of expertise required.

6. Time Line and Schedule: Pursuant to Section VI (Performance of the Work) of the Consent Decree, the Settling

Work Defendant shall submit, within one year of the date of entry of the Consent Decree, the Time Line and Schedule. The Time Line and Schedule shall list the major milestones to be accomplished in order for the Settling Work Defendant to efficiently assume long term Operation and Maintenance of the Plant Facilities. It shall include the items listed in the Work Schedule, and also intermediate milestone activities such as: the Settling Work Defendant's projected bidding schedule for hiring the O&M Contractor; the schedule for transition of O&M Activities as agreed upon by Lockheed Martin and the Settling Work Defendant; and any other items relevant to orderly implementation of O&M Activities. The identification of intermediate milestones, which are defined as those milestones not specified in the Work Schedule, is solely for planning purposes. Any failure by the Settling Work Defendant to meet the Time Line's intermediate milestones shall not be deemed a violation of the Consent Decree.

7. Quality Assurance Project Plan: Pursuant to Section IX (Quality Assurance, Sampling, and Data Analysis), the Settling Work Defendant shall prepare and submit a Quality Assurance Project Plan addressing analytical and data quality methods and objectives to be applied in support of Operation and Maintenance Activities. The Quality Assurance Project Plan shall

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be submitted to EPA and the State for review within eighteen months of the date of entry of the Consent Decree. Addenda to the Quality Assurance Project Plan shall be prepared by the Settling Work Defendant on an as-needed basis to reflect major changes in analytical methods.

8. Operational Sampling Plan: In conjunction with the Quality Assurance Project Plan, the Settling Work Defendant shall submit, within eighteen months of the date of entry of the Consent Decree, an Operational Sampling Plan which defines the data gathering methods and schedules to be used in performing the sampling and analytical portion of the Operation and Maintenance activities. At a minimum, the Operational Sampling Plan shall address sampling of water treatment system influent and effluent, airborne discharges, and any hazardous materials generated at the Plant Facilities. The monitoring requirements of the domestic water supply permit as issued and amended by the California Department of Health Services shall be incorporated into the Operational Sampling Plan.

9. Health and Safety Plan: The Settling Work Defendant shall submit, within eighteen months of the date of entry of the Consent Decree, a Health and Safety Plan which describes the minimum health, safety, and emergency response

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requirements for the Operation and Maintenance activities to be undertaken by the Settling Work Defendant, the Supervising Contractor, and/or the O&M Contractor. The plan shall be prepared in accordance with U.S. Occupational Health and Safety Administration ("OSHA") requirements and any other applicable requirements.

10. Contingency Plan: The Settling Work Defendant shall submit, within eighteen months of the date of entry of the Consent Decree, a Contingency Plan which is written for the local affected population in the event of an accident or emergency at the Site. It shall incorporate an Air Monitoring Plan and a Spill Control and Countermeasures Plan. The following is a suggested list of items that shall be included in the Contingency Plan:

a. Name of the person responsible for responding in the event of an emergency incident;

b. List of key contacts in the local community with phone numbers and addresses and the State and Federal agencies to be involved in the cleanup, as well as local emergency squads and hospitals;

c. First aid and medical information, including names of personnel trained in first aid, a clearly marked map

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with the location of medical facilities and all necessary emergency phone numbers for fire, rescue, and local hazardous material teams;

d. An air monitoring plan to assure that the VOC treatment system is meeting the requirements of the South Coast Air Quality Management District. Air monitoring may include personnel monitoring, on-site and/or off-site area monitoring. Trigger concentrations to implement the Contingency Plan shall be specified; and

e. A Spill Control and Countermeasures Plan which shall specify actions to be taken in the event of spills from material handling and/or transportation. The plan shall describe methods, means and facilities required to prevent contamination of soil; water; atmosphere; uncontaminated structures, equipment, or material. It shall specify provisions for equipment and personnel to perform emergency measures required to contain any spillage; to remove and properly dispose of any material that becomes contaminated due to spills; and to decontaminate structure, equipment, or material.

C. Items Triggered by Phase 2 System Operation Date:

1. Designation of O&M Contractor: Pursuant to Section VI (Performance of the Work) of the Consent Decree,

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within six months after the Phase 2 System Operation Date, the Setting Work Defendant shall submit to EPA and the State in writing the name, title, and qualifications of its proposed O&M Contractor. Prior to this date, the Settling Work Defendant may submit to EPA and the State a list of contractors for pre-qualification. It is the Settling Work Defendant's responsibility to provide any pre-qualification information to EPA and the State in a time frame that allows for timely designation of the O&M Contractor. The factors to be considered in approving or disapproving the O&M Contractor shall include: professional and ethical reputation; professional certification and/or registration; demonstrated experience in the field of water treatment; ability to meet the requirements of the Staffing Plan to accomplish the O&M tasks in accordance with the Second Stage O&M Work Plan; sufficient business background and financial resources to provide uninterrupted services throughout the life of the project; and ability to provide insurance. Upon its approval of the O&M Contractor, EPA will issue an authorization to proceed.

2. Transition Activities: Commencing no later than one year after the Phase 2 System Operation Date, the Settling Work Defendant and Lockheed Martin shall jointly plan a series of

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transition activities under which the Settling Work Defendant shall assume Operation and Maintenance of all Plant Facilities. The Settling Work Defendant shall assume Operation and Maintenance of all Plant Facilities on the Date of Commencement, which will occur approximately two years after the Phase 2 System Operation Date.[1]

D. Other Items:

1. Selection of Cost Consultant: Pursuant to Section XIV (Funding of Response Activities) of the Consent Decree, by January 1, 1999, Lockheed Martin and the Settling Work Defendant shall jointly notify EPA in writing of the name, title, and qualifications of the proposed Cost Consultant. Prior to this date, Lockheed Martin and the Settling Work Defendant may submit to EPA a list of consultants for pre-qualification. It is the joint responsibility of Lockheed Martin and the Settling Work Defendant to provide any pre-qualification information to EPA in a time frame that allows for timely designation of the Cost Consultant. The factors to be considered in approving or disapproving the Cost Consultant shall be based on: professional and ethical reputation; professional certification; experience in

[1]See Consent Decree for further detail.

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the type of cost estimating and budgeting activities to be performed; sufficient capacity (professional, technical and support staff) to accomplish the project tasks according to the Work Schedule; and sufficient business background and financial resources to provide uninterrupted services.

2. Deliverables: The Settling Work Defendant shall submit three copies of each deliverable identified in the Work Schedule to the EPA Project Coordinator.

3. Final Inspection: At the end of the time period for which the Settling Work Defendant is required to perform O&M Activities pursuant to the Consent Decree, EPA shall conduct a final review of records and inspection of the Plant Facilities. The inspection shall be a necessary part of approving or disapproving the Certificate of Completion pursuant to Section XV (Certificate of Completion) of the Consent Decree.

4. Determination of Decommissioning/Dismantling of Plant Facilities: In conjunction with the process of reviewing the Certificate of Completion for the Burbank OU Interim Remedial Action, EPA will make a determination as to whether all or a portion of the Plant Facilities shall be decommissioned/ dismantled. At least ninety days prior to the date that the Settling Work Defendant anticipates that the Work will have been

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fully performed, the Settling Work Defendant and the Settling Defendants may voice their respective opinions to EPA on whether all or a portion of the Plant Facilities shall be decommissioned/ dismantled. In order to facilitate this process, the Settling Work Defendant shall notify the Project Coordinators for the Settling Defendants at least ninety days prior to the date that the Settling Work Defendant anticipates that the Work will have been fully performed, that a written request for Certification of Completion has been submitted to EPA.

III. Operational Compliance Determinations

A. Period of Operation and Maintenance: The Settling Work Defendant shall perform Operation and Maintenance Activities on the Plant Facilities as required under Section VI (Performance of the Work) of the Consent Decree, for a period of eighteen years. This period of Operation and Maintenance shall commence on the Date of Commencement, which will occur approximately two years after the Phase 2 System Operation Date.[2]

B. Cumulative Pumping Credit: If the quantity of groundwater extracted as part of the Burbank OU Interim Remedy exceeds the requirements of the First and Second Consent Decrees,

[2]See Consent Decree for further detail.

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then the excess quantity shall accumulate as a credit. This credit will be measured in units of gallons and will be known as the Cumulative Pumping Credit. The credit will accumulate and "carry over" from day to day and from year to year, and will be used for compliance determination purposes, as described below.

1. Status on the Date of Commencement: On the Date of Commencement, the Cumulative Pumping Credit that has been accumulated throughout Phase 1 and Phase 2 up to the Date of Commencement shall be credited in full to the Settling Work Defendant. Should the Cumulative Pumping Credit be a negative number upon assumption of O&M Activities by the Settling Work Defendant, the credit will be reset to zero on the Date of Commencement.

2. Additions to and Subtractions from the Cumulative Pumping Credit: On each non-Maintenance Day, beginning on the Date of Commencement, the sum of the amount of groundwater, in gallons, pumped from the Burbank OU Extraction Wellfield and the City of Burbank GAC Wellfield shall be compared with the amount, in gallons, required under Section VI (Performance of the Work) of the Consent Decree. For the purposes of making this comparison, the amount of pumpage, in gallons, required under the Consent Decree shall be the same each day and shall be calculated

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as follows:

(9,000 gallons/minute) x (60 minutes/hour) x (24 hours/day) = 12,960,000 gallons/day

a. On each day when in excess of 12,960,000 gallons is pumped from a combination of the Burbank OU Extraction Wellfield and the City of Burbank GAC Wellfield, that excess amount will be added to the Cumulative Pumping Credit as follows:

$$PC' = PC + (GPBOU + GPGAC - 12,960,000)$$

where

PC' = new Cumulative Pumping Credit (gallons)

PC = old Cumulative Pumping Credit (gallons)

GPBOU = number of gallons pumped for the day from the Burbank Operable Unit wellfield

GPGAC = number of gallons pumped for the day from the City of Burbank GAC Wellfield

b. On days when less than a total of 12,960,000 gallons is pumped from a combination of the Burbank OU Extraction Wellfield and the City of Burbank GAC Wellfield, except on high nitrate days (see Section III.B.4. below), the difference between 12,960,000 gallons and the amount actually pumped will be

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deducted from the Cumulative Pumping Credit as follows:

PC' = PC - (12,960,000 - GPBOU - GPGAC)

Where

PC' = new Cumulative Pumping Credit (gallons)

PC = old Cumulative Pumping Credit (gallons)

GPBOU = number of gallons pumped for the day from the Burbank Operable Unit wellfield

GPGAC = number of gallons pumped for the day from the City of Burbank GAC Wellfield

3. Effect of Maintenance Days on the Cumulative Pumping Credit: On each day which the Settling Work Defendant designates as a Maintenance Day (which need not be a full day, but may be a portion of a day), if the amount of groundwater pumped for the day exceeds 12,960,000 gallons, the amount in excess of 12,960,000 gallons shall be added to the Cumulative Pumping Credit according to Section III.B.2.a., but the Cumulative Maintenance Credit (see Section III.C. below) shall not change.

If the amount of groundwater pumped by the Settling Work Defendant on the designated Maintenance Day is less than

12,960,000 gallons, the Cumulative Pumping Credit shall not change, but the Cumulative Maintenance Credit will decrease as follows:

MC' = MC - (12,960,000 - GPBOU - GPGAC)

where

MC' = new Cumulative Maintenance Credit

MC = old Cumulative Maintenance Credit

GPBOU = number of gallons pumped for the day from the Burbank Operable Unit extraction wellfield

GPGAC = number of gallons pumped for the day from the City of Burbank GAC Wellfield

4. Effect of High Nitrate Days on the Cumulative Pumping Credit: A High Nitrate Day is defined as a day on which nitrate levels in groundwater pumped from the Burbank OU Extraction Wellfield (as measured at or near the Point of Delivery) are equal to or greater than 50 milligrams per liter as nitrate. On each High Nitrate Day when the quantity of groundwater pumped from a combination of the Burbank OU Extraction Wellfield and the City of Burbank GAC Wellfield exceeds 12,960,000 gallons, that excess amount shall be added to

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the Cumulative Pumping Credit according to Section III.B.2.a.

On each High Nitrate Day when the quantity of groundwater pumped from a combination of the Burbank OU Extraction Wellfield and the City of Burbank GAC Wellfield falls below 12,960,000 gallons (due to high nitrate concentrations and not for other reasons, e.g. maintenance), the Cumulative Pumping Credit shall increase according to the following formula:

$$PC' = PC + I$$

where

PC' = new Cumulative Pumping Credit

PC = old Cumulative Pumping Credit

I = increase to the pumping credit (I will be set to zero should the following calculation yield a negative number)

and

$$I = CWD - 12{,}960{,}000$$

where

CWD = actual metered City Water Demand on the High Nitrate Day

5. Determining Compliance using the Cumulative

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Pumping Credit: The Cumulative Pumping Credit shall be used to determine whether the Settling Work Defendant is meeting the groundwater extraction requirements under Section VI (Performance of the Work) of the Consent Decree. On a date one year following the Date of Commencement, the initial pumping compliance determination shall be made.

If the Cumulative Pumping Credit is zero or greater, the Settling Work Defendant shall be deemed to be in compliance with the groundwater extraction requirements. If on that date the Cumulative Pumping Credit is less than zero, the Settling Work Defendant shall be deemed to be out of compliance with the groundwater extraction requirements. 6. Calculation of Days Out of Compliance: If the Cumulative Pumping Credit one year after the Date of Commencement is less than zero, the Settling Work Defendant shall be deemed to be out of compliance for the number of days calculated as follows:

$$DOC = \frac{-PC\ (\text{gallons})}{12{,}960{,}000\ (\text{gallons/day})}$$

where

DOC = number of Days Out of Compliance

PC = Cumulative Pumping Credit

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Days Out of Compliance shall be rounded down to the nearest whole number of days, and shall be the number of days the Settling Work Defendant will be deemed out of compliance for the year. The Settling Work Defendant shall be subject to stipulated penalties for days out of compliance (see Consent Decree).

This compliance calculation will be performed annually on the anniversary date of the Date of Commencement, except in the event of a High Precipitation Year (see Section III.B.7. below).

7. Effect of a High Precipitation Year on Determining Compliance Using the Cumulative Pumping Credit: The time frame for performing the compliance calculation described in Sections III.B.5. and III.B.6. above will change as follows in the event of a High Precipitation Year. If the one year period of time over which a compliance determination is being made is a year during which the precipitation amount, as measured at a local weather station, is greater than 125% of the mean annual rainfall locally, that year shall be designated a High Precipitation Year. This precipitation determination shall be made on the anniversary date of the Date of Commencement. In the event a High Precipitation Year is designated, the compliance calculation shall be suspended until a year-long compliance period occurs during which precipitation is less than 125% of the mean annual

rainfall, in which case the compliance determination for that year performed on the anniversary date of the Date of Commencement will be performed as in Section III.B.5. above.

C. Annual Maintenance Credit: The Annual Maintenance Credit shall be measured in units of gallons and shall be used as a means for the Settling Work Defendant to perform a certain amount of routine maintenance on the Plant Facilities without being penalized under the Consent Decree. The Annual Maintenance Credit will also be used as a means of measuring compliance with the limits set on suspension of operations (see below).

1. Status on the Date of Commencement: On the Date of Commencement, the Maintenance Credit that has been accumulated throughout Phase 1 and Phase 2 up to the Date of Commencement shall be credited to the Settling Work Defendant in an amount up to 648,000,000 gallons.[3] If this carryover amount does not exceed 648,000,000 gallons, the Annual Maintenance Allowance, described below, shall be added to the Maintenance Credit, except that the total Annual Maintenance Credit shall not exceed 648,000,000 gallons.

2. Annual Maintenance Allowance: On the Date of

[3]50 days x 12,960,000 gallons/day

Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

Commencement, and at one year anniversaries from the Date of Commencement, the Settling Work Defendant will be credited with an Annual Maintenance Allowance of 648,000,000 gallons. There shall be no carryover of unused Maintenance Credits.

3. Subtractions from the Maintenance Credit: During the year following the Date of Commencement, on each day which the Settling Work Defendant designates as a Maintenance Day, the Maintenance Credit will decrease by the amount of gallons by which actual groundwater pumpage falls short of the daily goal of 12,960,000 gallons. The same procedure will hold for subsequent operating years, with the maximum possible Maintenance Credit at the beginning of the year being 648,000,000 gallons, with that number being reduced during the operating year as Maintenance Days are designated.

D. Maintenance Credit for Non-Routine Maintenance: "Non-routine maintenance," as used in this paragraph, shall include unplanned maintenance events which could not reasonably be anticipated by the Settling Work Defendant, or the timing of which could not reasonably be anticipated by the Settling Work Defendant in the ordinary course of operations.

1. At the outset of an event which requires non-routine maintenance, the Settling Work Defendant shall notify EPA

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of the event, the projected maintenance requirements, and the projected timing for completion of such requirements.

2. EPA shall determine a reasonable time period for the maintenance to be completed based on, but not limited to, information provided by vendors and submitted to EPA by the Settling Work Defendant. EPA shall notify the Settling Work Defendant of the deadline for completion of the non-routine maintenance.

3. The deadline for completion of the non-routine maintenance established by EPA shall be binding upon the Settling Work Defendant unless extended by EPA or the Settling Work Defendant invokes the Dispute Resolution process of Section XX of the Consent Decree.

4. Invocation of the Dispute Resolution process, by itself, will not postpone any maintenance activities.

E. Suspension of Operations: The Settling Work Defendant may suspend operations by designating a maintenance day. Maintenance outages during the operating year shall not exceed the Annual Maintenance Credit, or the Settling Work Defendant shall be considered in violation of the Consent Decree. Maintenance days may not be designated for reasons other than maintenance. The Settling Work Defendant shall notify the EPA

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Project Coordinator in advance of a planned Maintenance Day and as soon as practicable when a Non-Routine Maintenance Day has occurred. Maintenance Days shall be specifically accounted for in the required Progress Reports.

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PRELIMINARY_PROJECTION_OF_KEY_DATES

y	- Entry of Consent Decree
y + 30 days	- Designation of Project Coordinators
y + 180 days	- Designation of Supervising Contractor
y + 365 days	- Second Stage O&M Work Plan
	Staffing Plan
	Time Line and Schedule
y + 18 months	- Quality Assurance Project Plan
	Operational Sampling Plan
	Health and Safety Plan
	Contingency Plan

****

x	- Phase 2 System Operation Date
x + 180 days	- Designation of O&M Contractor
x + 365 days	- Lockheed Martin/City of Burbank transition commences
x + 730 days	- City of Burbank assumes O&M

****

current estimates

Phase 2 System Operation Date (x)...03/06/98 (say 3/98)

Entry of Second CD (y).....approx 2/97-3/97 (say 3/97)

****

1/96	- Phase 1 System Operation Date
3/97	- Entry of Consent Decree
4/97	- Designation of Project Coordinators
9/97	- Designation of Supervising Contractor
3/98	- O&M Second Stage Work Plan
	Staffing Plan
	Time Line and Schedule
3/98	- Phase 2 System Operation Date
9/98	- Designation of O&M Contractor
	Quality Assurance Project Plan
	Operational Sampling Plan
	Health and Safety Plan

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Contingency Plan

1/99 - Cost Consultant Selection

3/99 - Lockheed Martin/City of Burbank transition commences

3/00 - City of Burbank assumes O&M

1/01 - First CERCLA Five-Year Review

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APPENDIX VI

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Appendix 6
Settling Defendants and
recipients of notices and submissions

ACCRATRONICS SEALS CORPORATION
WILLIAM H. FISCH TRUST, DATED OCTOBER 29, 1993
JONES FAMILY TRUST, DATED MAY 14, 1993
c/o AccraTronics Seals Corporation
Attn: William Fisch
2211 Kenmere Avenue
Burbank, CA 91504
-and-
Baker & McKenzie
Attn: Todd O. Maiden, Esq.
One Prudential Plaza
130 East Randolph Drive
Chicago, IL 60601

ADLER SCREW PRODUCTS, INC.
EIRIK LIRHUS
BERGLJOT LIRHUS
LIRHUS FAMILY TRUST
c/o Adler Screw Products, Inc.
Attn: Eirik Lirhus
480 Enterprise Street
San Marcos, CA 92069

AEROQUIP CORPORATION
TRIVOVA CORPORATION
c/o Trinova Corporation
Attn: Madonna F. McGrath, Esq.
3000 Strayer Road
Maumee, OH 43537
-and-
Rodi, Pollock, Pettker, Galbraith & Phillips
Attn: John F. Cermak, Jr., Esq.
801 South Grand Avenue
Suite 400
Los Angeles, CA 90017

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Appendix 6
Settling Defendants and
recipients of notices and submissions

A-H PLATING, INC.
THE WASCHAK FAMILY TRUST
JOHN P. WASCHAK, TRUSTEE
MELBA R. WASCHAK, TRUSTEE
c/o Christensen, White, Miller, Fink, Jacobs, Glaser & Shapiro
Attn: Clare Bronowski, Esq.
2121 Avenue of the Stars
18th Floor
Los Angeles, CA 90067

ANTONINI FAMILY TRUST
MARIO E. ANTONINI AND
MARISI A. ANTONINI
Antonini Family Trust
11374 Tuxford Street
Sun Valley, CA 91352

AVIALL SERVICES, INC.
Attn: Senior Vice President & General Counsel
2055 Diplomat Drive
Dallas, TX 75234-8989

AVICA, INC.
(FORMERLY GENERAL CONNECTORS, INC.)
c/o McCutchen Doyle Brown & Enersen
Attn: Patricia L. Shanks, Esq.
355 South Grand Avenue
Los Angeles, CA 90071

MCENTEE FAMILY PARTNERSHIP
c/o Gall & Gall
Attn: John U. Gall, Esq.
333 South Grand Avenue
37th Floor
Los Angeles, CA 90071-1599

B.J. GRINDING, INC.
ROBERT J. HOISETH AND GLENDA HOISETH
HOISETH FAMILY TRUST
c/o B.J. Grinding, Inc.
Attn: Robert J. Hoiseth
2632 North Ontario Street
Burbank, CA 91504

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Appendix 6
Settling Defendants and
recipients of notices and submissions

JOSEPH F. BANGS DBA BANGS MANUFACTURING COMPANY
BANGS TRUST
c/o Bangs Manufacturing Company
Attn: Monte Anderson
1601 West Burbank Boulevard
Burbank, CA 91506

LAURIE S. BERNIE AND MELVYN J. BERNIE, AS INDIVIDUALS AND AS TRUSTEES OF THE BERNIE TRUST
MEL BERNIE & CO., INC. DBA ACCESSORY PLATING AND 1928 JEWELRY LTD.
THE BERNIE TRUST
c/o 1928 Jewelry Ltd.
Attn: Edward K. Thomas
3000 Empire Avenue
Burbank, CA 91505

BURMAR METAL FINISHING CORP.
DBA BARRON ANODIZING AND PAINT
c/o Baker, Manock & Jensen
Attn: Randall J. Krause, Esq.
5260 North Palm Avenue
Fourth Floor
Fresno, CA 93704

CRANE CO./HYDRO-AIRE DIVISION
Attn: Corporate Secretary
100 First Stamford Place
Stamford, CT 06902
-and-
Hydro-Aire, a Division of Crane Co.
Attn: President
3000 Winona Avenue
Burbank, CA 91504
-and-
Paul, Hastings, Janofsky & Walker
Attn: W. Toliver Besson, Esq.
1299 Ocean Avenue
Fifth Floor
Santa Monica, CA 90401

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Settling Defendants and
recipients of notices and submissions

DELTRON ENGINEERING, INC.
FILIJAN AND KUEBLER PROPERTIES
MICHAEL FILIJAN
TONY KUEBLER
Deltron Engineering, Inc.
Attn: Tony Kuebler
2800 San Fernando Boulevard
Burbank, CA 91504

HYDRA-ELECTRIC COMPANY
Attn: Henry P. Acuff
3151 Kenwood Street
Burbank, CA 91505

DAVIS INDUSTRIES, INC.
c/o: Robert L. Powell
Secretary Treasurer
P.O. Box 4495
Chatsworth, CA 91313

JANCO CORPORATION
Attn: Richard M. Barrett
3111 Winona Avenue
Burbank, CA 91508
-and-
Pircher, Nichols & Meeks
Attn: David E. Cranston, Esq.
1999 Avenue of the Stars
26th Floor
Los Angeles, CA 90067

BKT ENTERPRISES, INC.
Attn: Kay Giove-Skeeters
10901 Creek Road
Ojai, CA 93023
-and-
Pircher, Nichols & Meeks
Attn: David E. Cranston, Esq.
1999 Avenue of the Stars
26th Floor
Los Angeles, CA 90067

Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

Appendix 6
Settling Defendants and
recipients of notices and submissions

JOSLYN COMPANY, LLC FKA JOSLYN CORPORATION; JOSLYN SUNBANK COMPANY, LLC FKA JOSLYN SUNBANK CORPORATION
c/o Joslyn Company/Joslyn Sunbank Company
Attn: Carl S. Grabinski
1740 Commerce Way
Paso Robles, CA 93446
-and-
Thomas A. Coz, Esquire
Post Office Box 5013
Cincinnati, OH 45205-0013

OCEAN TECHNOLOGY, INC.
Attn: Harry E. Bruns
One Allied Drive
Little Rock, AR 72203

TEXTRON INC.
Attn: Jamison M. Schiff
40 Westminster Street
Providence, RI 02903

HR TEXTRON INC.
Attn: John W. Hedges
25200 West Rye Canyon Road
Valencia, CA 91355

PACIFIC PARTNERSHIP
Attn: Martin May
9363 Wilshire Boulevard
Beverly Hills, CA 90210
-and-
Baker, Manock & Jensen
Attn: Randall J. Krause, Esq.
5260 North Palm Avenue
Fourth Floor
Fresno, CA 93704

Appendix 6
Settling Defendants and
recipients of notices and submissions

SARGENT INDUSTRIES, INC./
KAHR BEARING DIVISION
c/o Dover Diversified, Inc.
Attn: Thomas E. Bell
2607 North Grandview Boulevard
Suite 105
Waukesha, WI 53188
-and-
Munger, Tolles & Olson
Attn: Stephen M. Kristovich, Esq./Ronald C. Hausmann, Esq.
355 South Grand Avenue
Los Angeles, CA 90071-1560

SIERRACIN CORPORATION
Attn: Gary Roberts
12780 San Fernando Road
Sylmar, CA 91342
-and-
Anderson, McPharlin & Conners LLP
Attn: David F. Wood, Esq.
624 South Grand Avenue
19th Floor
Los Angeles, CA 90017

INDUSTRIAL BOWLING CORPORATION
Attn: Bradley D. Howard
1819 West Olive Avenue
Burbank, CA 91506
-and-
Lawler, Bonham & Walsh
Attn: Carol A. Woo, Esq.
300 Esplanade Drive
Suite 300
Oxnard, CA 93031

R&G SLOANE MANUFACTURING CO., INC.
Attn: Bill Smith
7777 Sloane Drive
Little Rock, AR 72206

Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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Settling Defendants and
recipients of notices and submissions

SPACE-LOK, INC.
Attn: Jeffrey W. Wade
2526 North Ontario Street
Burbank, CA 91504
-and-
Hedges & Caldwell
Attn: Michael R. Leslie, Esq.
606 South Olive Street
Suite 500
Los Angeles, CA 90014-1507

THE ESTATE OF ALBINA BREBBIA
CHRISTINA COGAR INDIVIDUALLY AND
AS EXECUTRIX FOR THE ESTATE
OF ALBINA BREBBIA
c/o Loeb and Loeb
Attn: Malissa Hathaway McKeith
1000 Wilshire Boulevard
Los Angeles, CA 90017

STAINLESS STEEL PRODUCTS, INC.
ZIMMERMAN HOLDINGS, INC.
c/o Zimmerman Holdings, Inc.
Attn: President
2600 Mission Street
Suite 100
San Marino, CA 91108-1676
-and-
Rodi, Pollock, Pettker, Galbraith & Phillips
Attn: Robert A. Yahiro, Esq.
801 South Grand Avenue
Suite 400
Los Angeles, CA 90017

THE UHLMANN OFFICES, A CALIFORNIA CORPORATION./
SUNHILL PARTNERS, A CALIFORNIA PARTNERSHIP
13245 Riverside Drive
Suite 500
Sherman Oaks, CA 91423
-and-
Proskauer Rose Goetz & Mendelsohn LLP
Attn.: Barry Groveman, Esq.
2121 Avenue of the Stars, Suite 2700
Los Angeles, CA 90067

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Appendix 6
Settling Defendants and
recipients of notices and submissions

STEVE'S PLATING CORPORATION
UNIFACTOR, INC.
TERRY S. KNEZEVICH
c/o Timothy V.P. Gallagher Law Offices
Attn: Timothy V.P. Gallagher, Esq.
3915 Stone Canyon Avenue
Sherman Oaks, CA 91403

WALTON R. EMMICK
DENISE E. MCLAUGHLAN
SHARYN E. SCHRICK
SANDRA E. BOWMAN
CLELTA SPELMAN
c/o Barger & Wolen LLP
Attn: Edwin A. Oster, Esq./Robert K. Renner, Esq.
19800 MacArthur Boulevard
Suite 800
Irvine, CA 92612-2427

ELAINE S. BARR
HOMER R. BARR AND ELAINE S. BARR FAMILY TRUST
c/o The O'Toole Law Firm
Attn: Patricia M. O'Toole, Esq.
601 South Figueroa Street
Suite 4100
Los Angeles, CA 90017

DIANE BARR
c/o Edwards, Edwards & Ashton
Attn: Wilbur Gin
420 North Brand Boulevard
Suite 500
Glendale, CA 91203

L.A. GAUGE CO., INC.
Attn: James Hunt, President
7440 San Fernando Road
Sun Valley, CA 91352-4398
-and-
Landels Ripley & Diamond, LLP
Attn: Robert L. Hines, Esq.
350 The Embarcadero
San Francisco, CA 94105-1250

Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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recipients of notices and submissions

TWISS HEAT TREATING CO., INC.
DBA TWISS HEAT TREATING CO.
THE WILLIAM E. AND EVELYN TWISS FAMILY TRUST
WILLIAM E. TWISS AND EVELYN TWISS
W AND E TWISS TRUST
c/o Twiss Heat Treating Co., Inc.
Attn: William E. Twiss
2503 North Ontario Street
Burbank, CA 91504
-and-
Roper & Folino
Attn: John B. Larson, Esq.
3255 Wilshire Boulevard
Suite 1700
Los Angeles, CA 90010-1420

VALLEY ENAMELLING CORP.
2509 North Ontario Street
Burbank, CA 91504

WALTON R. EMMICK
DENISE E. MCLAUGHLAN
SHARYN E. SCHRICK
SANDRA E. BOWMAN
CLELTA SPELMAN
c/o Barger & Wolen
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19800 MacArthur Boulevard
Suite 800
Irvine, CA 92715

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Settling Defendants and
recipients of notices and submissions

HM HOLDINGS, INC.
PH BURBANK HOLDINGS, INC.
Attn: Samuel J. Friedman, Vice President, General Counsel & Secretary
SCM Chemicals
200 International Circle
Suite 5000
Hunt Valley, MD 21030
-and-
Stringfellow & Associates, A Law Corporation
Attn: Walter A. Stringfellow
444 South Flower Street
31st Floor
Los Angeles, CA 90071

WEBER AIRCRAFT, INC.
Attn: Michel LaBarre
1300 East Valencia Drive
Fullerton, CA 92631
-and-
Stringfellow & Associates, A Law Corporation
Attn: Walter A. Stringfellow
444 South Flower Street
31st Floor
Los Angeles, CA 90071

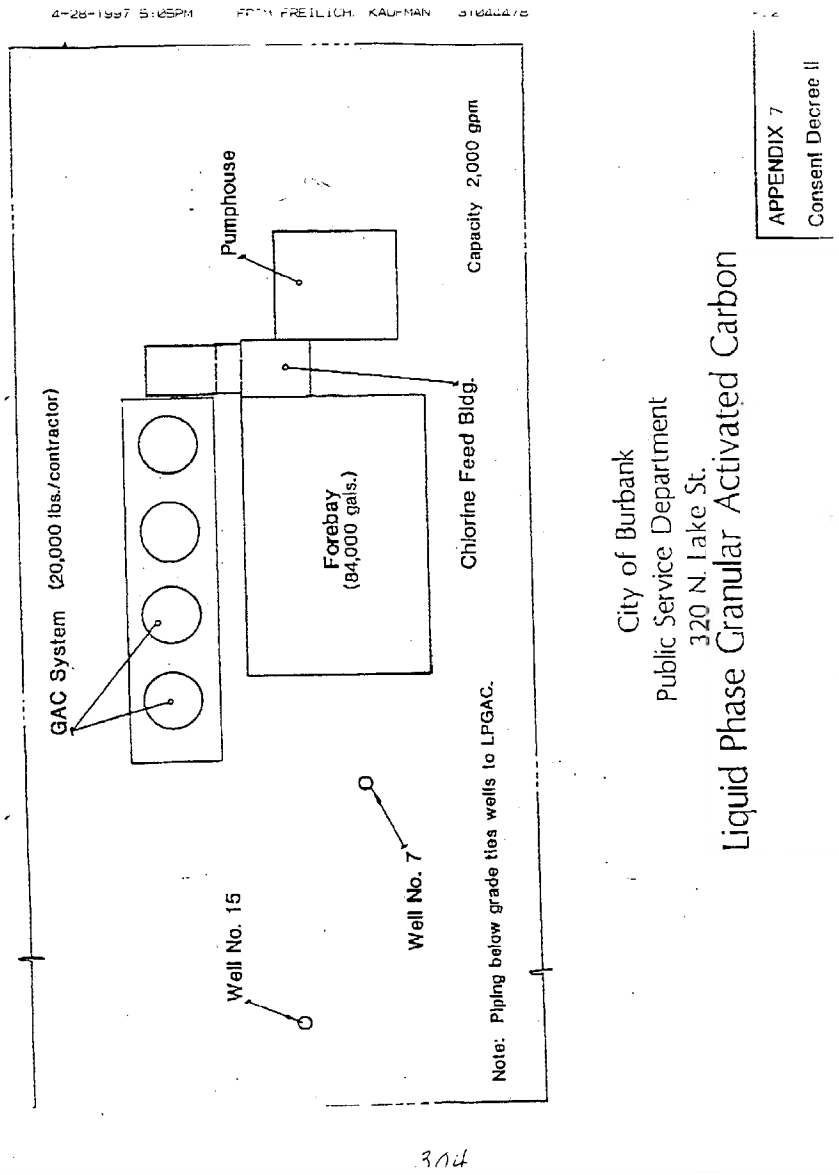
LOCKHEED MARTIN CORPORATION
Attn: Dominic J. Hanket
2550 North Hollywood Boulevard
Suite 301
Burbank, CA 91505

Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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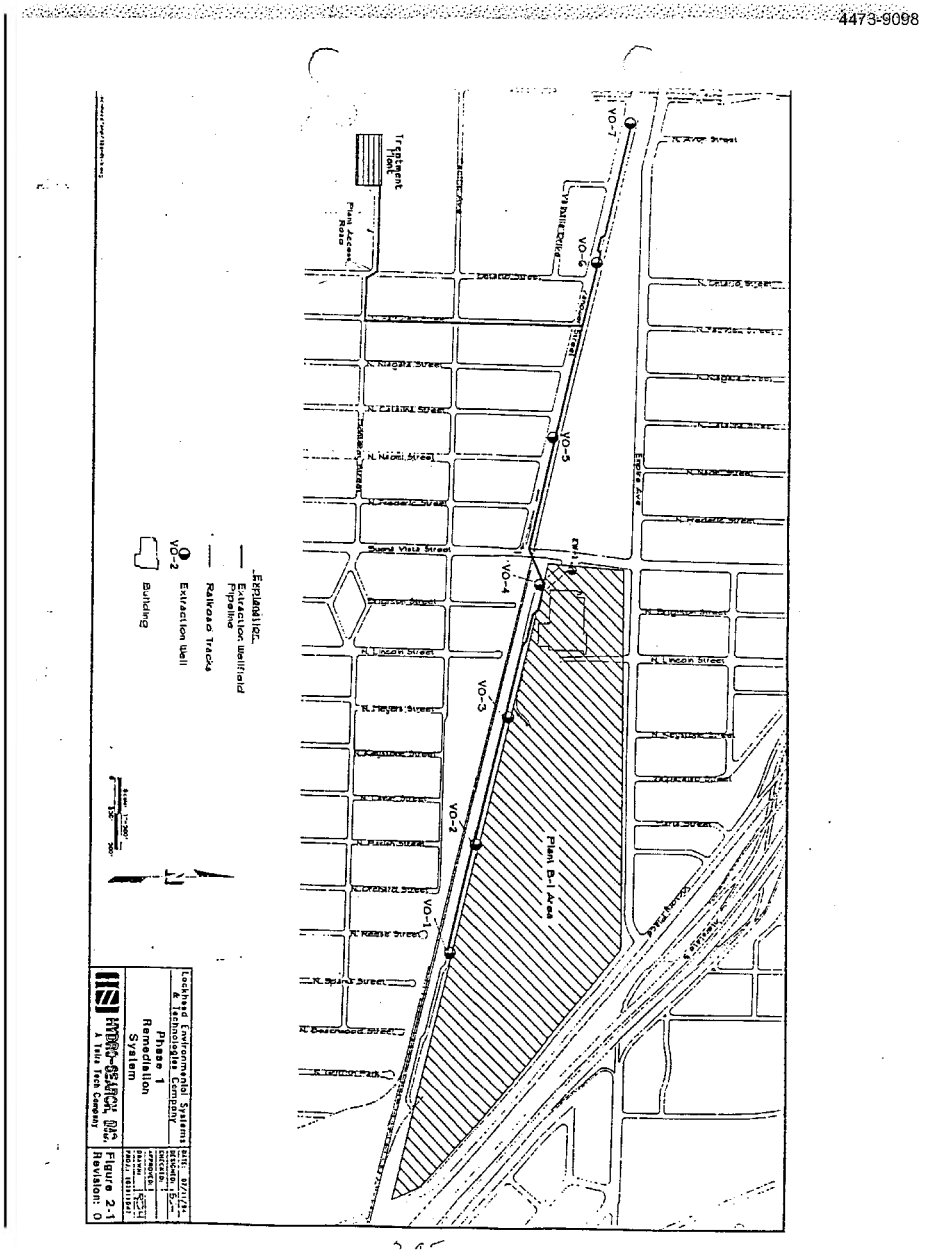
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APPENDIX VII

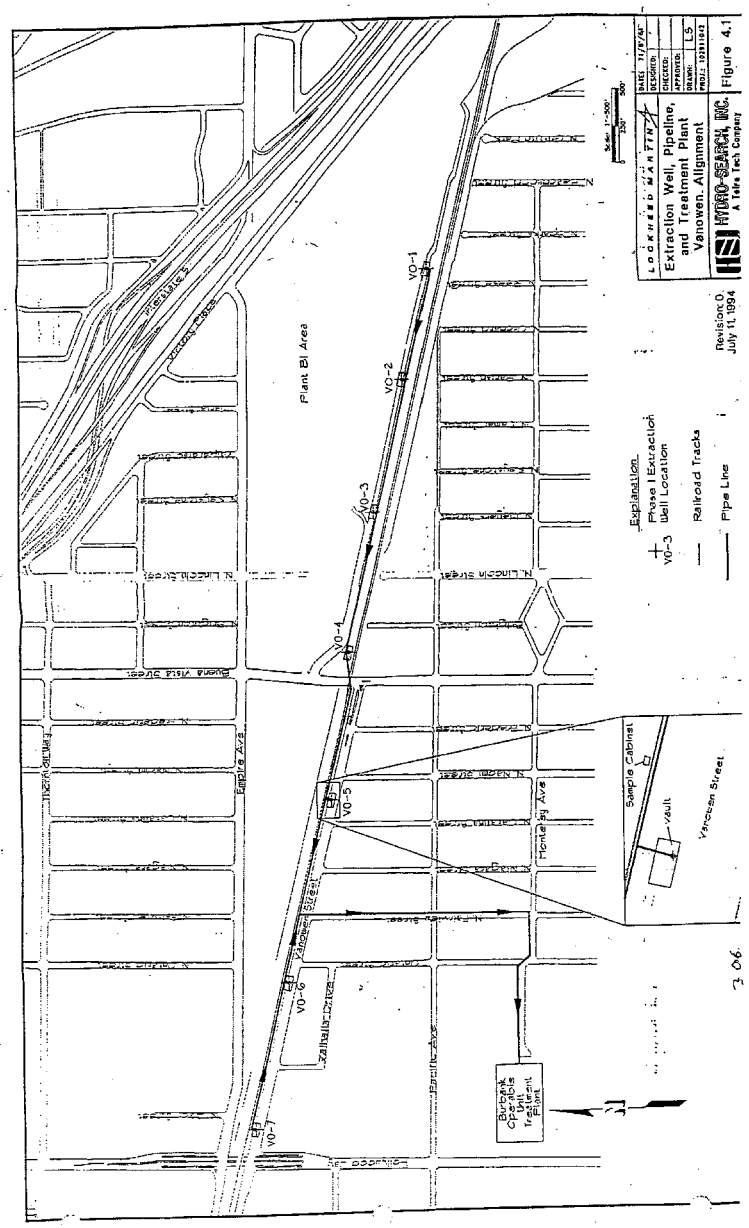


Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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Response to Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022)

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The commenter expresses its objection to approval of the HSR project and its implementation to the extent that the Authority did not consider the potentially significant environmental impacts to Lockheed Martin's remedial activities in the San Fernando Valley and the underlying soil and groundwater conditions in the cleanup area or plan for avoiding or mitigating impacts. The commenter's concerns are acknowledged. The Draft EIR/EIS did assess and disclose impacts associated with the construction of the Build Alternatives within contaminated sites. To clarify the discussion provided in the Draft EIR/EIS, the discussion contained within Section 3.10 of this Final EIR/EIS has been expanded to provide clarity related to the potential impacts of the project on the San Fernando Groundwater Basin Superfund Site and the ongoing remediation of the site. Refer to responses to comments #9082 through #9098 for detailed responses to Lockheed Martin's specific comments.

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The commenter states that the Draft EIR/EIS does not identify impacts, mitigation, or alternatives related to soil and groundwater subject to Lockheed Martin's remediation activities, as well as safe drinking water supply to local communities. Lockheed Martin's remediation facilities are included in the list of PECs in Tables 5-6, 5-8, 5-12, 5-13, 5-14, and 5-19 of Appendix G of the Palmdale to Burbank Hazardous Materials and Wastes Technical Report (Authority 2019). Section 3.10.5.1 of the Draft EIR/EIS acknowledges that the project is within the San Fernando Groundwater Basin Superfund site Area 1. In addition, a reference to Appendix 3.10-A has been included in this section and information from this appendix, including details about remediation facilities for the San Fernando Groundwater Basin Superfund site, have been added to this Final EIR/EIS where appropriate. In addition, text has been added to EIR/EIS Section 3.10.6.3 stating that the Authority would coordinate the replacement of these wells with the USEPA as required under CERCLA. The replaced extraction wells would be installed and functional prior to the removal of any of the extraction wells for the San Fernando Valley Superfund site to avoid disruption of the ongoing remediation program for the Superfund site. Also, a new Appendix has been added to the Final EIR/EIS (Appendix 3.10-B) identifying the PECs.

The Authority received the same comment from the same commenter following circulation of the Burbank to LA Project Section Draft EIR/EIS. The Authority provided a similar response to this one as part of Response to Comment 898-1765 included in the Burbank to LA Project Section Final EIR/EIS, which is within Volume 4 on page 23-122 available on the Authority's website at: https://hsr.ca.gov/programs/environmental-planning/project-section-environmental-documents-tier-2/burbank-to-los-angeles-project-section-draft-environmental-impact-report-environmental-impact-statement/.

Response to Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

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The commenter states that there are 70 active groundwater monitoring wells and vapor intrusion barriers that could be affected by the HSR Palmdale to Burbank Section. The commenter provided Figure 1 as an attachment to the comment letter, which identifies 70 active groundwater monitoring wells within 1 mile of the Palmdale to Burbank alignment centerline. As stated by the commenter, construction of the HSR Project may require removal and/or relocation of affected monitoring wells. The commenter requests that potential impacts to the wells and vapor barriers be considered by the Authority, and states that any damage to this infrastructure would be the responsibility of the Authority. The commenter also states that the HSR Palmdale to Burbank Project Section could affect groundwater levels due to impermeable surfaces.

The Authority acknowledges that the project may impact infrastructure and remediation-related equipment, including wells, within the general area of the remediation activities, for which Lockheed Martin is responsible as a Superfund Site responsible party, and will minimize those impacts, as much as possible through design. Monitoring wells associated with PEC sites (including wells associated with Lockheed Martin's remediation) were considered and informed the EIR/EIS analysis as discussed in Section 6.2 and shown in Figures 5-15, 5-26 and 5-37 of the Palmdale to Burbank Project Section Hazardous Materials and Wastes Technical Report (Authority 2019). Additional details regarding remediation equipment, including vapor barriers, associated with the San Fernando Valley Superfund Site, Area 1, have been added to Section 3.10.6.3. The discussion under Impact HMW #2 in Section 3.10, Hazardous Wastes and Materials, including the San Fernando Valley Superfund Site, Area 1, has also been modified with details regarding previously identified impacts of interference with ongoing remediation at PEC sites.

As design progresses, to avoid impacts to wells and conveyance infrastructure being used to implement the cleanup of impaired groundwater at the San Fernando Valley Superfund Site, Area 1, the Authority would coordinate with the U.S. Environmental Protection Agency (USEPA), the Regional Water Quality Control Board –Los Angeles Region (RWQCB), the State Water Resources Control Board (SWRCB), the California Department of Toxic Substances Control (DTSC), the California Department of Water Resources (DWR), and the California Department of Health Services, Division of Drinking Water (DDW), along with additional relevant stakeholders consisting of the

4473-9083

Upper Los Angeles River Area (ULARA) Watermaster, the City of Burbank Water &Power (BW&P), the City of Glendale Water &Power (GW&P), City of Los Angeles, and Lockheed Martin and other parties named in consent decrees for the San Fernando Valley Superfund Site, Area 1. As required under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Authority would coordinate the relocation of wells associated with the remediation with the USEPA and RWQCB. In addition, HMW-IAMF#11, which was incorporated as part of the approved Burbank to Los Angeles Project Section, has been added to this Final EIR/EIS to confirm that that the Authority is required to coordinate with relevant stakeholders on an ongoing basis to review the project design, construction methods, and permitting requirements for proposed modifications to the extraction wells and ancillary infrastructure to ensure that municipal water supplies and the effectiveness of the Superfund site clean-up remedies are not impaired by construction and operation of the HSR Build Alternatives. The Authority would coordinate with the various agencies and relevant stakeholders listed above on issues such as ensuring system shutdowns occur within approved timeframes, maintaining operation of existing systems while testing new replacement systems, and providing additional groundwater or surface water supplies if needed.

Depending upon the scope of the potential modifications to the extraction wells and ancillary infrastructure, the Authority shall enter into enforceable agreements with the USEPA as the agency responsible for the Superfund Program. The Authority anticipates that any increased costs caused by the Project to the Burbank Operable Unit (BOU) groundwater remedy would be addressed in conjunction with and consistent with the outcomes of the stakeholder coordination required in HWM-IAMF#11.

The commenter also indicates its concern with reduced groundwater recharge due to an increase in impervious surfaces. Creation of new impervious surfaces could interfere with groundwater recharge, which could lead to increased pumping costs and the sustainability of the BOU remedy over time if an increase in impervious surfaces reduces the amount of water that can infiltrate into the groundwater basin below. As discussed under Impact HWR#4 (page 3.8-46 of the Draft EIR/EIS), new impervious surfaces would include drainage infrastructure designed to redirect storm water runoff and capture it for recharge, thus minimizing permanent impacts on groundwater recharge and a decline in water levels. While impervious surfaces would be utilized in

Response to Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

4473-9083

the construction of both the Palmdale and Burbank Stations, impacts on groundwater recharge would be minimal at these station sites because they would be located in urbanized areas with large areas of existing impervious surfaces, and the net increase in the area of impervious surfaces would be minimal, resulting in no significant impact on groundwater recharge. For locations of proposed drainage infrastructure, please see Volume 3: PEPD Record Set REV02 Grading and Drainage Plans of the Draft EIR/EIS.

4473-9084

The commenter expresses concern that certain activities, such as tunneling and excavation, could cause migration of contaminants in soil and groundwater. Specifically, the commenter expressed concern that there is the potential for spreading or allowing migration of contaminants in soil and groundwater during soil disturbing activities, such as tunneling and excavation, if contaminants in soil or perched groundwater are encountered and disturbed.

To address this issue and as required by HMW-IAMF#1, historical and current contaminant information for the Superfund Site would be obtained and reviewed as part of a Phase 1 ESA and additional site characterization to evaluate potential impacts of contaminated soil, groundwater, or soil gas on project construction and operation. The characterization data would inform environmental controls required to be developed at the detailed design phase to minimize mobilization of existing contaminants. Procedures for managing known, suspected, and unanticipated contamination would be included in a CMP as required by HMW-IAMF#4 (Known, Suspected, and Unanticipated Environmental Contamination) for disturbance of contamination during construction. Equipment decontamination protocols, track-out controls, and other appropriate contamination prevention and reduction measures would be included in the CMP. The CMP would also include procedures for avoiding or reducing the potential for releases and foreseeable upset conditions that may result in contaminant migration. The CMP would be submitted to the Authority for review and approval and would also be approved by the environmental oversight agency or agencies, if required.

Following Authority and oversight agency approval of the CMP, the contractor would be contractually obligated to implement it to safely identify, and handle contamination encountered during construction. Groundwater is not anticipated to be encountered during construction because, as shown in Table 3.8-5 of the Draft EIR/EIS, depth to groundwater in the San Fernando Valley is approximately 250 feet below the ground surface, while maximum depth of the proposed tunnels in this area is up to approximately 150 feet below ground surface (see Drawing Nos. TN-Y1O2O-S14, TN-Y1O21-S14, TN- Y1O29-E1 through TN-Y1031-E1, TN-Y1O25-E2, and TN-Y1O26-E2 in Volume 3, Tunnel Plans of the Draft EIR/EIS), or approximately 100 feet above the groundwater table of the San Fernando Valley groundwater basin. Perched groundwater zones may be present and would be evaluated at the detailed design phase and, if

Response to Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

4473-9084

appropriate, controls to prevent contaminant migration would be specified in the CMP. In the event a change in contaminant plumes is claimed with respect to the Lockheed Martin plume, the consequences of such a change would be discussed and evaluated by the Authority, appropriate regulatory agency(ies), and the Responsible Party.

As required by HMW-IAMF#11, Stakeholder Consultation for the San Fernando Valley Groundwater Basin Superfund Site, which was incorporated as part of the approved Burbank to Los Angeles Project Section and has been added to this Final EIR/EIS, the Authority would coordinate with stakeholders for the Superfund Site on an ongoing basis to review proposed project design and construction methods and determine appropriate environmental controls and permitting requirements to prevent contaminant migration and other potential impacts. The Authority anticipates that any increased costs caused by the Project to the Burbank Operable Unit (BOU) groundwater remedy would be addressed in conjunction with and consistent with the outcomes of the stakeholder coordination required in HWM-IAMF#11.

4473-9085

The commenter refers to an attached letter from CDM Smith "for additional specific comments" about potential impacts on the Burbank Operable Unit remediation efforts. These additional specific comments are addressed in Response to Comment #9087 through Comment #9096.

4473-9086

The commenter states that the Palmdale to Burbank Project Section Draft EIR/EIS did not identify or discuss alternatives and/or mitigation that could avoid or reduce the likely adverse impacts on Lockheed Martin's remediation efforts at the San Fernando Valley Superfund Site.

The Draft EIR/EIS considered potential impacts to the San Fernando Valley Superfund Site. Appendix 3.10-A in Volume 2 of the Draft EIR/EIS identified the San Fernando Groundwater Basin Superfund sites (including the Lockheed Martin site) on Figure 3.10-A-19 and those locations were identified on page 3.10-15 of the Draft EIR/EIS. As discussed in Section 3.10.5.3 of the Draft EIR/EIS, the six Build Alternatives are within portions of Area #1 (Figure 3.10-A-19) but do not encompass Area #2 through Area #4. Section 3.10.6.3 of this Final EIR/EIS has been revised to clarify the potential impacts of the HSR Build Alternatives to the remedies for the San Fernando Groundwater Basin Superfund site.

The commenter expresses concern that although the Draft EIR/EIS acknowledges existing contamination in the groundwater adjacent to and beneath the proposed project, evaluation of this contamination is not adequately addressed in the Draft EIR/EIS. Discussion in Impact HWR #2: Construction Activities Required for the Build Alternatives explains the likelihood of encountering groundwater during construction, as well as the various options for maintaining a dry excavation, including dewatering. If groundwater dewatering is deemed infeasible during final design, measures such as chemical or jet grouting or permeation grouting may be required to prevent groundwater flow into the vicinity of below-grade sections. A previously conducted alternatives analysis considered the Antelope Valley line as an alternative to tunneling under the Burbank Airport; however, as discussed in the Burbank Airport Station Options Screening Report–Draft 2 (Authority 2018), this alternative was not carried forward due to its impacts to existing operation of the Antelope Valley line.

The commenter also expresses concerns about potential vapor exposure from tunneling creating accumulation of vapor. HMW-IAMF#1, identified under Section 3.10.4.2 of the Draft EIR/EIS, calls for conducting Phase 1 environmental site assessments to characterize each parcel and Phase 2 environmental site assessments (e.g., soil, groundwater, and soil vapor subsurface investigations) if sites are determined to be

Response to Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

4473-9086

contaminated. The Authority would also require implementation of HMW-IAMF#6 through HMW-IAMF#8, which require a variety of hazardous waste plans to address spill prevention and establish procedures for the handling of hazardous wastes generated during remediation activities.

Additionally, text has been added to Section 3.10.6.3 of the Final EIR/EIS stating that the Authority would coordinate the replacement of drinking water wells with the USEPA, as required under CERCLA. The replaced extraction wells would be installed and functional prior to the removal of any of the extraction wells for the San Fernando Valley Superfund site to avoid disruption of the ongoing remediation program for the Superfund site.

The constructed tunnels would be sealed and include appropriate ventilation systems, which would avoid the accumulation of vapors. Additionally, HMW-IAMF#1 calls for conducting Phase 1 environmental site assessments to characterize each parcel and Phase 2 environmental site assessments (e.g., soil, groundwater, and soil vapor subsurface investigations) if sites are determined to be contaminated. The project costs assume that contaminated soils encountered during construction will be required to be hauled off and disposed of at appropriate facilities. In addition, the project would mitigate impacts on the Hansen spreading grounds by replacing areas affected so that the recharge capacity of the facility would not be permanently altered.

4473-9087

The commenter, CDM Smith, provides an introduction to its subsequent comments that review potential impacts to the BOU Superfund Site remedy, Burbank's groundwater extraction wells, and soil and soil vapor conditions associated with the Burbank to Los Angeles project section. The detailed comments that follow are each responded to.

4473-9088

The commenter discusses issues in relation to the existing Lockheed Martin remediation efforts and concerns in relation to impacts on established infrastructure and contamination plume dispersion because of Project activities.

The Authority appreciates the commenter providing extensive background information. Section 3.10.5.3 of the Draft EIR/EIS provides summary information pertaining to PEC sites. Additional detail can be found in Sections 5.1.3, 5.2.3, and 5.3.3 of the Palmdale to Burbank Project Section Hazardous Materials and Wastes Technical Report (Authority 2019). The Authority agrees the potential for encountering groundwater is minimal, although localized perched zones may be present. Impacts to the crucial wells identified by Lockheed Martin in the immediate vicinity of the HSR alignment will be minimized to the extent feasible, with conflicts being identified and discussed once final alignment plans are approved. Implementation of HMW-IAMF#3: Work Barriers, described in Section 3.10.4.2 of the Draft EIR/EIS, describes the Authority's commitment to verify the use of work barriers prior to construction by requiring the contractor to prepare a technical memorandum. Nominal design variances, such as the addition of a plastic barrier beneath the ballast material to limit the potential release of volatile subsurface contaminants, may be implemented in conjunction with site investigation and remediation.

4473-9089

The comment expresses agreement the IAMFs associated with a reduction in impacts to hazardous materials and waste. No further response is required.

Response to Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

4473-9090

Refer to Standard Response PB-Response-HYD-1: Impacts on the Hansen Dam and Hansen Spreading Grounds.

The commenter requests that mitigation measure HWR-MM#3 of the Draft EIR/EIS be revised to include identification of replacement land to ensure continued groundwater recharge is available for the San Fernando Basin.

As described in HWR-MM#3, the Authority would provide replacement groundwater recharge areas. The MWR-MM#3 has been revised to require that the replacement recharge areas be in the vicinity of the existing recharge ponds, in areas that would be acquired as part of the project footprint. The replacement recharge areas would compensate for new impervious areas of the HSR footprint within the Hansen Spreading Grounds for the Refined SR14, SR14A, E1, E1A Build Alternatives, and would provide for no net loss of recharge area or recharge capacity. The Authority has removed from HWR-MM#3 in the Final EIR/EIS the option to mitigate the reduced capacity of the Hansen Spreading Grounds by modifying operations at Hansen Dam that regulate discharges to the spreading grounds such that no loss in flood protection would occur.

For additional information, please refer to Standard Response PB-Response-HYD-1: Impacts on the Hansen Dam and Hansen Spreading Grounds.

4473-9091

Refer to Standard Response PB-Response-HAZ-2: Potential to Encounter PEC Sites with Known and/or Suspected Contamination during Construction.

The comment states that the Draft EIR/EIS identifies between 22 and 30 (depending on Build Alternative) "active groundwater monitoring wells" within 1 mile of the Build Alternatives, but there are about 70 monitoring wells (as depicted in Figure 1 provided with the comment) and that damage to, or loss of groundwater monitoring wells would be significant. The comment requests that the Draft EIR/EIS identify any monitoring wells potentially impacted and include mitigation measures for their replacement or protection.

As a matter of clarification, the 22 and 30 wells identified in the Draft EIR/EIS are not "active groundwater monitoring wells" but are identified in the Draft EIR/EIS as groundwater wells that are likely used for domestic purposes. As the level of project design progresses, the Authority would coordinate with regulatory agencies that may include the U.S. Environmental Protection Agency (USEPA), the RWQCB, the California Department of Toxic Substances Control, and local agencies, to avoid impacts to groundwater monitoring and extraction wells and conveyance infrastructure necessary to implement the cleanup of impaired groundwater in areas impacted by the build alternative. In accordance with previously adopted HMW-IAMF#11, which has been added, and as required under CERCLA, the Authority would coordinate the relocation of wells with the USEPA and would ensure that existing wells are operating during testing of new replacement systems. Implementation of HMW-IAMF#11 would ensure no effect to the ongoing remediation program for the Superfund site. Clarifying text regarding the Superfund site and the groundwater monitoring wells has been added to Impact HMW #2 in Section 3.10.6.3 of this Final EIR/EIS.

See also standard response PB-Response-HAZ-3: Impact HMW#2: Potential to Encounter PEC Sites with Known and/or Suspected Contamination during Construction, regarding coordinating HSR construction with site remediation activities to avoid damaging or interfering with remediation site controls and coordination with regulatory agencies required before construction could advance at known potentially hazardous sites through HMW-IAMF#8 (Permit Conditions).

Response to Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

4473-9092

The comment states that the Draft EIR/EIS identifies the approximate locations of medium- and high-priority PEC sites on figures in Appendix 3.10-A, but does not identify the sites by name or type of PEC. The commenter states that the Draft EIR/EIS would be more effective if PEC sites were tabulated in the document. Section 3.10.5.3 of the Draft EIR/EIS presents summary information about PEC sites and refers the reader to the Palmdale to Burbank Project Section Hazardous Materials and Wastes Technical Report (Authority 2019) for a description of all PEC sites within the resource study area (RSA) (Draft EIR/EIS, Section 3.10, page 3.10-13, fn. 2). Appendix 3.10-B has been added to this Final EIR/EIS that provides a tabulation of the PEC sites within the Palmdale to Burbank Project Section RSA and a summary of the issues, status, and the priority ranking of the sites.

4473-9093

The commenter requests the addition of a statement to the Draft EIR/EIS that the Authority would be the responsible generator for the transport and treatment or disposal of spoils. The commenter's request for additional language about responsibility for spoils is acknowledged. The Authority or other entities may become generators as part of implementing the project and will comply with all applicable laws and regulations regarding hazardous wastes. The Authority would implement HMW-IAMF#7 (Storage and Transport of Materials), which requires compliance with applicable regulations, such as RCRA and the Hazardous Waste Control Law that apply to disposal of hazardous waste from the project. These laws and regulations define the generator of hazardous waste. No revisions have been made to this Final EIR/EIS in response to this comment.

4473-9094

The commenter suggests that the EIR/EIS include a discussion about protection against potential exposure to VOCs that may be present in soil and soil vapor adjacent to the Burbank Airport Station and tunnels. The commenter suggests that the Draft EIR/EIS include discussion of vapor exposure risk prevention, including mitigation of potential vapor intrusion pathways and appropriate tunnel and station vapor intrusion mitigation systems.

Soil vapor is discussed under Impact HMW#2 in Section 3.10, Hazardous Materials and Wastes, of the Palmdale to Burbank Project Section Draft EIR/EIS. As discussed under Impact HMW#2 in the Draft EIR/EIS (Section 3.10.6.3), the Build Alternatives will incorporate HMW-IAMF#1 (Property Acquisition Phase 1 and Phase 2 Environmental Site Assessments, Additional Preconstruction Investigations, and Associated Actions to Control Site Contamination), which requires Phase 1 and potential subsequent site investigation(s). The site investigations will serve to identify risks associated with contaminated media, including VOCs in soil vapor. The site characterization data obtained pursuant to HMW-IAMF#1, and any additional pre-construction site characterization data collected by the Authority's contractor, will be used to inform the design of required controls for mitigating potential vapor intrusion and appropriate tunnel and station vapor lining and/or ventilation requirements to be included in the detailed project design. The controls would be approved by regulatory agencies overseeing a specific site, as discussed in HMW-IAMF#1, and would protect the health of the staff, HSR passengers, and the public at large. Furthermore, application of HMW-IAMF#4 (Known, Suspected, and Unanticipated Environmental Contamination) will be implemented to address either known, suspected, or unanticipated contamination as identified prior to construction and also as encountered during construction.

The Burbank Airport Station was analyzed in the Burbank to Los Angeles Project Section Final EIR/EIS, and the Authority's Board of Directors approved the Burbank to Los Angeles Project Section (including the Burbank Airport Station) in January 2022. IAMFs identified in Section 3.10.4.2 of the Burbank to Los Angeles Project Section Final EIR/EIS (pages 3.10-12 and 3.10-13) related to soil vapor are consistent with the IAMFs identified in the Palmdale to Burbank Project Section EIR/EIS.

Response to Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

4473-9095

The commenter requests that the Authority's plans maintain integrity of the vapor intrusion mitigation systems of the existing structures at the proposed Burbank Airport Station, should the HSR plan include "retention of the existing structures (i.e., Avion Burbank and/or Amazon buildings)."

As explained in response to comment 4473-9094, the Burbank Airport Station was analyzed and approved in the Burbank to Los Angeles Project Section Final EIR/EIS, and no change to the station is proposed in this EIR/EIS. IAMFs identified in Section 3.10.4.2 of the Burbank to Los Angeles Project Section Final EIR/EIS (pages 3.10-12 and 3.10-13) related to soil vapor controls are consistent with the IAMFs identified in the Palmdale to Burbank Project Section EIR/EIS. As discussed in Section 3.12, Socioeconomics and Communities of the Burbank to Los Angeles Project Section Final EIR/EIS, the Avion property is proposed to be acquired, and the existing structures would be demolished and replaced with station facilities and surface parking (see also Volume 3 of the Burbank to Los Angeles Project Section Final EIR/EIS, specifically Volume 7: HSR Burbank Airport Station plan set). HMW-IAMF#4 of the Palmdale to Burbank Project Section EIR/EIS requires preparation of a Construction Management Plan (CMP) that must address controls for construction activities in areas with contaminated media. Requirements for maintaining or repairing vapor barriers impacted during construction would be required in the CMP, which would be approved by regulatory agencies with oversight authority for the cleanup site. The Authority will also implement HMW-IAMF#3: Work and Vapor Barriers. This IAMF describes the Authority's commitment to verify the use of work barriers with the contractor prior to construction, by requiring the contractor to prepare a technical memorandum addressing the use of vapor barriers beneath the ballast material to limit the potential release of volatile subsurface contaminants or vapors. Vapor barriers and associated venting systems determined to be necessary to prevent intrusion of hazardous concentrations of volatile compounds into occupied project structures (e.g., stations or tunnels) shall be designed in accordance with standard engineering practices and reviewed and accepted by relevant stakeholders and regulatory agencies. See also Standard Response PB-Response-HAZ-2: Potential to Encounter PEC Sites with Known and/or Suspected Contamination during Construction, regarding coordinating HSR construction with site remediation activities to avoid damaging or interfering with remediation site controls and coordination with regulatory agencies required before construction could advance at

4473-9095

known potentially hazardous sites through HMW-IAMF#8 (Permit Conditions).

Response to Submission 4473 (Kimberly Bick, Lockheed Martin Corporation, December 1, 2022) - Continued

4473-9096

The commenter states that Lockheed Martin has completed remediation of the soil and does not anticipate a need for additional investigation or remediation to protect human health for the current land uses, and states that should referenced land uses change or new contamination be discovered during construction of the project, additional actions may be needed to mitigate impacts related to hazardous materials and should be the responsibility of the Authority to mitigate.

The Authority is aware that certain land use restrictions are present in relation to impacted properties and recognizes that future changes in land use may result in modification of or addition to requirements by regulatory agencies. Through implementation of HMW-IAMF#11 (Stakeholder Consultation for the San Fernando Valley Groundwater Basin Superfund Site), the Authority would coordinate with USEPA, the RWQCB, and other relevant stakeholders on an ongoing basis regarding the project, and any design elements that are inconsistent with current restrictions on land use would require resolution prior to implementation. The Authority will also work with Lockheed Martin to discuss any potential impacts and necessary mitigation, if land use associated with the HSR project requires changes to existing restrictions or necessitates additional actions.

The Authority also acknowledges that construction crews may discover contaminants of concern during construction. As discussed under Impact HMW#2 (Section 3.10.6.3), information obtained from Phase 1 and Phase 2 Environmental Site Assessments (HMW-IAMF#1 in Appendix 2-E of this Final EIR/EIS), as needed, would inform the potential for discovery of contamination during construction, and procedures for managing unanticipated contamination would be included in a CMP prepared by the Construction Contractor and approved by the Authority in accordance with HMW-IAMF#4. Notification of regulatory agencies would be required by the CMP if new contamination is discovered.

4473-9097

The commenter provided along with its letter a copy of the 1989 Record of Decision for the San Fernando Valley Superfund Site Area 1, Burbank Operable Unit, in Los Angeles County, California, Developed in Accordance with the Comprehensive Environmental Response, Compensation, And Liability Act (42 USC Section 9601 et. seq.) and the National Contingency Plan (40 CFR Section 300 et. seq.) project. The 1989 Record of Decision was considered during the preparation of the Draft EIR/EIS. The citation for the Record of Decision is included in Section 3.10.6.3 and has been added to the reference list in Chapter 12, References, of this Final EIR/EIS.

4473-9098

The commenter provides a copy of the Second Consent Decree in United States v. Lockheed Martin Corp., No. 91-4527-MRP (Tx) (C.D. Cal. June 22, 1998). The commenter attached the Consent Decree to its letter. The document was considered in preparation of the Draft EIR/EIS. The citation for the Consent Decree is included in Section 3.10.6.3 and has been added to the reference list in Chapter 12, References, of this Final EIR/EIS.

Submission 4480 (Andrea Howe, December 1, 2022)

Palmdale - Burbank - RECORD #4480 DETAIL

Status : Action Pending
Record Date : 12/2/2022
Interest As : Individual
First Name : Andrea
Last Name : Howe

Stakeholder Comments/Issues :

4480-8221 I support the NO PROJECT ALTERNATIVE as the only feasible alternative.

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4480-8222 * WATER: Tunneling jeopardizes critical groundwater sources in the mountains that provide drinking water to LA.
- If you have horses or other animals, they need water to thrive. They are more important than providing water during and after construction.
- We are in another epic drought and HSR will use hundreds of millions of gallons of water: to constantly spray their construction areas to mitigate fugitive dust, to provide water for tunneling operations, and they even have a plan to truck in tens of millions of gallons of water for the oak trees in the Angeles National Forest (ANF) if tunneling causes dewatering (which is a very real possibility).

4480-8223 * LIVING THROUGH CONSTRUCTION: Construction here will take AT LEAST 7 years, probably more than 10.
- Construction staging areas nearby are proposed throughout our foothill area.
- There will be noise, vibration, dust, and exhaust as millions of truck trips are needed to haul spoils out of bored tunnels.
- Traffic will increase for these millions of truck trips on our local roads and the 5/210 freeways.

4480-8224 * SURFACE IMPACTS TO THE ANGELES NATIONAL FOREST AND THROUGHOUT OUR COMMUNITIES: Tunneling beneath the ANF does NOT mean there are no impacts to the Forest. This train means there will be manmade encroachments in the ANF where none exist now:
- Adding buildings in the Forest used to access the tunnels and provide ventilation, plus access roads and power lines. Portals (twin tunnel openings, each 30' in diameter, from which the train will emerge) will be at borders to the ANF and in the Shadow Hills hillside on Wentworth for one route, E2.
- Wilderness areas will be disrupted, including routes that cross the Pacific Crest Trail, Rim of the Valley Trail, San Gabriel Mountains National Monument.
- Wildlife throughout the ANF, Hansen Dam, and throughout our area will be impacted by years of construction invading their habitat.
- Additional fire hazards will be created due to construction and increased activity.

4480-8225 * SEISMICITY: Each/all routes cross the San Andreas, San Gabriel, Sierra Madre, and Verdugo Fault Zones.

4480-8226 * AIR QUALITY: Construction will generate more greenhouse gases than it will recoup in 70 years of operation. CHSRA is a beneficiary of Cap & Trade funds as it claims it is a "green project," but the irony is that CHSRA will have to PURCHASE offset credits during construction as its pollution levels exceed AQMD standards.

4480-8227 * AESTHETICS: Designated scenic corridors will be blighted with multi-acre construction staging areas to house construction equipment, concrete batch plants, and more. Portals aren't just tunnel openings; they have huge infrastructure with them, including 65' three-story buildings. One proposed route (E2) still includes a viaduct to carry the train out of the mountain and over the Big Tujunga Wash, and requires raising Wentworth Street 30 feet.

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4480-8228 * NON-ENVIRONMENTAL ISSUES YOU MAY BE INTERESTED IN:
- Instead of fully studying important topics (e.g., seismicity) prior to approving the project, the Authority places the brunt of the study work and planning on contractors to be hired AFTER the project is approved.
- The Authority employs a 15/85 design plan, which means that only 15% of the project needs to be designed before the project is approved.
- The total budget has ballooned from $16.5 in 1996 to $105 Billion in 2022, and not a single inch of track has been laid.
- Permanent forfeiture of property, sales, utility users and payroll taxes that fund schools, parks, public safety, libraries, Social Security/Medicare (and more) due to loss of businesses which currently generate this revenue.

4480-8229 I am concerned that tunneling jeopardizes critical groundwater sources in the mountains that provide drinking water to LA and water for wildlife. How will you remedy the risk of dewatering in the Angles National Forest and spreading grounds?

4480-8230 How will you mitigate the probable deforestation?
How will you prevent the loss of habitat of our wildlife?

4480-8231 How do you justify using hundreds of millions of gallons of water during the construction process while we are in an epic drought?

4480-8232 Millions of truck trips will be needed to haul spoils during the spoils hauling. How will you mitigate the noise, vibration, dust, and exhaust for the residents?
What is your plan to ease the traffic for local residents when traffic increases due to the millions of truck trips on our local roads and the 5/210 freeways during the ten years of the construction process?

4480-8233 How will you prevent fires in our National Forest as construction and eventual operation increases the fire danger in our area?
I am concerned that all proposed routes cross the San Andreas, San Gabriel, Sierra Madre, and Verdugo Fault Zones. What is the evacuation plan in the event of earthquakes?

4480-8234 What is the justification of promoting the High Speed rail as a "green project" when its construction will generate more greenhouse gases than it will recoup in 70 years of operation?

Response to Submission 4480 (Andrea Howe, December 1, 2022)

4480-8221

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, PB-Response-GEN-4: General Opinions, Opposition or Support. The commenter indicates a preference for the No Build Alternative. The No Build Alternative would not meet the HSR purpose, need, or objectives described in Chapter 1, Project Purpose, Need, and Objectives of the EIR/EIS. For a response to comments on alternatives and their selection and evaluation process, refer to Standard Response PB-Response-ALT-1. For a response to comments expressing project opposition or support, refer to PB-Response-GEN-4.

4480-8222

Refer to Standard Response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife, PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, PB-Response-PUE-3: Water Demand and Usage.

The commenter expresses concern related to the effect of tunneling on groundwater sources, including water used for both human and animal consumption; and raises additional concerns regarding the quantity of water necessary to construct the project in the face of drought conditions. Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage regarding water use during construction, including during dry and multi-dry years. See Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, for a discussion of hydrogeologic impacts that would result from tunneling under the ANF. Regarding the comment about groundwater impacts from tunneling, including potential effects on drinking water supply, the Authority understands that there are potential effects on groundwater associated with tunnel construction in the ANF. These potential impacts are analyzed in detail in Section 3.8, Hydrology and Water Resources, specifically in Impact HWR#5 (Changes in Hydrogeologic Conditions Associated with Tunnel Construction Beneath the ANF which May Affect Surface and Subsurface Water Resources) and HWR#6 (Project Operation Effects on Water). These potential impacts would be addressed by the Authority's use of state-of-the-art design features and construction methods to avoid and minimize impacts on hydrologic resources, including through the use of tunnel boring machines (TBMs) with features to reduce or prevent inflows and grouting and tunnel-lining approaches that have proven effective at controlling water seepage. These measures are identified in HYD-IAMF#5 (TBM Design Features), HYD-IAMF#6 (Tunnel Lining Systems), and HYD-IAMF#7 (Grouting). To address potentially significant impacts to surface water resources and wells, the Authority would also implement an Adaptive Management and Monitoring Plan (AMMP) as required by mitigation measure HWR-MM#4. The AMMP includes monitoring protocols to establish baseline conditions for surface water resources and to allow for the detection of changes in groundwater conditions related to tunnel construction to ensure timely implementation of remedial measures. The AMMP includes provisions for augmenting water supplies for wells and actions to restore affected resources, if necessary. See Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in

Response to Submission 4480 (Andrea Howe, December 1, 2022) - Continued

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the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, for additional information about potential hydrogeologic impacts in the Angeles National Forest. For information about tunneling impacts to animals and special-status plant species, see Section 3.7 of the EIR/EIS for detailed discussion of the impacts from the Build Alternatives on wildlife and special-status plant species. The methods for evaluating impacts to biological resources are provided in Section 3.7.4 of the Draft EIR/EIS, and the detailed analysis of the affected environment is provided in Section 3.7.5. Mitigation measures are provided in Section 3.7.7. For further details related to impacts and mitigation to wildlife, domestic animals and special-status plant species, please see standard response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife.

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Refer to Standard Response PB-Response-AQ-1: Construction-Period Emissions, PB-Response-N&V-4: Tunneling Impacts (Noise and Vibration) under Homes and Businesses, PB-Response-N&V-5: Impacts of Spoils Hauling (Noise), PB-Response-TRA-1: Temporary Traffic Associated with Construction, PB-Response-TRA-2: Impacts of Tunnel Spoils Off-Haul/Deposition.

The commenter expresses concerns related to the location of construction staging areas as well as construction impacts related to noise, air quality, and traffic. The commenter also expresses concerns regarding the impacts of spoils hauling trips. Regarding the commenters' concern about the location of construction staging areas, please note that the staging areas may differ between the Build Alternatives. For a complete list of the construction staging areas by Build Alternative that were assumed in the Final EIR/EIS analysis, please refer to Table 2-37 in Chapter 2.0, Alternatives. Figure 2-82 through Figure 2-95 in Chapter 2.0, Alternatives also provide visual illustrations of the construction staging areas within the ANF.

Regarding the commenters concern regarding the impacts of spoils hauling trips, Appendix 2.0-I: Spoils Disposal Assumptions presents the construction spoils activities for each Build Alternative, including the anticipated duration of activities and number of outbound trucks per hour for each spoils generation site. As stated in Section 3.2.6.3 of the Draft EIR/EIS, spoils hauling is anticipated to take up to 6.4 years in total, depending on location and Build Alternative. However, the activity and duration of construction would vary depending on the spoils removal location and the means of off-hauling the spoils. In other words, not all spoil generation sites would be active during the entire construction period. For additional discussion about the potential impacts of spoils hauling trips, please refer to Standard Responses PB-Response-TRA-2: Impacts of Tunnel Spoils Off-Haul/Deposition and PB-Response-N&V-5: Impacts of Spoils Hauling (Noise). In addition, since publication of the Draft EIR/EIS, the Authority has updated the assumptions regarding hazardous spoils, which has resulted in an overall reduction in total spoils generated. Please refer to Impact HMW#1: Hazards Due to the Routine Transport, Use, or Disposal of Hazardous Materials during Construction, which provides further detail on these assumptions. Table 3.10-8 and Section 3.10.8.3 were also revised to be consistent with these updated volumes.

Response to Submission 4480 (Andrea Howe, December 1, 2022) - Continued

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To address the commenters' concern regarding impacts related to noise, air quality, and traffic, please refer to Standard Responses PB-Response-N&V-4: Tunneling Impacts (Noise and Vibration) under Homes and Businesses, PB-Response-AQ-1: Construction-Period Emissions, PB-Response-TRA-2: Impacts of Tunnel Spoils Off-Haul/Deposition, and PB-Response-TRA-1: Temporary Traffic Associated with Construction which address these issues. In addition, please refer to Section 3.2, Transportation; Section 3.3, Air Quality; and Section 3.4, Noise and Vibration in the Draft EIR/EIS. Each of these sections include a list of IAMFs and mitigation measures that address impacts on noise, dust, vibration, exhaust from truck trips, increased traffic. For example, as described in Impact AQ#2, AQ-IAMF#1 and AQ-IAMF#6 would be implemented as part of the project to reduce fugitive dust during construction.

4480-8224

Refer to Standard Response PB-Response-ALT-2: Unique Tunnel Elements – Windows, Adits, Tunnel Boring Machines, etc., PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife, PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, PB-Response-PR-1: Impacts on the Pacific Crest Trail (Refined SR14 Build Alternative Only), PB-Response-PR-2: Impacts on Big Tujunga Wash – Recreational Uses, Equestrian Use, PB-Response-S&S-1: Wildfire.

The commenter expresses concerns for impacts to the Angeles National Forest (ANF) from introduction of "manmade" structures and encroachments.

To address the commenters concerns regarding impacts from the introduction of "manmade" structures, please see Standard Responses PB-Response-ALT-2: Unique Tunnel Elements –Windows, Adits, Tunnel Boring Machines, etc., PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife, PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, PB-Response-PR-2: Impacts on Big Tujunga Wash –Recreational Uses, Equestrian Use, and PB-Response-S&S-1: Wildfire.

Regarding the commenters' concern about the Pacific Crest Trail (PCT), the only Build Alternative that would cross the Pacific Crest Trail (PCT) at grade and impact the trail is the Refined SR14 Alternative. This is not the Authority's preferred alternative. The Authority's preferred alternative is the SR14A which would cross the PCT underground in a bored tunnel and would not have an impact the existing trail. For additional discussion about impacts to the PCT please refer to Standard Response PB-Response-PR-1: Impacts on the Pacific Crest Trail (Refined SR14 Build Alternative Only). For more information regarding the Preferred Alternative, please refer to Chapter 8 of the Draft EIR/EIS. Additionally, IAMF and mitigation measures will be implemented to reduce impacts where possible.

Regarding the commenters concern about the San Gabriel Mountain National Monument (SGMNM), construction of the bored tunnel through the ANF, including the SGMNM, would require the use of adits. The locations of the adits options in all six Build Alternatives would be located within a private in-holding near existing roadways within

Response to Submission 4480 (Andrea Howe, December 1, 2022) - Continued

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the ANF, including the SGMNM, boundary. Private in-holding refers to properties within the ANF that are privately owned, may currently have existing structures on them (e.g., houses) and are not accessible to the public. The Build Alternatives cross areas of the ANF that have other encroachments within the forest such as major electrical transmission lines and roadways. For additional discussion about impacts to parks and recreational resources, including the PCT, Rim of the Valley Trail, and SGMNM, please refer to Table 3.15-4 in Section 3.15, Parks, Recreation and Open space.

Regarding the commenters' concern about the Rim of the Valley Trail, the Refined SR 14 and SR14 Build alternatives would utilize an approximately 330-foot segment of the trail but would not result in permanent acquisitions of the proposed trail. Similarly, the E2 and E2A build alternatives would temporarily utilize an approximately 400-foot segment of the trail but would not result in permanent acquisitions of the trail. The Rim of the Valley trail is outside the RSA of the E1 and E1A Build Alternatives and would therefore not be impacted under those Build Alternatives.

4480-8225

Refer to Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events.

The commenter expresses concern related to seismicity due to the HSR Palmdale to Burbank Project Section crossing fault lines. Please refer to Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events, which addresses concerns related to seismicity.

4480-8226

The commenter states that construction will generate more greenhouse gases than it will recoup in 70 years of operation. The commenter also says that California High-Speed Rail Authority will have to purchase offset credits during construction because pollution levels exceed AQMD standards, and thus is not a green project.

Table 3.3-44 in Section 3.3 of the Draft EIR/EIS shows the Payback of Greenhouse Gas Emissions for the six Build Alternatives. Depending on the Build Alternative and Ridership Scenario, construction-related GHGs would be paid back in 4 to 6 months of project operation. As discussed in Section 3.3.7, construction emissions will be offset via agreements with the applicable air districts.

4480-8227

Refer to Standard Response PB-Response-AVQ-1: Impacts to Scenic Vistas and Scenic Drives, PB-Response-AVQ-2: Visual Effects on Big Tujunga Wash, PB-Response-AVQ-3: Effects on Visual Quality during Construction.

The commentor is concerned about the visual effects of the Project during construction on Scenic corridors and the Big Tujunga Wash area. These topics are discussed in PB-Response-AVQ-1, PB-Response-AVQ-2, and PB-Response-AVQ-3.

Response to Submission 4480 (Andrea Howe, December 1, 2022) - Continued

4480-8228

Refer to Standard Response PB-Response-GEN-2: Project Costs and Funding, PB-Response-SOCIO-1: Parcel Acquisitions and Relocations.

The commenter expressed their concerns relating to the budget as well as the loss of properties due to relocations or displacements. The commenter also expressed concern that only 15 percent of the projects design is needed to receive approval. Regarding to the commenters concern about only 15 percent of the projects design being required for approval, the Staged Project Delivery process allows for designs to be further refined, additional stakeholder and third-party issues to be identified and right-of-way requirements to be mapped and risks to be identified while the project continues to navigate the environmental review process. To address the commenters other concerns regarding the project's budget and loss of properties due to relocations, please refer to Standard Response PB-Response-GEN-2: Project Cost and Funding, and PB-Response-SOCIO-1: Parcel Acquisitions and Relocations. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration, Procedures for Considering Environmental Impacts, section 14(s), 64 Fed. Reg. 28548, 28556 (May 26, 1999)). The commenter has not provided a comment on environmental issues. This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

4480-8229

Commenter is concerned with availability of water and potential dewatering impacts. Section 3.8.6.3 of the EIR/EIS indicates that while project construction could temporarily affect groundwater conditions in certain High Risk Areas, the Authority does not reasonably foresee this effect interfering substantially with groundwater recharge such that the project may impede sustainable groundwater recharge in a groundwater basin. Additionally, groundwater intrusion into tunnels would be mitigated by HYD-IAMF#5 (tunnel boring machine design features), HYD-IAMF#6 (tunnel lining systems), and HYD-IAMF#7 (grouting), therefore, mitigating the depletion of groundwater resources due to tunnel construction. In the unlikely event that water supplies are adversely impacted, the Authority will implement an Adaptive Management and Monitoring Plan (AMMP) as required by mitigation measure HWR-MM#4. The AMMP includes groundwater monitoring requirements, provisions for augmenting water supplies, and actions to restore affected resources, if necessary.

Response to Submission 4480 (Andrea Howe, December 1, 2022) - Continued

4480-8230

Refer to Standard Response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife, PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest.

The commenter asked how deforestation would be mitigated and how the loss of wildlife habitat would be prevented. Most of the alignment for the Build Alternatives consist of tunneling, as shown in Figure 3.7-4 of the Draft EIR/EIS. Given this, tree and vegetation removal and impacts to wildlife habitat would be minimized. However, the Authority understands that there are risks affecting groundwater, and associated indirect effects to species habitat, with undergoing tunnel construction. Construction of tunnels in the Angeles National Forest (ANF) has the potential to alter hydrogeological conditions, resulting in inflows of groundwater into the tunnel and the subsequent change in groundwater levels. Changes in groundwater levels for aquifers could affect the hydrology of groundwater-dependent ecosystems, resulting in effects on habitat. The project tunnel alignments would be constructed consistent with engineering design features to address and minimize these risks. These risks and impacts in the ANF are analyzed in detail in Section 3.8, Hydrology and Water Resources, specifically in Impact HWR#5 (Changes in Hydrogeologic Conditions Associated with Tunnel Construction Beneath the ANF which May Affect Surface and Subsurface Water Resources). While actions would be implemented during construction to reduce the indirect impacts on special-status species and to minimize the loss of habitat resulting from tunnel construction, the project could result in loss and degradation of habitat. To address this impact, the Authority would implement an Adaptive Management and Monitoring Plan (AMMP). BIO-MM#93 (Adaptive Management Plan for Groundwater Effects on Species and Habitat) will involve implementation of the bioresource portions of the AMMP prepared under HYD-MM#4 (Implement a Water Resources Adaptive Management and Monitoring Plan Including Compensatory Mitigation Measures as Necessary), which will require monitoring of groundwater-dependent surface water resources and associated habitat within the tunnel construction Resource Study Area, providing supplemental water where needed, and remediating or compensating for any adverse effects identified during monitoring in a timely manner. If the Authority determines, through direct monitoring or data interpretation, that substantial disruption (i.e., loss of 0.5 acre or greater; which would include deforestation) to habitat supporting special-status species has likely occurred during or after construction and that habitat restoration efforts did not

4480-8230

achieve success criteria or that restoration was determined unfeasible, compensatory mitigation to offset the loss of habitat would be provided. In addition, the following measures would reduce impacts on trees: BIO-MM#6 (Prepare and Implement a Restoration and Revegetation Plan), BIO-MM#35 (Implement Transplantation and Compensatory Mitigation Measures for Protected Trees), BIO-MM#50 (Implement Measures to Minimize Impacts During Off-Site Habitat Restoration, or Enhancement, or Creation on Mitigation Sites), BIO-MM#54 (Prepare and Implement an Annual Vegetation Control Plan), BIO-MM#55 (Prepare and Implement a Weed Control Plan), and BIO-MM#58 (Environmentally Sensitive Areas, and Non-Disturbance Zones). Please refer to PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, which provides additional information about potential tunneling impacts to groundwater dependent surface water, impacts to resources such as wildlife habitat that are dependent on surface water, and the Adaptive Management and Monitoring Plan (AMMP).

4480-8231

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter expressed concern regarding water usage during times of drought. PUE-MM#1 (described in Section 3.6.7, Mitigation Measures) will require the Authority to prepare an updated water supply analysis for the selected Build Alternative that details and describes the minimum adequate water supply for the RSA during normal, dry, and multiple dry years based on a more detailed project design. Additionally, PUE-MM#1 will require the Authority to utilize non-potable water from regional water utility service providers for construction activities where feasible, as well as recycling/reusing water used for tunnel construction, further minimizing demand for water supplies to avoid impacting residents' water availability during the construction of the project. For additional information regarding water supply, please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage. As to the question about the Authority justifying the water used during construction, please refer to the discussion above, which indicated sufficient water supply. The Authority has identified the benefits of the California HSR System in Section 1.2.5 of the Draft EIR/EIS. Moreover, when the Authority makes a decision on the project, it will decide whether the benefits of the project justify the environmental costs.

Response to Submission 4480 (Andrea Howe, December 1, 2022) - Continued

4480-8232

Refer to Standard Response PB-Response-TRA-1: Temporary Traffic Associated with Construction.

The commenter askes about mitigation during spoils hauling, including for noise, vibration, dust, exhaust, and traffic. Refer to Response to Comment #8200.

4480-8233

Refer to Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events, PB-Response-S&S-1: Wildfire.

The commenter expressed concern on the potential for wildfire hazards, and risk and impacts associated with fault lines and seismic events from the project. These topics are further discussed in Standard Responses PB-Response-S&S-1: Wildfire, which describes the evaluation of and measures to minimize and avoid wildfire effects from the project, and PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events, which includes discussion of the effects of seismic events and fault rupture on the project, and measures to minimize these effects.

The HSR system project design includes several components that minimize the effects of seismic events and the potential safety risks from seismic events (GEO-IAMF#6). These include a train control system with earthquake early warning detection systems and operational responses to notification of a seismic event including stopping or slowing of trains and inspection of infrastructure. This would help identify situations where fault creep or rupture have the potential to damage facilities and enable control of trains in a manner that would reduce the potential for accidents. GEO-IAMF#7 will require evaluation of fault rupture potential and GEO-IAMF#10 will implement engineering and safety protocols to limit fault rupture and ground shaking hazards during construction. These risks and impacts are analyzed in detail in Section 3.9, Geology, Soils, Seismicity and Paleontological Resources, specifically in Impact GSSP#7 (Fault Rupture and Seismic Ground Shaking Could Endanger People or Structures During Construction) and Impact GSSP#16 (Effects of Geologic Hazards During Operations).

As described under Impact S&S#3, each of the Build Alternatives will include provisions for emergency service access to the access-controlled right-of-way, including passenger walkways to allow emergency access and evacuation routes for tracks in trenches and tunnels, during an emergency event. Passenger walkways would be located along the trench/tunnel walls on the same side as the access/egress points, where possible, and would be illuminated to provide safe passage in the event of an emergency. Tunnel design would also include a central, fire-rated dividing wall that would separate the two tracks of each single tunnel into two independently ventilated railways to allow access in

Response to Submission 4480 (Andrea Howe, December 1, 2022) - Continued

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the event of an emergency. Safety egress would be achieved via fire-rated doorways through the tunnel dividing wall. The Access Control for High-Speed Rail Right-of-Way and Facilities Technical Memorandum (available online at: https://hsr.ca.gov/wp-content/uploads/docs/programs/eir_memos/Proj_Guidelines_TM2_8_2R00.pdf) prepared for the HSR System, assesses the guidance and regulatory requirements from local and national agencies on access control and summarizes available information on access control methods used by other highspeed train systems and by rail transit operators, and is used as the basis for recommending appropriate infrastructure features for access control for high-speed train trackways and facilities, including HSR tunneled trackway, in the case of an emergency event including earthquakes.

4480-8234

Refer to Standard Response PB-Response-AQ-1: Construction-Period Emissions, PB-Response-AQ-4: Greenhouse Gas Emissions.

The commenter asks about the justification for promoting HSR as a "green project" when they indicate it will take 70 years to recoup the GHG emissions created by construction activities.

The Authority has calculated the payback of Greenhouse Gas (GHG) Emissions for the six Build Alternatives at 4 to 6 months of project operation (Draft EIR/EIS Chapter 3.3, Table 3.3-44). In other words, the Authority determined it would take between 4 to 6 months of operation of the Palmdale to Burbank Project Section to offset construction-related GHG emissions, not 70 years. After that, the project will produce net benefits by reducing GHGs (Draft EIR/EIS page 3.3-126).

CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

Submission 4483 (Kimberly Bick, Lockheed Martin Corporation, December 2, 2022)

4483-9099

Palmdale - Burbank - RECORD #4483 DETAIL

Status :	Ready for Delimiting
Record Date :	12/2/2022
Interest As :	Business and/or Organization
First Name :	Kimberly
Last Name :	Bick
Attachments :	LOCKHEED MARTIN CORP. COMMENTS TO PALMDALE-BURBANK PROJECT[100].pdf (20 mb)

Stakeholder Comments/Issues :

Attached please find comments to the draft EIR/EIS for the Palmdale to Burbank Project Area for the High Speed Rail Project submitted on behalf of Lockheed Martin Corporation.

Sincerely,

Kimberly Bick

Partner

[A picture containing text Description automatically generated]

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November 30, 2022

RE: California High Speed Rail Authority Palmdale to Burbank Draft EIR/EIS Comments

This letter is submitted on behalf of Lockheed Martin Corporation ("Lockheed Martin") to provide comments on the September 2, 2022 California High Speed Rail Authority Palmdale to Burbank Draft EIR/EIS ("Palmdale to Burbank Draft EIR/EIS" or "EIR/EIS") for the California High Speed Rail Project ("Project") for consideration in this California Environmental Quality Act ("CEQA") and National Environmental Policy Act ("NEPA") proceeding. Lockheed Martin objects to the approval of the Project and its implementation to the extent that the California High Speed Rail Authority ("Rail Authority" or "Authority") does not consider the potentially significant environmental impacts to Lockheed Martin's remedial activities in the San Fernando Valley and the underlying soil and groundwater conditions in the cleanup area nor plan for avoidance/mitigation of such impacts as discussed below. The impacts of the Project to and the location of the referenced remediation infrastructure are included in the attached letter from Lockheed Martin's technical consultant, CDM Smith (Exhibit A).

Lockheed Martin is and has been conducting remediation activities in the San Fernando Valley under the oversight of the United States Environmental Protection Agency ("EPA"), pursuant to the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§ 9606 and 9607 ("CERCLA"), as amended by the Superfund Amendments and Reauthorization Act of 1986 ("SARA") and the Los Angeles Regional Water Quality Control Board ("Regional Board"), pursuant to the Porter-Cologne Water Quality Control Act, California Water Code section 13000 et seq. The Palmdale to Burbank Draft EIR/EIS does not disclose or evaluate potential significant impacts of the Project to soil and groundwater subject to Lockheed Martin's remediation activities and to the related supply of safe drinking water to local communities. Nor does the draft EIR/EIS identify alternatives or mitigation efforts that may be able to avoid or reduce such impacts. Lockheed Martin suggests that the EIR/EIS should disclose or consider these potentially significant environmental impacts and analyze how such impacts could be avoided or reduced by alternatives to the proposed Project path or through mitigation efforts.

EPA has issued a Record of Decision ("ROD") prescribing an interim remedy for the San Fernando Valley Burbank Operable Unit ("BOU") (Exhibit B) and entered into a Consent Decree with Lockheed Martin to implement the remedy (Exhibit C). The interim groundwater remedy includes extraction wells and pipelines that extract and convey groundwater to a

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Submission 4483 (Kimberly Bick, Lockheed Martin Corporation, December 2, 2022) - Continued

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November 30, 2022
California High Speed Rail Authority

treatment plant in Burbank to remove contaminates and ultimately provide clean drinking water to citizens in the Burbank area.

There are 70 active groundwater monitoring wells within one mile of either side of the Project's centerline and southern terminus, some of which could be damaged or may need to be removed or moved because of the Project, at significant cost and impact to Lockheed Martin's remediation. In addition, vapor intrusion barriers are in place in existing building slabs in zones that are in the pathway of the Project's construction. The Draft EIR/EIS does not address the potential that Project activities could compromise the integrity of these barriers, which if damaged will need to be reinstalled. The Project's footprint, which will cover permeable land with impermeable improvements, also will result in the inability to conserve as much of the storm and other waters as practicable in spreading grounds, which permit water to percolate into groundwater basins for later pumping. This may result in a significant drop in groundwater levels. Declining groundwater levels would have a significant negative impact on the effectiveness and long-term sustainability of the BOU groundwater remedy and would require installing deeper, replacement extraction wells that would increase the cost of the remedy. Lockheed Martin understands and expects that the Authority, and not Lockheed Martin will be responsible for any costs that are related to the Project, including the above-referenced costs.

Additionally, certain Project activities, such as tunneling and excavation, could cause migration of contaminants in soil and groundwater. If such migration occurs, or if soil or groundwater conditions are exacerbated as a result of the Project's tunneling or excavation activities or any other aspect of the Project's work, the Authority will be considered a potentially responsible party under CERCLA and will be responsible for costs, including costs of disposal of contaminated soil.

Please see the attached letter from CDM Smith for additional specific comments regarding potential impacts from the Project to the BOU remediation effort. Lockheed Martin submits that these potential adverse impacts should be avoided by the Project (and/or mitigated) to the greatest extent possible. All of these potential impacts of the Project should be fully evaluated in the Palmdale to Burbank Draft EIR/EIS, and alternatives or mitigation to avoid or reduce such impacts should be analyzed and presented to the public or decision-makers for review.

The fundamental purpose of an EIR is "to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment." (Public Resources Code § 21061.) An EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project. (Laurel Heights Improvement Assn. v. Regents of University of California (1988) 47 Cal.3d 376, 405.) An EIR must contain facts and analysis, not just the agency's bare conclusions or opinions. (Concerned Citizens of Costa Mesa, Inc. v. 32nd Dist. Agricultural Assn. (1986) 42 Cal.3d 929, 935.)

The Palmdale to Burbank Draft EIR/EIS, as currently drafted, does not identify or discuss alternatives and/or mitigation that could avoid or reduce the costs and likely adverse impacts on Lockheed Martin's remediation efforts at the San Fernando Valley Superfund Sites, Area 1,

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November 30, 2022
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including: impacts on contaminant plume containment and potential mobilization of contaminants as a result of the Project: impacts to wells that are in the pathway of the Project; impacts from Project tunneling creating accumulation of vapor causing vapor exposure to humans; costs of disposal of contaminated soil and costs of additional groundwater treatment due to migration of contaminants; loss of spreading grounds impacting the sustainability of the remedy; and impacts on the supply of drinking water to local communities. This results in an inadequate and deficient environmental document inconsistent with both CEQA and NEPA. Lockheed Martin requests that the Rail Authority fully consider the costs and impacts of the Project on the ongoing remediation efforts in the San Fernando Valley and evaluate alternatives and mitigation efforts that could avoid or reduce such costs and impacts.

By this letter, Lockheed Martin formally makes these comments, including all attachments, part of the Administrative Record for this CEQA and NEPA proceeding for consideration by the Rail Authority.

Thank you,

Kimberly L. Bick

Attachments

Exhibit A – Comments from Technical Consultant CDM Smith
Exhibit B – BOU ROD
Exhibit C – BOU Consent Decree

Submission 4483 (Kimberly Bick, Lockheed Martin Corporation, December 2, 2022) - Continued

4483-9099

EXHIBIT A

4483-9099

CDM Smith

600 Wilshire Boulevard, Suite 750
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November 28, 2022

Subject: Comments on the California High-Speed Rail Project
Draft Environmental Impact Report/Environmental Impact Statement
Palmdale to Burbank Project Section

CDM Smith has conducted a review of Sections 3.8, 3.9 and 3.10 of the Draft Environmental Impact Report/Environmental Impact Statement (Draft EIR/EIS) for the California High-Speed Rail Project (HSR Project), Palmdale to Burbank Project Section, prepared by the California High-Speed Rail Authority (Authority). This review focuses primarily on elements of the HSR Project within the Burbank Operable Unit (BOU) and vicinity of the Burbank Airport Station. Lockheed Martin's August 2020 comment letter to the Authority, with an attached CDM Smith comment letter, addressed potential impacts to the BOU Superfund Site remedy, Burbank's groundwater extraction wells, and soil and soil vapor conditions associated with the Burbank to Los Angeles Section of the HSR Project.

Background

Between approximately 1925 and 1990 Lockheed Martin and other companies conducted aircraft and component manufacturing and testing in the City of Burbank. All former Lockheed Martin facilities have been closed and redeveloped by others. Figure 1 identifies former Lockheed Martin and other manufacturing facilities with potential contamination activities (PCAs) in and near the BOU. One former site, Plant B-6, was located at the location of the proposed HSR Burbank Airport Station, and another, former Plant A-1 North, was located just south of the Burbank Airport Station. Both sites will be traversed by underground HSR alignments. Additional former Lockheed Martin and non-Lockheed Martin industrial properties with PCAs are located within one-mile of the centerline of the Palmdale to Burbank section. The soil and groundwater conditions associated with the two closest facilities are described below.

Former Plant B-6, Soil: B-6 was approximately 132 acres in size and was located along the northeastern section of the Burbank Airport. The property was sold by Lockheed Martin to the Burbank-Glendale-Pasadena Airport Authority in 1997, and most of the site was subsequently redeveloped for private commercial, industrial, retail and office use.

Prior to its sale remediations were conducted and roughly 6,000 tons of metals-, petroleum hydrocarbon- and volatile organic compound (VOC)-impacted soil were removed. The work was conducted in accordance with the Regional Water Quality Control Board Los Angeles Region (Water Board), Cleanup and Abatement Order No. 87-161. The Water Board subsequently issued 12 No Further Requirements (NFR) letters for plant B-6 cleanup actions, and the soil remediations were completed by 1996.

WATER + ENVIRONMENT + TRANSPORTATION + ENERGY + FACILITIES

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In 2013 the Water Board issued Order No. R4-2013-0063 requiring the reevaluation of subsurface conditions at the former plants, including B-6 and A-1 North, primarily for the presence of potential residual hexavalent chromium in soil at specific areas of concern they identified. Based on the results the investigations, the Water Board concurred in 2015 that additional soil remediation was not necessary for former plants B-6 and A-1 North.

To safeguard against potential vapor intrusion (VI) from residual VOCs at the B-6 site, all recent buildings constructed as part of the commercial/retail development (i.e., the Avion Burbank and Amazon structures) were constructed with sub slab vapor barrier systems consisting of geotextile, geomembrane, and sprayed vapor barrier layers, as well as available passive vapor collection/vent systems. The barriers are maintained and any alterations resulting from tenant improvements are repaired and leak tested.

Former Plant A-1 North Soil: This facility was approximately 32 acres in size and was located southeast of the Burbank Airport property. Aircraft manufacturing operations were performed at the site between 1941 to 1991. Lockheed Martin sold the property in 2000 for development and use by Burbank Airport and private developers.

Environmental cleanup activities conducted by Lockheed Martin under Order No. 87-161 removed 13,000 tons of soil between 1989 and 1996, and the Water Board issued NFR letters to Lockheed Martin for chemical compounds and metals in soil in 2001. VOC cleanup was then performed between 1999 and 2009 using a soil vapor extraction system (SVE). Following the completion of the VOC remediation, the Water Board issued a NFR determination and the SVE system was dismantled. The Water Board also requested that the new property owners sign land use covenants to assure the State and owners that the properties would be used in a manner consistent with their zoning and former manufacturing history.

Burbank Groundwater: After the discovery of impacts to groundwater in the area, the US Environmental Protection Agency (USEPA) designated the regional groundwater plume as the BOU, within Area 1 of the San Fernando Valley Superfund Site. Under the USEPA 1989 Record of Decision, remediation is conducted by extracting groundwater to remove contaminant mass, restrict the migration of the impacted groundwater, and restore drinking water resources. The BOU groundwater extraction wells VO1 through VO8 are identified on Figure 1. Seven of the wells are adjacent to or within the planned HSR Burbank to Los Angeles Project Section and must be protected, as per the comments provided by Lockheed Martin to the Authority in August 2020.

In addition to the extraction wells and their infrastructure, approximately 70 groundwater monitoring wells are located within the one-mile buffer zone on either side and terminus of the Palmdale to Burbank section in BOU (Figure 1). These wells are part of the BOU monitoring

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program required by USEPA to document the effectiveness of the groundwater remedy, monitor changes to the plumes, and provide early warning of new contaminants.

In April 2022 the depth to groundwater in the vicinity of the planned HSR Burbank Airport Station was roughly 240 to 250 feet below ground surface. According to the general Station profile provided in the Draft EIR/EIS, the invert of the station will be roughly 90 feet below ground surface, therefore groundwater dewatering should not be required, although there is potential for localized perched groundwater.

Palmdale to Burbank Station Draft EIR/EIS Comments

Comments about potential impacts and mitigation measures associated with the BOU area of the Palmdale to Burbank Section are summarized below.

- CDM Smith agrees with the hazardous materials and wastes impact avoidance and minimization features (IAMFs) identified in Section 3.10.4.
- Impact HWR#4, Section 3.8: The Refined SR14, SR14A, E1 and E1A alternatives would cross the Hansen Spreading Grounds, and new impervious surfaces could interfere with groundwater recharge within the San Fernando Groundwater Basin. Loss of spreading would be a significant impact not only from a drinking water resource perspective but also to the sustainability of the BOU groundwater remedy, which is intended to restore the quality of water in the aquifers in the eastern San Fernando Groundwater Basin. Mitigation measure HWR-MM#3 should be further developed to identify replacement land for spreading upgradient of BOU to ensure continued groundwater recharge is available for the San Fernando Groundwater Basin remedies. .
- The Draft EIR/EIS identifies between 22 and 30 (depending on the build alternative) active groundwater monitoring wells within a one-mile zone on either side of the Palmdale to Burbank corridor in the Project Summary, Section 3.8, and Figures 3.8-A-21 through 3.8-A-23. As shown on the attached Figure 1, there are about 70 active groundwater monitoring wells located within one mile of either side of the HSR centerline and southern terminus, in the BOU only. Damage to or loss of groundwater monitoring wells used to assess progress of the USEPA and Water Board remedies would be significant. Damage could result from not only tunneling and excavation but resurfacing or loss of access due to site reconfiguration. The Draft EIR/EIS should identify any monitoring wells potentially impacted and include mitigation measures for their replacement or protection.
- The Draft EIR/EIS identifies the approximate locations of medium- and high-priority Potential Environmental Concern (PECs) on figures in Appendix 3.10-A but does not

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identify the sites by name or type of PEC. The document would be more effective if the identification and type of PEC sites were tabulated in the Draft EIR/EIS.

- HMW#1, Section 3.10 – Hazards Due to Transport. Construction of the HSR may generate an estimated 3.0 – 9.2 million cubic yards of hazardous spoils, depending on the build alternative. Per Appendix 2.0-I it is conservatively assumed that 100% of the spoils from the 1) trench and cut-and-cover, 2) Burbank Airport Station Tunnel, and 3) Burbank Airport Station excavation would be contaminated and would need to be off-hauled to a suitable treatment site. The Draft EIS/EIR should also include a statement that the Authority would be the responsible generator for the transport and treatment or disposal of spoils.

- GEO-IAMF#3 and #4, Section 3.9 provides protections against explosive or natural gas via monitoring and ventilation. There should also be discussion regarding protection against potential exposure to VOCs that may be present at low levels in the soil and soil vapor adjacent to the Burbank Airport Station and tunnels. Prevention of vapor exposure risk, including mitigation of potential vapor intrusion pathways and appropriate tunnel/station vapor lining and/or ventilation requirements, should also be discussed in Section 3.10.

- Should the HSR plans include retention of the existing structures at the proposed Burbank Airport Station (i.e., Avion Burbank and/or Amazon buildings) the integrity of their VI barriers must also be preserved. Modifications or damage to the building slabs would require repair, smoke testing, and documentation of the VI barrier integrity.

Lockheed Martin has completed remediation of the soil properties described herein and does not anticipate a need for additional investigation or remediation. In cases where a NFR has been issued the Water Board has determined that the contamination has been reduced to levels that are protective of human health for the current land uses. Should land uses change however, those decisions may need to be reconsidered by the appropriate agencies and the Authority. Additional actions associated with land use changes or newly discovered conditions should be the responsibility of the Authority to mitigate.

Prepared by:
Tom W. Davis, PG, CHG
CDM Smith Inc.

Attachment:
Figure 1

PMD-BUR California HSR Comments 11-28-2022

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EXHIBIT B

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EPA/ROD/R09-89/033
1989

EPA Superfund
Record of Decision:

SAN FERNANDO VALLEY (AREA 1)
EPA ID: CAD980894893
OU 03
NORTH HOLLYWOOD, CA
06/26/1989

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This ROD has an associated ESD.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 9 - SAN FRANCISCO, CALIFORNIA

MAY, 1989

RECORD OF DECISION
DECLARATION

#SNL
SITE NAME AND LOCATION

SAN FERNANDO VALLEY BASIN AREA 1
BURBANK OPERABLE UNIT
LOS ANGELES COUNTY, CALIFORNIA

#DR
STATEMENT OF BASIS AND PURPOSE

THIS DECISION DOCUMENT PRESENTS THE SELECTED REMEDIAL ACTION FOR THE SAN FERNANDO VALLEY BASIN AREA 1, BURBANK OPERABLE UNIT, IN LOS ANGELES COUNTY, CALIFORNIA, DEVELOPED IN ACCORDANCE WITH THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (42 USC SECTION 9601 ET. SEQ.) AND THE NATIONAL CONTINGENCY PLAN (40 CFR SECTION 300 ET. SEQ.). THIS DECISION IS BASED ON THE ADMINISTRATIVE RECORD FOR THESE SITES.

THE STATE OF CALIFORNIA CONCURS ON THE SELECTED REMEDY.

#DE
DECLARATION

THE SELECTED REMEDY IS PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT, ATTAINS FEDERAL AND STATE REQUIREMENTS THAT ARE APPLICABLE OR RELEVANT AND APPROPRIATE FOR THIS REMEDIAL ACTION, AND IS COST-EFFECTIVE. THIS REMEDY SATISFIES THE STATUTORY PREFERENCE FOR REMEDIES WHICH EMPLOY TREATMENT THAT REDUCES TOXICITY, MOBILITY, OR VOLUME AS A PERMANENT SOLUTION AND ALTERNATIVE TREATMENT (OR RESOURCE RECOVERY) TECHNOLOGIES TO THE MAXIMUM EXTENT PRACTICABLE. AS PART OF THE REMEDY, GROUNDWATER MONITORING WILL BE CONDUCTED TO TRACK CONTAMINANT LEVELS IN THE BURBANK WELL FIELD AND TO MONITOR THE PERFORMANCE OF THE EXTRACTION AND TREATMENT SYSTEM TO ENSURE ADEQUATE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT. PERIODIC REVIEWS WILL BE CONDUCTED TO ANALYZE THE EFFECTIVENESS OF THE SYSTEM.

DATE	DANIEL W. MCGOVERN
06/30/89	REGIONAL ADMINISTRATOR

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RECORD OF DECISION
DECISION SUMMARY

#SLD
1.0 SITE LOCATION AND DESCRIPTION

THE AREA AROUND THE BURBANK WELL FIELD, LOCATED IN THE SAN FERNANDO AREA 1 (NORTH HOLLYWOOD) NPL SITE WITHIN THE SAN FERNANDO VALLEY BASIN (SFVB), HAS BEEN DESIGNATED AN OPERABLE UNIT (OU). FIGURE 1 SHOWS THE LOCATION OF THE NORTH HOLLYWOOD NPL SITE WITHIN THE SFVB. FIGURE 2 SHOWS THE BOUNDARY OF THE STUDY AREA FOR THE OU WITHIN THE NORTH HOLLYWOOD NPL SITE AND THE APPROXIMATE LOCATION OF THE PROPOSED EXTRACTION WELLS. THE ENTIRE BURBANK WELL FIELD LIES WITHIN THE POLITICAL BOUNDARIES OF THE CITY OF BURBANK, CALIFORNIA.

THE SFVB IS LOCATED IN THE UPPER LOS ANGELES RIVER AREA (ULARA), WHICH CONSISTS OF THE ENTIRE WATERSHED OF THE LOS ANGELES RIVER AND ITS TRIBUTARIES. THE ULARA ENCOMPASSES APPROXIMATELY 328,500 ACRES, OF WHICH 122,800 ACRES ARE ALLUVIAL DEPOSITS WHICH FILL THE SFVB. THE SFVB IS BOUNDED ON THE NORTH AND NORTHWEST BY THE SANTA SUSANA MOUNTAINS, ON THE NORTHEAST BY THE SAN GABRIEL MOUNTAINS, ON THE WEST BY THE SIMI HILLS, AND ON THE SOUTH BY THE SANTA MONICA MOUNTAINS. THESE MOUNTAIN RANGES ARE SHOWN IN FIGURE 1.

FOUR DISTINCT GROUNDWATER BASINS ARE LOCATED WITHIN THE ULARA: THE SAN FERNANDO (WITH 91.2 PERCENT OF THE TOTAL VALLEY FILL, THE VERDUGO (WITH 3.6 PERCENT OF THE TOTAL VALLEY FILL), THE SYLMAR (WITH 4.6 PERCENT OF THE TOTAL VALLEY FILL), AND THE EAGLE ROCK (WITH 0.6 PERCENT OF THE TOTAL VALLEY FILL). BECAUSE THE SFVB AREA 1 NPL SITE IS LOCATED WITHIN THE SAN FERNANDO GROUNDWATER BASIN, THE FOLLOWING DISCUSSION FOCUSES ON THE SAN FERNANDO GROUNDWATER BASIN.

THE GEOLOGY OF THE SFVB GENERALLY CONSISTS OF ALLUVIAL DEPOSITS COMPOSED OF UNCONSOLIDATED GRAVELS AND SAND INTERBEDDED WITH LENSES OF SILT AND CLAY. THE OVERLYING ALLUVIAL DEPOSITS RANGE IN THICKNESS FROM A FEW INCHES AT THE BASE OF THE MOUNTAINS TO AS MUCH AS 1,500 FEET IN THE CENTER OF THE SFVB. THE BURBANK WELL FIELD IS LOCATED IN THE EASTERN PORTION OF THE SAN FERNANDO VALLEY BASIN (SFVB), WHICH CONTAINS COARSER SEDIMENTS THAT TRANSMIT WATER AT HIGHER RATES THAN THE WESTERN AREA OF THE SFVB. MOST OF THE PRODUCTION WELLS IN THE SFVB ARE LOCATED IN THIS EASTERN AREA. RESULTS OF AQUIFER TESTING IN THE SFVB HAVE SHOWN THAT GROUNDWATER VELOCITIES IN THE EASTERN PORTION OF THE BASIN ARE MUCH GREATER THAN IN THE WESTERN PORTION. WITHIN THE EASTERN PORTION OF THE SFVB, THE VELOCITIES ARE ESTIMATED TO BE BETWEEN 300 TO 500 FEET PER YEAR WITH LOCALIZED VELOCITIES OF MORE THAN THREE FEET PER DAY NEAR WELL FIELDS.

HISTORICALLY, GROUNDWATER RECHARGE TO THE SFVB HAS OCCURRED THROUGH BOTH NATURAL RECHARGE FROM PRECIPITATION AND ARTIFICIAL RECHARGE FROM APPLIED WATER AND TREATED WASTEWATER EFFLUENT. THE TOTAL STORAGE CAPACITY OF THE SFVB IS APPROXIMATELY 3 MILLION ACRE-FEET (ACRE-FT), TWO-THIRDS OF WHICH IS LOCATED IN THE EASTERN PORTION OF THE BASIN. IN 1979, THE STATE SUPREME COURT GRANTED THE CITY OF BURBANK THE RIGHT TO EXTRACT 20 PERCENT OF THE IMPORTED AND RECLAIMED WATER FOR DOMESTIC USE. CURRENTLY, THIS 20 PERCENT AMOUNTS TO AN AVERAGE OF 4,700 ACRE-FT PER YEAR. THE CITY OF BURBANK ALSO HAS LIMITED RIGHTS TO PHYSICAL SOLUTION WATER, THAT IS, WATER NORMALLY SUPPLIED TO OTHER PARTIES BUT WHICH MAY BE USED BY THE CITY OF BURBANK UPON PAYMENT OF SPECIFIED CHARGES. IN ADDITION, THE CITY OF BURBANK IS ENTITLED TO STORE WATER IN THE SFVB AND RECEIVES A CREDIT FOR RECHARGING TREATED WASTEWATER EFFLUENT. AS OF MARCH 1989, BURBANK'S WATER CREDITS WERE APPROXIMATELY 38,000 ACRE-FEET.

THE CITY OF BURBANK,S PRODUCTION WELLS HAVE BEEN SHUT DOWN BECAUSE THE WATER THEY PRODUCE CONTAINS TRICHLOROETHYLENE (TCE) AND PERCHLOROETHYLENE (PCE) IN CONCENTRATIONS EXCEEDING STATE AND FEDERAL GUIDELINES. CONSEQUENTLY, THE CITY OF BURBANK NOW IMPORTS 100 PERCENT OF ITS WATER FROM THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA (MWD). IN 1987, THE CITY OF BURBANK IMPORTED APPROXIMATELY 23,100 ACRE-FEET OF WATER.

#SH
2.0 SITE HISTORY

LN JUNE 1986, AT THE REQUEST OF THE LOS ANGELES DEPARTMENT OF WATER AND POWER (DWP) AND THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES (DHS), EPA DESIGNATED FOUR WELL FIELDS WITHIN THE SAN FERNANDO AND VERDUGO GROUNDWATER BASINS AS NATIONAL PRIORITIES LIST (NPL) HAZARDOUS WASTE SITES. INDUSTRIAL CHEMICALS HAVE BEEN DETECTED IN GROUNDWATER FROM THESE AREAS. ALTHOUGH EACH WELL FIELD IS LISTED SEPARATELY ON THE NPL, EPA AND DWP ARE MANAGING THE INVESTIGATION OF THE FOUR

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SITES AS IF THEY ARE ONE SINGLE, LARGE SITE.

THE SFVB REPRESENTS AN IMPORTANT SOURCE OF DRINKING WATER FOR THE CITIES OF LOS ANGELES, BURBANK, GLENDALE, AND LA CRESCENTA, AND PROVIDES THESE COMMUNITIES WITH ENOUGH WATER TO SERVE APPROXIMATELY 600,000 RESIDENTS.

GROUNDWATER FROM THE AQUIFERS IN THE SFVB IS USED FOR COMMERCIAL, INDUSTRIAL AND RESIDENTIAL PURPOSES, AND IS ESPECIALLY IMPORTANT DURING YEARS OF DROUGHT. THE GROUNDWATER THAT HAS BECOME CONTAMINATED IS DIFFICULT TO REPLACE. THE CURRENT WATER SUPPLY FROM SURFACE WATER VIA THE METROPOLITAN WATER DISTRICT (MWD) MAY NOT ALWAYS BE AVAILABLE IN THE FUTURE BECAUSE OF PERIODIC DROUGHT CONDITIONS AND STATE AND FEDERAL WATER RIGHTS ISSUES.

IN LATE 1979, AS A RESULT OF THE PASSAGE OF ASSEMBLY BILL 1803, DHS REQUESTED THAT ALL MAJOR WATER PURVEYORS USING GROUNDWATER CONDUCT TESTS FOR THE PRESENCE OF CERTAIN INDUSTRIAL CHEMICALS AS PART OF A STATEWIDE GROUNDWATER QUALITY SURVEILLANCE EFFORT. THESE INITIAL TESTS, COMPLETED IN SPRING 1980, INDICATED THAT HAZARDOUS SUBSTANCES SUCH AS TRICHLOROETHYLENE (TCE) AND PERCHLOROETHYLENE (PCE), WERE PRESENT IN CONCENTRATIONS ABOVE STATE ACTION LEVELS (SALS) AND MAXIMUM CONTAMINANT LEVELS (MCLS) IN A NUMBER OF WATER PRODUCTION WELLS IN THE SAN FERNANDO VALLEY BASIN. CONCENTRATION LEVELS IN THE WELLS HAVE BEEN INCREASING SINCE 1980

IN 1987, THE PRIMARY CONTAMINANT, TCE, WAS FOUND AT CONCENTRATIONS EXCEEDING THE STATE ACTION LEVEL (SAL) IN 48% OF THE SFVB,S 120 PRODUCTION WELLS. IN ADDITION, PCE LEVELS ABOVE STATE ACTION LEVEL WERE PRESENT IN 18% OF THE SFVB WELLS.

AT PRESENT, THE CITY OF LOS ANGELES ADDRESSES WELL CONTAMINATION BY EITHER SHUTTING DOWN HEAVILY CONTAMINATED WELLS AND PROVIDING ALTERNATE SOURCES OF DRINKING WATER, OR BLENDING CONTAMINATED WATER WITH OTHER SOURCES TO ACHIEVE TCE AND PCE CONCENTRATIONS IN THE SERVED WATER THAT ARE BELOW STATE ACTION LEVELS AND FEDERAL MCLS. OTHER COMMUNITIES, LIKE THE CITY OF BURBANK, HAVE TURNED TO THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA FOR SURFACE WATER TO AUGMENT THEIR SUPPLIES.

IN SEPTEMBER 1987, EPA SIGNED THE NORTH HOLLYWOOD OU RECORD OF DECISION TO CONSTRUCT AN EXTRACTION AND AERATION FACILITY, TO PUMP AND TREAT CONTAMINATED GROUNDWATER IN THE NORTH HOLLYWOOD AREA WITHIN THE SFVB AREA I NPL SITE. EPA PROVIDED FUNDS TO DWP THROUGH A COOPERATIVE AGREEMENT TO IMPLEMENT THIS PROJECT. ALSO, EPA HAS JOINED WITH DWP AND DHS IN A THREE PARTY AGREEMENT THAT DEFINES SPECIFIC AGENCY RESPONSIBILITIES, COST SHARING, AND OTHER APPLICABLE PROVISIONS FOR CONSTRUCTION, OPERATION, AND MAINTENANCE OF THIS TREATMENT SYSTEM. THE PLANT BECAME OPERATIONAL IN MARCH, 1989.

THE BURBANK OPERABLE UNIT (OU) WILL BE THE SECOND OU IN THE SFVB AREA 1.

3.0 ENFORCEMENT

THE SFVB NPL SITES WERE FIRST LISTED BECAUSE OF CONTAMINATED PUBLIC SUPPLY WELLS. AT THE TIME OF LISTING, THE SOURCES OF CONTAMINATION WERE UNKNOWN. EPA AND THE LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD (RWQCB) HAVE AND ARE CONTINUING TO CONDUCT NUMEROUS ACTIVITIES TO IDENTIFY SOURCES OF GROUNDWATER CONTAMINATION IN THE SAN FERNANDO VALLEY BASIN. THE TWO AGENCIES ARE WORKING COOPERATIVELY IN SOURCE IDENTIFICATION AND ENFORCEMENT ACTIVITIES.

THE RWQCB BEGAN SOURCE INVESTIGATION ACTIVITIES IN 1987 UNDER THE AB 1803 PR,GRAM. UNDER THIS PROGRAM, AN AREA (TYPICALLY ONE SQUARE MILE) SURROUNDING CONTAMINATED PUBLIC WATER SUPPLY WELLS IS ESTABLISHED WITHIN WHICH A DOOR-TO-DOOR INDUSTRIAL SURVEY IS COMPLETED. INSPECTIONS ARE CONDUCTED AT ALL FACILITIES POTENTIALLY USING SOLVENTS. FACILITIES THAT MAY HAVE HAD A RELEASE DUE TO THEIR HANDLING OR STORAGE PRACTICES ARE REQUESTED TO CONDUCT A SITE ASSESSMENT FOR THEIR FACILITY. IF SOIL CONTAMINATION IS FOUND, EXPANDED SOIL AND/OR GROUNDWATER INVESTIGATIONS ARE REQUIRED. LATER, A CLEANUP AND ABATEMENT ORDER MAY BE ISSUED REQUIRING THE SITE TO BE REMEDIATED.

IN ADDITION, THE RWQCB CONDUCTS SOURCE IDENTIFICATION AND CLEANUP ACTIVITIES UNDER THE UNDERGROUND STORAGE TANK, SOLID WASTE ASSESSMENT TESTING (SWAT), AND WASTE DISCHARGE REQUIREMENTS PROGRAMS.

BETWEEN AUGUST 1987 AND 1988, EPA ISSUED 145 RCRA SECTION 3007/ CERCLA SECTION 104 INFORMATION

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REQUEST LETTERS TO FACILITIES SUSPECTED OF BEING USERS OF CHLORINATED SOLVENTS IN THE SAN FERNANDO VALLEY BASIN. BASED ON THE RESPONSES RECEIVED AND INFORMATION IN STATE AGENCY FILES, EPA ISSUED 34 GENERAL NOTICE LETTERS INFORMING COMPANIES OF THEIR POTENTIAL LIABILITY FOR THE CLEANUP OF THE SFVB AREA 1 AND 2 NPL SITES. ON SEPTEMBER 13, 1988 EPA HELD AN INFORMATION MEETING FOR FACILITIES IDENTIFIED AS PRP'S FOR THE BURBANK WELL FIELD. TO BEGIN NEGOTIATIONS FOR CLEANUP OF THE BURBANK OU AREA, EPA SENT SPECIAL NOTICE LETTERS PURSUANT TO CERCLA SECTION 122 IN MAY 1989. NEGOTIATIONS WITH PRP'S ARE EXPECTED TO END IN SEPTEMBER 1989. EPA AND THE RWQCB WILL CONTINUE BASINWIDE SOURCE IDENTIFICATION AND ENFORCEMENT ACTIVITIES THROUGHOUT THE BASINWIDE RI/FS PROCESS.

#CR
4.0 COMMUNITY RELATIONS

THE COMMENT PERIOD FOR THE OUFS REPORT AND THE PROPOSED PLAN OPENED ON OCTOBER 19, 1988 AND CLOSED DECEMBER 2, 1988. A PUBLIC MEETING WAS HELD ON NOVEMBER 9, 1988 AT THE THOMAS JEFFERSON ELEMENTARY SCHOOL IN BURBANK AND WAS ATTENDED BY APPROXIMATELY 65 PEOPLE.

PRIOR TO THE BEGINNING OF THE PUBLIC COMMENT PERIOD, EPA AND THE CITY OF BURBANK PUBLISHED A NOTICE BOTH IN THE LOS ANGELES TIMES AND THE BURBANK LEADER. THE NOTICE BRIEFLY DESCRIBED THE PROPOSED PLAN AND ANNOUNCED THE PUBLIC COMMENT PERIOD AND THE PUBLIC MEETING. THE NOTICE ALSO ANNOUNCED THE AVAILABILITY OF FORMATION REPOSITORIES ESTABLISHED AT THE BURBANK PUBLIC LIBRARY, CALIFORNIA STATE UNIVERSITY - NORTHRIDGE LIBRARY, LOS ANGELES DEPARTMENT OF WATER AND POWER LIBRARY AND THE UNIVERSITY OF CALIFORNIA - LOS ANGELES (UCLA) RESEARCH LIBRARY. (SEE FACT SHEET #1 OR #2 FOR THE LOCATIONS.)

A FACT SHEET DESCRIBING THE PROPOSED PLAN WAS DELIVERED TO THE INFORMATION REPOSITORIES. COPIES OF THE FACT SHEET WERE ALSO MAILED TO THE EPA GENERAL MAILING LIST FOR THE SAN FERNANDO VALLEY BASIN SITES, WHICH INCLUDED ABOUT 800 MEMBERS OF THE GENERAL PUBLIC, ELECTED OFFICIALS, AGENCY, AND MEDIA REPRESENTATIVES. FACT SHEETS WERE ALSO HAND-DELIVERED TO RESIDENTS NEAR THE PROPOSED TREATMENT FACILITY LOCATION. IN ADDITION, THE BURBANK WATER SYSTEM MANAGER MADE AN ANNOUNCEMENT OF THE PUBLIC MEETING AND PRESENTED THE PROPOSED PLAN ON LOCAL CABLE TELEVISION. HE ALSO HAD FACT SHEETS AVAILABLE FOR DISTRIBUTION AT THE BURBANK PUBLIC SERVICE DEPARTMENT (PSD) ADDITIONALLY, NEWS STORIES APPEARED IN THE LOCAL NEWSPAPER, THE BURBANK LEADER, AND THE LOS ANGELES TIMES AND THE DAILY NEWS.

FROM MARCH 1987 TO THE PRESENT, EPA AND DWP HAVE MET BIMONTHLY OR QUARTERLY WITH MEMBERS OF THE COMMUNITY WORKGROUP (CWG). THE MEMBERS INCLUDE ELECTED OFFICIALS, INDUSTRY REPRESENTATIVES, COMMUNITY-BASED PUBLIC INTEREST REPRESENTATIVES, AND RESIDENTS FROM THE SAN FERNANDO VALLEY/LOS ANGELES AREA. THE PURPOSE OF THE CWG MEETINGS HAVE BEEN TO DISCUSS TECHNICAL ISSUES AND MANAGEMENT STRATEGIES INVOLVING THE SAN FERNANDO VALLEY BASIN SUPERFUND PROJECT. CWG MEMBERS HAVE BEEN UPDATED ON AGENCY ACTIVITIES AND HAVE HAD THE OPPORTUNITY TO EXPRESS THEIR CONCERNS ABOUT THE BURBANK OPERABLE UNIT THROUGHOUT THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) PROCESS. EPA TRANSMITTED COPIES OF THE OUFS REPORT TO CWG MEMBERS FOR THEIR REVIEW AND COMMENT.

THE MINUTES OF THE COMMUNITY MEETING WERE TRANSCRIBED. THE TRANSCRIPT AND THE ATTACHED RESPONSE SUMMARY PROVIDE RESPONSES TO THE COMMUNITY COMMENTS SUBMITTED IN WRITING DURING THE PUBLIC COMMENT PERIOD, AS WELL AS ORAL COMMENTS MADE AT THE NOVEMBER 9, 1988 PUBLIC MEETING. THE PUBLIC TRANSCRIPT AND RESPONSE SUMMARY ARE PART OF THE ADMINISTRATIVE RECORD.

5.0 SCOPE AND ROLE OF THE OU WITHIN THE BASINWIDE SITE STRATEGY

AS DISCUSSED IN THE SITE HISTORY SECTION, EPA IS TREATING THE SFVB AREA 1 - 4 NPL SITES AS ONE LARGE SITE. EPA AND DWP ARE CONDUCTING ONE BASINWIDE RI/FS FOR THE 4 NPL SITES. THE RI/FS FOR THE SAN FERNANDO SITES WAS INITIATED IN 1987. THE MAJOR GOAL OF THE RI IS TO IDENTIFY THE SOURCES, PATHWAYS AND RECEPTORS OF THE CONTAMINANTS AND TO CHARACTERIZE THE NATURE AND EXTENT OF THE PUBLIC HEALTH AND ENVIRONMENTAL PROBLEMS PRESENTED BY THE CONTAMINATION. MAJOR COMPONENTS OF THE RI INCLUDE SOIL GAS SURVEYS, INSTALLATION OF MONITORING WELLS, REGIONAL AND SITE SPECIFIC GROUNDWATER FLOW AND SOLUTE TRANSPORT MODELING OF THE BASIN AND SAMPLING OF THE GROUNDWATER AND SOIL. THE FS WILL EVALUATE THE NECESSITY FOR AND PROPOSED EXTENT OF REMEDIAL ACTIONS. DWP HAS THE LEAD FOR THE RI AND EPA HAS THE LEAD FOR THE FS.

EPA PREVIOUSLY SELECTED A REMEDY TO ADDRESS THE PUBLIC HEALTH THREAT POSED BY CONTAMINATION OF THE PUBLIC WATER SUPPLY WELLS LOCATED IN THE CITY OF NORTH HOLLYWOOD WHICH LIES WITHIN THE SFVB

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AREA 1 NPL SITE. THE NORTH HOLLYWOOD OU PROJECT WAS DESIGNED TO CONTROL THE MIGRATION OF CONTAMINANTS IN THE GROUNDWATER, WHILE INITIATING AQUIFER RESTORATION IN THE AREA. THE CONTAMINANT PLUME HAS ALREADY AFFECTED NUMEROUS GROUNDWATER PRODUCTION WELLS IN AREA 1 OF THE SFVB AND HAS PRECLUDED THEIR USE FOR PUBLIC WATER SUPPLY. CONSTRUCTION AND OPERATION OF THE BURBANK PROJECT IS INTENDED TO FURTHER ADDRESS THE IMMEDIATE PROBLEM IN AREA 1 WHILE A MORE COMPLETE INVESTIGATION OF THE VALLEY'S OVERALL GROUNDWATER PROBLEM IS BEING DONE THROUGH THE OVERALL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) PROCESS.

THE BURBANK RESPONSE ACTION IS DESIGNED TO ACHIEVE TWO OBJECTIVES;

- TO PARTIALLY CONTROL THE MOVEMENT AND SPREAD OF GROUNDWATER CONTAMINANTS IN THE BURBANK OPERABLE UNIT AREA, WHILE CONTRIBUTING TO AQUIFER RESTORATION IN THE SAN FERNANDO VALLEY BASIN AREA 1 NPL SITE.

- TO ADDRESS THE PUBLIC HEALTH THREAT POSED BY CONTAMINATION OF THE CITY OF BURBANK'S PUBLIC WATER SUPPLY WELLS BY PROVIDING RESIDENTS IN THE AREA WITH A WATER SUPPLY THAT MEETS STATE AND FEDERAL DRINKING WATER STANDARDS.

ALL OF THE CITY OF BURBANK'S PSD WELLS ARE SHUT DOWN DUE TO THE VOC CONTAMINATION. MOREOVER, OTHER DOWNGRADIENT PUBLIC WATER SUPPLY WELLS ARE POTENTIALLY THREATENED BY CONTAMINATION IN THE BURBANK OU AREA. THE RESPONSE ACTION SELECTED IN THIS DECISION DOCUMENT WILL BE INCORPORATED INTO THE EPA RESPONSE ACTION FOR THE ENTIRE SAN FERNANDO SUPERFUND AREAS 1-4.

AS THE OPERABLE UNITS ARE ADDRESSING PART OF THE OVERALL PROBLEM, THE RI/FS AND SUBSEQUENT ROD ARE INTENDED TO ADDRESS THE 4 SFVB NPL SITES AND THE AREAS WHICH IMPACT THESE SITES.

#SBSC

6.0 SUMMARY OF THE BURBANK OU SITE CHARACTERISTICS

CONTAMINATION OF GROUNDWATER FROM THE SAN FERNANDO VALLEY BASIN WELLS WAS FIRST DISCOVERED IN 1980. SINCE THEN, VARIOUS MONITORING PROGRAMS HAVE BEEN IMPLEMENTED. RESULTS OF LADWP'S GROUNDWATER MONITORING PROGRAM CONDUCTED FROM 1981 THROUGH 1987 REVEALED THAT TCE AND PCE HAD CONTAMINATED APPROXIMATELY 50 PERCENT OF THE WATER SUPPLY WELLS IN THE EASTERN PORTION OF THE SFVGB AT CONCENTRATIONS EXCEEDING STATE AND FEDERAL DRINKING WATER STANDARDS. FIGURE 3 PRESENTS THE APPROXIMATE LOCATION OF THE TCE AND PCE PLUMES IN 1987.

THE CITY OF BURBANK'S WELLS ARE SAMPLED ROUTINELY AS PART OF THE MONITORING OF 112 WELLS IN THE SAN FERNANDO VALLEY BASIN. THE CONCENTRATION RANGES OF TCE AND PCE FOUND IN THE BURBANK WELLS ARE PRESENTED IN TABLES 1 AND 2. SEVERAL OTHER VOCS HAVE ALSO BEEN DETECTED IN THE BURBANK WELLS, INCLUDING ACETONE, TOLUENE, METHYLETHYLKETONE, CARBON TETRACHLORIDE AND TRIHALOMETHANES (THMS) WHICH INCLUDE CHLOROFORM, BROMODICHLOROMETHANE, DIBROMOCHLOROMETHANE, AND BROMOFORM. THE CONCENTRATIONS OF THESE OTHER VOCS HAVE NOT EXCEEDED STATE ACTION LEVELS (SALS) OR FEDERAL MCLS. THE BURBANK WELLS HAVE ALSO BEEN SAMPLED FOR TRACE METALS AND OTHER WATER QUALITY PARAMETERS. ALTHOUGH GROUNDWATER FROM ONE WELL HAD ELEVATED CONCENTRATIONS OF IRON, THE QUALITY OF THE TREATED WATER FROM THESE WELLS IS EXPECTED TO MEET TITLE 22 DRINKING WATER STANDARDS FOR METALS.

THE TABLES CAN BE SUMMARIZED AS FOLLOWS;

- TCE AND PCE ARE THE PRINCIPAL CONTAMINANTS OF CONCERN. TCE AND PCE ARE INDUSTRIAL SOLVENTS COMMONLY USED IN THE METAL DEGREASING AND DRY-CLEANING INDUSTRIES. BOTH ARE ANIMAL CARCINOGENS AND ARE SUSPECTED OF BEING CARCINOGENIC TO HUMANS. THE FEDERAL MCL FOR TCE IS 5.0 UG/L. THE SAL FOR PCE IS 4.0 UG/L AND THE PROPOSED STATE MCL IS 5 UG/L.

- OTHER VOCS DETECTED IN TRACE QUANTITIES INCLUDE METHYLENE CHLORIDE, TOLUENE, ACETONE, CARBON TETRACHLORIDE, METHYLETHYLKETONE, AND THE THMS (CHLOROFORM, BROMODICHLORO-METHANE AND DIBROMOCHLOROMETHANE). METHYLENE CHLORIDE IS AN INDUSTRIAL SOLVENT COMMONLY USED IN LABORATORIES. IT IS CARCINOGENIC IN ANIMALS AND IS ALSO A SUSPECTED HUMAN CARCINOGEN. THE SAL FOR METHYLENE CHLORIDE IS 40 UG/L. TOLUENE IS AN INDUSTRIAL SOLVENT AND A GASOLINE ADDITIVE. IT IS CARCINOGENIC IN ANIMALS AND IS ALSO A SUSPECTED HUMAN CARCINOGEN. THE SAL FOR TOLUENE IS 100 UG/L. ACETONE IS USED AS AN INDUSTRIAL SOLVENT AND IN THE PRODUCTION OF LUBRICATING OILS. A SAL FOR ACETONE HAS NOT BEEN ESTABLISHED. CARBON TETRACHLORIDE IS AN INDUSTRIAL SOLVENT. IT IS CARCINOGENIC IN ANIMALS AND IS A SUSPECTED HUMAN CARCINOGEN. THE FEDERAL MCL FOR CARBON TETRACHLORIDE IS 5.0 UG/L AND THE FEDERAL MCLG IS SET AT 0 UG/1. METHYETHYLKETONE IS USED AS A SOLVENT IN NITROCELLULOSE COATINGS AND VINYL FILM MANUFACTURING AND IN CEMENTS AND ADHESIVES. A SAL HAS NOT BEEN ESTABLISHED FOR METHYLETHYLKETONE. MOST THMS FOUND IN FINISHED DRINKING WATER ARE UNWANTED BY-PRODUCTS CAUSED BY THE CHLORINATION PROCESS. THMS ARE FORMED BY THE CHEMICAL ATTACK OF HYPOCHLORITE ON FULVIC AND HUMIC ACIDS. CHLOROFORM ALSO HAS A VARIETY OF INDUSTRIAL USES, INCLUDING USE AS A SOLVENT IN LACQUER MANUFACTURE. CHLOROFORM IS A SUSPECTED HUMAN CARCINOGEN. THE MCL FOR THE SUM OF THMS IS 100 UG/L.

- THE WELLS WITH THE SHALLOWEST PERFORATED INTERVALS (PSD 10 AND PSD 12) AND THE ONES THAT ARE THE FURTHEST UPGRADIENT (PSD 9, PSD 10, PSD LLA, PSD 13, PSD 14A, PSD 17) HAVE HISTORICALLY HAD THE HIGHEST CONCENTRATIONS OF TCE AND PCE. IN CONTRAST, PSD 6, PSD 7 AND PSD 15 HAVE LOW OR NONDETECTED CONCENTRATIONS OF VOCS. PSD 6 IS LIKELY AT THE EDGE OF THE LATERAL EXTENT OF THE VOC PLUME, AND PSD 7 AND PSD 15 ARE LIKELY AT THE LEADING EDGE OF THE PLUME. FOR RELATIVE LOCATION OF WELLS SEE FIGURE 2.

#SSR

7.0 SUMMARY OF SITE RISKS

THE PURPOSE OF THE RISK ASSESSMENT IS TO EVALUATE THE PUBLIC HEALTH AND ENVIRONMENTAL RISKS POSED BY THE BURBANK OU SITE. FOR THE RISK ASSESSMENT EVALUATION, BOTH A BASELINE RISK ASSESSMENT AND A RISK ASSESSMENT FOR ALTERNATIVE 5, PHASE 1 WERE CONDUCTED. THIS SECTION DESCRIBES THE RISK ASSESSMENT PROCESS AND RESULTS.

BASELINE RISK ASSESSMENT: ANALYTICAL RESULTS FROM GROUNDWATER SAMPLES COLLECTED FROM CITY OF BURBANK PRODUCTION WELLS (PSD 6, 7, 10, 12, 15, AND 18) BETWEEN MAY 1987 AND JUNE 1988 FORM THE GROUNDWATER DATABASE THAT WERE USED IN THE BASELINE RISK ASSESSMENT. IN THE BASELINE RISK ASSESSMENTS THE CURRENT RISKS POSED BY DOMESTIC USE OF GROUNDWATER FROM THE BURBANK WELL FIELD WERE ESTIMATED. THE WELL FIELD IS CURRENTLY NOT IN USE AS A WATER SUPPLY. AS A RESULT, NO RECEPTORS ARE CURRENTLY BEING EXPOSED.

A QUANTITATIVE RISK ASSESSMENT WAS DEVELOPED FOR TWO EXPOSURE SOURCE TERMS. ONE SOURCE TERM, "THE POTENTIAL AVERAGE EXPOSURE," OR THE "MOST LIKELY CASE" ASSUMES THAT GROUNDWATER CONCENTRATIONS IN THE BURBANK WELL FIELD ARE AT THE GEOMETRIC MEAN LEVELS (AVERAGED BY WELL) AND AVERAGED ACROSS WELLS (ARITHMETIC MEAN OF GEOMETRIC MEANS). THE OTHER SOURCE TERM IS A "PLAUSIBLE WORSE-CASE" AND ASSUMES THAT THE RECEPTOR IS EXPOSED TO THE MAXIMUM CONTAMINANT LEVEL DETECTED IN ANY ONE WELL.

ASSUMING THAT GROUNDWATER FROM THE WELL FIELD IS USED FOR A LIFETIME, AN INDIVIDUAL RECEPTOR WOULD BE EXPOSED TO AN EXCESS CANCER RISK RANGE (I.E. ABOVE THE NATURAL BACKGROUND RISK) OF APPROXIMATELY 2.0 X 10(-4) TO 1.7 X 10(-3). THESE RISK VALUES ARE AT THE HIGHEST RANGE ALLOWED BY MOST REGULATORY AGENCIES. FOR COMPARISON, A LOWER EXCESS RISK RANGE OF 1.0 X 10(-4) TO 1.0 X 10(-7) WITH 10-6 DEPARTURE, IS USED IN CERCLA AS A SITE REMEDIATION TARGET.

THE BASELINE RISK ASSESSMENT CONCLUDED THAT, UNDER THE CONDITIONS POSTULATED IN THE EXPOSURE ASSESSMENT, THE USE OF UNTREATED GROUNDWATER FROM THE BURBANK WELL FIELD AS A DOMESTIC WATER SUPPLY FOR A LIFETIME WOULD PRESENT AN UNACCEPTABLY HIGH CANCER RISK. THIS CONCLUSION ASSUMES THAT THE EXISTING CHEMICAL ANALYTICAL DATABASE SUFFICIENTLY CHARACTERIZED THE GROUNDWATER CONTAMINATION PRESENT.

IT SHOULD BE NOTED THAT THE HIGHEST CONCENTRATION LEVELS FOUND IN THE AREA WERE NOT USED FOR THE BASELINS RISK ASSESSMENT. IN 1987, MONITORING WELLS LOCATED NEAR THE BURBANK WELL FIELD SHOWED CONCENTRATIONS AS HIGH AS 18,000 UG/L FOR PCE AND 3600 UG/L FOR TCE. MOREOVER, IN FEBRUARY 1989, LOCKHEED AERONAUTICAL SYSTEMS COMPANY (LASC) WAS EXTRACTING GROUNDWATER WITH CONCENTRATIONS AS HIGH AS 10,000 PPB FOR PCE AND 2000 PPB FOR TCE AT THEIR TREATMENT FACILITY LOCATED WITHIN THE BURBANK OU AREA. IF THESE CONCENTRATIONS OBSERVED AT LASC HAD BEEN USED, THE BASELINE RISK ASSESSMENT WOULD HAVE SHOWN EVEN HIGHER RISK.

ALTERNATIVE 5, PHASE 1 RISK ASSESSMENT: A RISK ASSESSMENT WAS PERFORMED FOR ALTERNATIVE 5, PHASE 1 (EXTRACTING AND TREATING 12,000 GPM WITH DUAL STAGE AIR STRIPPING AND VAPOR PHASE GAC). BOTH LASC MONITORING WELL DATA AND BURBANK PRODUCTION WELL DATA WERE USED. (SEE THE BURBANK OUFS REPORT FOR TABLES AND MORE INFORMATION.) THE CONTAMINANT MASS WAS CALCULATED FROM ESTIMATES OF

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THE CONCENTRATIONS IN THE GROUNDWATER (UG/M-) WHICH WOULD LIKELY BE EXTRACTED AND TREATED BY THE SYSTEM. THE EXPECTED CHEMICAL MASS DISCHARGED TO THE ATMOSPHERE (G/SEC) WAS CALCULATED WITH RESPECT TO THE THREE DIFFERENT AIR POLLUTION CONTROL OPTIONS. THE EXPECTED CHEMICAL MASS DISCHARGE WAS INPUT TO AN ATMOSPHERIC DISPERSION MODEL WHICH CALCULATED CONCENTRATIONS OF THE CHEMICALS IN THE AIR (UG/M3). THE CONCENTRATION IN THE AIR WAS MODELED TO BE SPATIALLY DISTRIBUTED IN A TWO-MILE RADIUS SURROUNDING THE PROPOSED AIR STRIPPER LOCATION (SEE FIGURE 2). THE POPULATION ESTIMATED TO RESIDE WITHIN TWO MILES OF THE SITE IN 1990 IS 94,195. THE 2010 POPULATION IS EXPECTED TO BE SLIGHTLY LOWER AT 93,765.

IN THE HEALTH RISK ASSESSMENT, THREE AIR STRIPPING AIR EMISSION CONTROL OPTIONS FOR PHASE I OF ALTERNATIVE 5 WERE EXAMINED;

- NO AIR POLLUTION CONTROL;
- AIR EMISSION CONTROLS LEADING TO 90 % REMOVAL OF VOCS; AND
- AIR EMISSIONS CONTROL LEADING TO 99 % REMOVAL OF VOCS.

TWO TYPES OF CARCINOGENIC RISK CALCULATIONS WERE PERFORMED. THE FIRST TYPE IS INDEPENDENT OF POPULATION AND IS TERMED THE MAXIMALLY EXPOSED INDIVIDUAL (MEI). THE MEI IS THE SITE OF HIGHEST ESTIMATED POTENTIAL EXPOSURE CALCULATED. THE MEI IS INDEPENDENT OF WHETHER THE SITE IS INHABITED THE TOTAL CANCER RISK TO THE MEI IS EXAMINED BY THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) TO ASCERTAIN IF A PROPOSED PROJECT IS EXPECTED TO EXCEED A TOTAL RISK OF 1 X 10-6. THE AIR MODELING RESULTS CONCLUDE THAT THE MEI OCCURS AT A DISTANCE 0.1 TO 0.2 MILES FROM THE SITE. THE TOTAL EXCESS ESTIMATED CANCER RISK (TO THE MEI) FOR THE THREE DIFFERENT AIR EMISSION CONTROL OPTIONS ARE AS FOLLOWS;

- NO AIR POLLUTION CONTROL: 5.98 X 10-6
- 90 % REMOVAL OF VOCS: 4.07 X 10-7
- 99 % REMOVAL OF VOCS: 4.07 X 10-8

THE SECOND TYPE OF RISK CALCULATION PRESENTED WAS FOR A POPULATION. FOR THE POPULATION RISK, THE INDIVIDUAL RISK LEVEL IS MULTIPLIED BY THE SIZE OF THE POTENTIALLY EXPOSED POPULATION. THE AIR CONCENTRATIONS GENERATED BY THE AIR MODEL, EXPRESSED AS THE ASSOCIATED RISK, ARE SUPERIMPOSED ON THE 1990 AND YEAR 2010 POPULATION DATA FOR A TWO-MILE RADIUS. THE PREDICTED TOTAL EXCESS POPULATION CANCER BURDEN IN A TWO-MILE ZONE UNDER CONDITIONS OF THE VARIOUS AIR EMISSION CONTROL OPTIONS ESTIMATED FOR THE 1990 POPULATION DATA ARE AS FOLLOWS;

- NO AIR POLLUTION CONTROL: 0.04 CANCERS/POPULATION;
- 90% REMOVAL OF VOCS: 0.003 CANCERS/POPULATION; AND
- 99% REMOVAL OF VOCS: 0.0003 CANCERS/POPULATION.

THUS, LESS THAN ONE EXCESS CANCER WOULD BE EXPECTED TO OCCUR IN THE POPULATION DUE TO THE EMISSIONS FROM THE PROJECT.

NON-CARCINOGENIC RISKS OR THE "HAZARD INDEX" (HI) WERE CALCULATED BY AN APPROACH SIMILAR TO THAT USED FOR CARCINOGENS. THE RULE OF THUMB IS THAT HI SHOULD NOT EXCEED ONE. THE HIS CALCULATED ARE SEVERAL ORDERS OF MAGNITUDE LESS THAN ONE, FOR ANY OF THE THREE AIR EMISSION CONTROL OPTIONS EXAMINED. AS A RESULT, THE PREDICTED EXPOSURE TO RECEPTORS DUE TO THE NON-CARCINOGENS EMITTED FROM THE AIR STRIPPING TOWERS WERE CONCLUDED TO BE INSIGNIFICANT FROM A HUMAN HEALTH PERSPECTIVE. (SEE THE BURBANK OUFS REPORT FOR MORE DETAIL ON THE RISK ASSESSMENT ANALYSIS.)

ALTHOUGH UNCONTROLLED EMISSIONS ARE NEAR EPA'S ACCEPTABLE EXCESS CANCER RISK NUMBER OF 1 X 10-6, IT IS UNACCEPTABLE TO NOT CONTROL EMISSIONS BECAUSE OF THE POOR AIR QUALITY IN THE BURBANK AREA. MOREOVER, EMISSION CONTROLS WOULD BE NEEDED TO COMPLY WITH REQUIREMENTS OF THE SCAQMD REGULATION 13. SEE SECTION 9, COMPLIANCE WITH ARARS FOR A MORE DETAILED EXPLANATION OF THE ARARS AND OTHER INFORMATION TO BE CONSIDERED (TBC).

#DA

8.0 DESCRIPTION OF ALTERNATIVES

MANY TECHNOLOGIES WERE EVALUATED BASED ON THESE CRITERIA DURING THE FEASIBILITY STUDY. TREATMENT TECHNOLOGIES THAT MAY BE APPLICABLE TO GROUNDWATER CONTAMINATED WITH VOLATILE ORGANIC COMPOUNDS, PRIMARILY TCE AND PCE, WERE SCREENED BASED ON TWO CRITERIA: (1) THEIR ABILITY TO MEET THE REMEDIAL RESPONSE OBJECTIVES; AND, (2) THE APPLICABILITY AND FEASIBILITY OF THE

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TECHNOLOGY TO THE SITE CONDITIONS.

AFTER THE INITIAL SCREENING, SIX ALTERNATIVES WERE EVALUATED USING THE FOLLOWING SUPERFUND GUIDANCE CRITERIA: TECHNICAL AND ADMINISTRATIVE FEASIBILITY, CAPITAL COSTS, OPERATION AND MAINTENANCE COSTS, ENVIRONMENTAL IMPACTS, PROTECTION OF PUBLIC HEALTH AND THE ENVIRONMENT, COMPLIANCE WITH FEDERAL AND STATE REGULATIONS, AND COMMUNITY AND STATE ACCEPTANCE.

THE FOLLOWING IS A LIST OF THE ALTERNATIVES ANALYZED AND COMPARED DURING THE FS AND FOUND IN THE BURBANK OUFS REPORT;

ALT 1 - NO ACTION
ALT 2 - EXTRACT FROM EXISTING WELLS/TREAT/REINJECT AND REUSE
ALT 3 - EXTRACT FROM NEW WELLS/TREAT/REINJECT AND REUSE
ALT 4 - EXTRACT FROM NEW AND EXISTING WELLS/TREAT/SPREAD AND REUSE
ALT 5 - EXTRACT FROM NEW AND EXISTING WELLS/TREAT/REUSE
ALT 6 - EXTRACT FROM EXISTING WELLS/TREAT/REUSE.

THE FOLLOWING DESCRIPTIONS GIVE A SUMMARY OF THE ALTERNATIVE FEATURES. SEE THE BURBANK OUFS REPORT FOR MORE DETAIL.

ALTERNATIVE 1 - NO ACTION ALTERNATIVE

THE NO ACTION ALTERNATIVE SERVED AS A BASIS FOR COMPARING THE OTHER REMEDIAL ALTERNATIVES. THIS ALTERNATIVE IS EVALUATED TO DETERMINE THE RISKS THAT WOULD BE POSED TO PUBLIC HEALTH AND THE ENVIRONMENT IF NO ACTION WERE TAKEN TO TREAT OR CONTAIN THE CONTAMINATION. THIS ALTERNATIVE WOULD INCLUDE QUARTERLY MONITORING OF THE TEN EXISTING BURBANK PUBLIC SERVICE DEPARTMENT (PSD) WELLS. THE MONITORING PROGRAM WOULD HELP TO ENSURE THAT GROUNDWATER WOULD NOT BE USED WHEN CONCENTRATIONS OF VOCS EXCEED MCLS AND SALS. IT SHOULD BE NOTED THAT CURRENTLY AIL OF THE CITY OF BURBANK'S WELLS HAVE BEEN SHUT DOWN DUE TO THE VOC CONTAMINATION AND THE CITY BUYS ALL ITS WATER FROM THE METROPOLITAN WATER DISTRICT (MWD).

THE FEDERAL AND STATE MCLS ARE RELEVANT AND APPROPRIATE IN THE AQUIFER.

ALTERNATIVE 2 - 6

ALTERNATIVES 2 THROUGH 6 INCLUDE EXTRACTION OF GROUNDWATER, TREATMENT WITH AIR STRIPPING WITH VAPOR PHASE GAC ADSORPTION UNITS, AND DISCHARGE OF THE TREATED GROUNDWATER. THE FOLLOWING IS A DESCRIPTION OF THE TREATMENT SYSTEM PROPOSED IN THE FEASIBILITY STUDY REPORT.

AIR STRIPPING (OR AERATION) IS A METHOD THAT REMOVES VOCS FROM WATER BY VOLATILIZATION AT THE AIR-WATER INTERFACE. THE PUMPED GROUNDWATER IS RUN DOWN THROUGH A VERTICAL COLUMN WHICH CONTAINS A PACKING MEDIUM. THE MEDIUM PROVIDES SURFACE AREA OVER WHICH A COUNTERCURRENT FLOW OF AIR IS INTRODUCED. THE CONTAMINANT IS TRANSFERRED FROM THE WATER TO THE AIR AND THUS REMOVED FROM THE WATER. THE EFFICIENCY OF THE PROCESS IS DEPENDENT ON THE NATURE OF THE CONTAMINANT, ITS INFLUENT CONCENTRATION, THE RATE OF AIR FLOW, AND THE AVAILABLE SURFACE AREA AFFORDED BY THE PACKING MATERIAL. FOR TCE AND PCE, REMOVAL EFFICIENCIES CAN EXCEED 99 PERCENT. AERATION IS A PROVEN METHOD AND IS COMMONLY USED TO TREAT GROUNDWATER.

DUAL STAGE AIR STRIPPING USES TWO AIRSTRIPPING TOWERS IN SERIES TO REMOVE CONTAMINANTS FROM WATER. TREATED WATER FROM THE BASE OF THE FIRST AIR STRIPPING TOWER IS PUMPED TO THE TOP OF THE SECOND AIR STRIPPING TOWER AND AERATED A SECOND TIME. DUAL STAGE AIR STRIPPING IS PREFERABLE TO SINGLE STAGE AIR STRIPPING BECAUSE THE CONTAMINATED WATER HERE IS EXPECTED TO HAVE HIGH LEVELS OF TCE AND PCE.

AIR STRIPPING HAS TWO DRAWBACKS WITH RESPECT TO PUBLIC HEALTH AND THE ENVIRONMENT. FIRST, THERE IS THE POSSIBILITY OF LOW-LEVEL, LONG-TERM CANCER RISK TO THE LOCAL POPULATION DUE TO THE RELEASE OF VOLATILIZED CONTAMINANTS INTO THE AIR. SECONDLY, THIS RELEASE OF CONTAMINANTS ALSO CONTRIBUTES TO AIR QUALITY DEGRADATION WHICH IN TURN AFFECTS HUMAN HEALTH AND THE ENVIRONMENT.

THEREFORE IF DUAL STAGE AIR STRIPPERS ARE USED AS THE TREATMENT TECHNOLOGY, VAPOR PHASE GAC ADSORPTION UNITS WILL BE INSTALLED TO REMOVE 90 - 99% OF THE VOCS DISCHARGED TO THE AIR. AIR EMISSION CONTROLS WOULD MINIMIZE THE NEGATIVE IMPACT ON PUBLIC HEALTH AND THE ENVIRONMENT. (SEE SECTION 9, COMPLIANCE WITH ARARS, COMMUNITY ACCEPTANCE AND STATE ACCEPTANCE, FOR MORE DETAILED

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SUPPORT DOCUMENTATION.)

IT HAS BEEN DETERMINED THAT PURE PRODUCT IN THE FORM OF TCE AND PCE (U210 AND U228) ARE CONTAINED IN THE GROUNDWATER MAKING RCRA SECTION 261.33 APPLICABLE FOR THIS ACTION. THE GROUNDWATER ALSO CONTAINS SPENT TCE AND PCE THAT WAS USED IN DEGREASING. THE LISTING IN 40 CFR SUBPART D SECTION 261.31 THAT PERTAINS TO SPENT HALOGENATED SOLVENTS USED IN DEGREASING IS F001. THIS LISTING REQUIRES KNOWLEDGE OF THE PERCENT SOLVENT BY VOLUME BEFORE USE. THIS INFORMATION IS UNAVAILABLE FOR THE BURBANK OU MAKING THE RCRA F001 LISTING NOT APPLICABLE BUT RELEVANT AND APPROPRIATE FOR THIS ACTION.

IN ALTERNATIVES 2-6, THE SPENT CARBON IS CONSIDERED A RCRA WASTE OR IT IS A MIXTURE OF THE SOLID WASTE CARBON AND THE RCRA LISTED WASTES F001, U210, AND U228 (40 CFR SECTION 261.3(A)(2)(IV)). THEREFORE THE CARBON MUST SATISFY THE REQUIREMENTS OF 40 CFR PART 263 TO BE SHIPPED OFF SITE FOR REGENERATION.

THE FEDERAL AND STATE MCLS ARE RELEVANT AND APPROPRIATE IN THE AQUIFER. MOREOVER, THE MCLS ARE THE ARARS THAT WILL BE MET IN THE TREATED WATER. THIS WATER WILL BE EITHER REINJECTED, SPREAD, OR REUSED AS A DRINKING WATER SOURCE.

ALTERNATIVE 2 - EXTRACT FROM EXISTING WELLS, TREAT, REINJECT AND REUSE

THIS ALTERNATIVE INCLUDES PUMPING 16,000 GPM OF WATER FROM EIGHT BURBANK PSD WELLS (LOCATED WEST OF THE HIGHEST KNOWN TCE AND PCE CONTAMINATION) TO AN EXISTING EQUALIZATION BASIN, WHICH WOULD BE RETROFITTED, TO PROVIDE A UNIFORM FEED TO THE TREATMENT FACILITY. THE WATER WOULD BE TREATED BY EIGHT SETS OF DUAL STAGE AIR STRIPPERS (AS) WITH VAPOR PHASE GAC ADSORPTION UNITS FOR THE OFF-GAS.

TREATMENT EFFICIENCY COULD PRODUCE EFFLUENT WATER OF A QUALITY THAT MEETS OR EXCEEDS ALL FEDERAL AND STATE APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS). FOUR THOUSAND GALLONS PER MINUTE (4000 GPM) OF THE TREATED WATER WOULD BE INTRODUCED INTO BURBANK'S EXISTING DISTRIBUTION SYSTEM FOR REUSE. THE REMAINDER OF THE TREATED WATER WOULD BE INJECTED INTO THE AQUIFER DOWNGRADIENT OF THE VOC PLUME TO REDUCE VOC MOVEMENT. THE REINJECTION WOULD HELP ENHANCE PLUME CONTAINMENT AND AQUIFER RESTORATION. THE TREATED WATER WOULD BE DELIVERED TO THE INJECTION FIELD BY A NEW PIPELINE TO BE CONSTRUCTED ALONG VICTORY BOULEVARD.

AFTER 20 YEARS OF EXTRACTION, CONCENTRATIONS OF TCE AND PCE IN THE GROUNDWATER WOULD STILL EXCEED MCLS. SINCE THE PLUME MIGRATION WOULD BE DIVERTED FROM ITS CURRENT PATH TOWARDS BURBANK'S PRODUCTION WELLS, THE PSD WELLS COULD PRODUCE GROUNDWATER WITH HIGHER CONCENTRATIONS OF PCE AND TCE.

THIS ALTERNATIVE WOULD BE EXPECTED TO REDUCE TCE CONCENTRATIONS IN THE AQUIFER FROM 3,200 PPB TO 590 PPB IN 20 YEARS. THIS ALTERNATIVE WOULD PARTIALLY ARREST THE MIGRATION OF THE TCE AND PCE PLUMES.

SIX MONITORING WELLS WOULD BE INSTALLED TO MONITOR THE PERFORMANCE OF THE SYSTEM.

SINCE THE GROUNDWATER HAS BEEN DETERMINED TO CONTAIN RCRA LISTED WASTES, IT MUST SATISFY THE REQUIREMENTS OF RCRA LAND DISPOSAL RESTRICTIONS (LDR), 40 CFR SECTION 268. THE LDR DEFINES THE REQUIREMENTS FOR REINJECTION OR LAND DISPOSAL. THEREFORE, THE WATER MUST BE TREATED TO MEET THE BEST DEMONSTRATED AVAILABLE TREATMENT TECHNOLOGY (BDAT) STANDARDS FOR SPENT PCE AND TCE WHICH ABE NEEDED FROM THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - LOS ANGELES REGION.

APPROVAL FOR REUSE WOULD BE REQUIRED BY CALIFORNIA DEPARTMENT OF HEALTH SERVICES (DHS) AND THE CITY OF BURBANK. EPA, DHS, AND THE CITY HAVE ALREADY BEGUN DISCUSSIONS OVER THE POSSIBILITY OF THE CITY'S REUSE OF THE WATER.

THERE ARE SOME TECHNICAL CONCERNS OVER THE OPERATION OF INJECTION WELLS DUE TO THE UNCERTAINTIES OF THE CONTAMINATION PLUMES AND OPERATIONAL EFFECTIVENESS OF INJECTION WELLS.

ALTERNATIVE 3 - EXTRACT FROM NEW WELLS, TREAT, REINJECT AND REUSE

THIS ALTERNATIVE IS SIMILAR TO ALTERNATIVE 2 EXCEPT THAT TEN NEW EXTRACTION WELLS WOULD BE CONSTRUCTED TO EXTRACT THE 16,000 GPM OF CONTAMINATED GROUNDWATER. ALTHOUGH THE COST OF

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INSTALLING EXTRACTION WELLS WOULD BE GREATER THAN PUMPING THE EXISTING WELLS, THE NEW WELLS WOULD BE OPTIMALLY LOCATED TO MAXIMIZE THE REMOVAL OF CONTAMINANTS FROM THE GROUNDWATER. THE TREATMENT, DISPOSAL, AND MONITORING TECHNOLOGIES WOULD BE THE SAME AS THOSE EMPLOYED IN ALTERNATIVE 2.

THIS ALTERNATIVE IS ESTIMATED TO REDUCE TCE CONCENTRATIONS FROM 3200 PPB TO 81 PPB IN THE FIRST 10 YEARS, AND MORE THEREAFTER. IT IS ESTIMATED IT WOULD REDUCE PCE CONCENTRATIONS FROM OVER 4000 PPB TO 30 PPB IN 20 YEARS. ALTERNATIVE 3 WOULD BE SUCCESSFUL IN HALTING PLUME MIGRATION AND IN MITIGATING THE VOC CONTAMINATION (CONTRIBUTING TO AQUIFER RESTORATION).

SINCE THE GROUNDWATER HAS BEEN DETERMINED TO CONTAIN RCRA LISTED WASTES, IT MUST SATISFY THE REQUIREMENTS OF RCRA LAND DISPOSAL RESTRICTIONS (LDR), 40 CFR SECTION 268. THE LDR DEFINES THE REQUIREMENTS FOR REINJECTION OR LAND DISPOSAL. THEREFORE, THE WATER MUST BE TREATED TO MEET THE BEST DEMONSTRATED AVAILABLE TREATMENT TECHNOLOGY (BDAT) STANDARDS FOR SPENT PCE AND TCE WHICH ARE .079 PPM PCE AND .062 PPM TCE (40 CFR PART 268.42). APPROVAL FOR REINJECTION WOULD ALSO BE NEEDED FROM THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - LOS ANGELES REGION.

APPROVAL FOR REUSE WOULD BE REQUIRED BY CALIFORNIA DEPARTMENT OF HEALTH SERVICES (DHS) AND THE CITY OF BURBANK. EPA, DHS, AND THE CITY HAVE ALREADY BEGUN DISCUSSIONS OVER THE POSSIBILITY OF THE CITY'S REUSE OF THE WATER.

THERE WOULD BE SIGNIFICANT GAINS IN AQUIFER RESTORATION AND CONTROL OF THE PLUME MIGRATION WITH THIS ALTERNATIVE.

ALTERNATIVE 4 - EXTRACT FROM NEW AND EXISTING WELLS/TREAT/SPREAD AND REUSE.

THE MAJOR FEATURES OF THIS ALTERNATIVE INCLUDE EXTRACTION OF 16,000 GPM FROM 10 NEW WELLS AND 6,000 GPM FROM 5 EXISTING WELLS, TREATMENT WITH EITHER DUAL STAGE OR SINGLE STAGE AS WITH VAPOR PHASE GAC, REUSE OF 4000 GPM BY THE CITY OF BURBANK AND DISCHARGE OF 18,000 GPM TO SPREADING GROUNDS FOR RECHARGE. SIX MONITORING WELLS WOULD BE INSTALLED TO ASSESS THE EFFECTIVENESS OF THE SYSTEM.

ALTERNATIVE 4 WAS DEVELOPED TO COMPARE THE OPTION OF GROUNDWATER RECHARGE BY SPREADING WITH GROUNDWATER RECHARGE BY INJECTION. THIS COMPARISON ADDRESSES UNCERTAINTIES ASSOCIATED WITH THE CAPACITY, OPERATION AND MAINTENANCE OF INJECTION WELLS USED IN ALTERNATIVES 2 AND 3, AND THE OVERALL UNCERTAINTIES ASSOCIATED WITH THE CHARACTERIZATION OF PLUME CONTAMINATION.

BECAUSE THE TREATED WATER WOULD NOT BE REINJECTED INTO THE AQUIFER DOWNGRADIENT OF THE VOC PLUME AS IN ALTERNATIVES 2 AND 3, THE EXTRACTION RATE OF CONTAMINATED GROUNDWATER WOULD HAVE TO BE HIGHER TO ACHIEVE A SIMILAR GRADIENT REVERSAL. IN THIS ALTERNATIVE, THE WATER FROM TEN NEW EXTRACTION WELLS AND FIVE EXISTING BURBANK PSD WELLS WOULD BE PUMPED TO AN EXISTING EQUALIZATION BASIN, WHICH WOULD BE RETROFITTED, TO DELIVER TWO TREATMENT STREAMS TO THE TREATMENT FACILITY. THE WATER WOULD BE TREATED BY SIX SETS OF DUAL STAGE CARBON AIR FILTERING UNITS AND FIVE SINGLE-STAGE AIR STRIPPERS WITH CARBON AIR FILTERING UNITS, DEPENDING ON THE AMOUNT OF WATER FLOWING INTO THE SYSTEM. EACH TREATMENT MODULE WOULD BE DESIGNED TO TREAT THE WATER AND AIR TO MEET THE ARARS AND TBCS (SEE SECTION 9, COMPLIANCE WITH ARARS).

SINCE THE GROUNDWATER HAS BEEN DETERMINED TO CONTAIN THE RCRA LISTED WASTES F001, U210 AND U228, IT MUST BE TREATED TO "NO LONGER CONTAIN" THESE LISTED WASTES BEFORE BEING SPREAD FOR RECHARGE. (SEE MEMORANDUM FROM MARCIA E. WILLIAMS, OFFICE OF SOLID WASTE DIRECTOR, TO PATRICK TOBIN, WASTE MANAGEMENT DIVISION DIRECTOR, REGARDING RCRA REGULATORY STATUS OF CONTAMINATED GROUND WATER, NOVEMBER 13, 1986.)

APPROVAL FOR REUSE WOULD BE REQUIRED BY CALIFORNIA DEPARTMENT OF HEALTH SERVICES (DHS) AND THE CITY OF BURBANK. EPA, DHS, AND THE CITY HAVE ALREADY BEGUN DISCUSSIONS OVER THE POSSIBILITY OF THE CITY'S REUSE OF THE WATER.

THIS ALTERNATIVE IS ESTIMATED TO REDUCE TCE CONCENTRATIONS FROM 3,200 PPB TO 122 PPB IN 10 YEARS AND MORE THEREAFTER. PCE CONCENTRATIONS ARE ESTIMATED TO REDUCE FROM OVER 4000 PPB TO 39 PPB IN 20 YEARS. THERE WOULD BE SIGNIFICANT GAINS IN AQUIFER RESTORATION AND CONTROL OF THE PLUME MIGRATION WITH THIS ALTERNATIVE.

THE OUFS REPORT DETERMINED THAT SPREADING BASINS MAY BE MORE RELIABLE THAN INJECTION WELLS.

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ALTERNATIVE 5 - EXTRACT FROM NEW AND EXISTING WELLS/TREAT/REUSE

THIS ALTERNATIVE USES THE SAME EXTRACTION, TREATMENT, AND MONITORING TECHNOLOGIES AS THOSE SPECIFIED IN ALTERNATIVE 4. THIS ALTERNATIVE IS UNIQUE IN THAT ALL OF THE TREATED WATER WOULD BE USED FOR POTABLE WATER SUPPLY. THE TREATED WATER WOULD BE AT OR BELOW THE FEDERAL AND STATE MCLS AND SALS (ARARS).

A PORTION OF THE TREATED WATER WOULD BE INTRODUCED INTO THE BURBANK PSD'S EXISTING DISTRIBUTION SYSTEM FOR REUSE, WHICH WOULD MEET THE CITY OF BURBANK'S CURRENT AVERAGE DAILY DEMAND (12,000 GPM). THE REMAINDER OF THE TREATED WATER (10,000 GPM) COULD BE INTRODUCED INTO THE METROPOLITAN WATER DISTRICT (MWD) DISTRIBUTION LINES.

UNDER THIS ARRANGEMENT, THE PARTIES INVOLVED WOULD HAVE TO ENTER INTO AGREEMENTS FOR THIS EXCHANGE BECAUSE THE SAN FERNANDO VALLEY GROUNDWATER BASIN IS AN ADJUDICATED BASIN AND THE NET EXTRACTION OF GROUNDWATER IN THIS ALTERNATIVE WOULD EXCEED THE BURBANK PSD'S PUMPING RIGHTS. ALSO, MWD DOES NOT HAVE ANY PUMPING RIGHTS. HOWEVER, INSTITUTIONAL ARRANGEMENTS COULD BE WORKED OUT BETWEEN THE LADWP AND THE OTHER PARTIES, SINCE LADWP DOES HAVE PUMPING RIGHTS. PRELIMINARY DISCUSSIONS WITH THE CITY OF BURBANK AND LADWP HAVE BEEN INITIATED AND THE PARTIES ARE IN AGREEMENT THAT ADMINSTRATIVE AGREEMENTS COULD BE ARRANGED (FOR THE REUSE OF 12,000 GPM).

ALTERNATIVE 5 COULD BE IMPLEMENTED IN TWO PHASES. PHASE 1 WOULD CONSIST OF EXTRACTING 12,000 GPM FROM NEW WELLS, TREATING WITH DUAL STAGE AS WITH VAPOR PHASE GAC, AND REUSING THE TREATED WATER BY THE CITY OF BURBANK. PHASE 2 COULD CONSIST OF EXTRACTING THE REMAINDER 10,000 GPM (TOTAL 22,000 GPM) FROM NEW AND EXISTING WELLS, TREATING WITH AS WITH VAPOR PHASE GAC ADSORPTION UNITS AND REUSING BY MWD CUSTOMERS.

IT IS ESTIMATED THAT PHASE 1 WOULD CONTROL MOST OF THE PLUME MIGRATION (100 UG/1 TCE PLUME BOUNDARY AND 5 UG/1 PCE PLUME BOUNDARY) WHILE AIDING WITH AQUIFER RESTORATION AND THE TOTAL PROJECT (PHASE 1 AND PHASE 2) WOULD REDUCE CONCENTRATIONS TO THE SAME LEVELS AS ALTERNATIVE 4.

DUE TO THE LARGE SIZE OF THE TOTAL PROJECT, AND THE UNCERTAINTIES ASSOCIATED WITH THE MODELING AND EXTENT OF CONTAMINATION, EPA BELIEVED IT WAS IMPORTANT TO LOOK AT PHASING ALTERNATIVE 5; THEREBY, INITIATING THE NECESSARY REMEDIATION, WHILE CONDUCTING FURTHER EVALUATIONS TO REFINE TECHNICAL FEATURES IN ORDER TO MAXIMIZE THE EFFECTIVENESS OF THE TOTAL PROJECT.

ALTERNATIVE 6 - EXTRACT FROM EXISTING WELLS/TREAT/REUSE

THE TECHNICAL FEATURES OF THIS ALTERNATIVE INCLUDE EXTRACTING 4000 GPM FROM TWO EXISTING BURBANK PSD WELLS, TREATING THE WATER WITH DUAL STAGE AS WITH VAPOR PHASE GAC ADSORPTION UNITS, AND REUSING THE TREATED WATER BY THE CITY OF BURBANK.

THIS ALTERNATIVE WOULD NOT RESTRICT THE PLUME'S MIGRATION, NOR WOULD IT SIGNIFICANTLY AID IN AQUIFER RESTORATION.

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9.0 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

THIS SECTION PROVIDES A SUMMARY OF THE ADVANTAGES AND DISADVANTAGES OF EACH OF THE ALTERNATIVES' PERFORMANCE UNDER THE NINE EVALUATION CRITERIA.

TABLE 3 PROVIDES A SUMMARY OF THE ANALYSES OF ALTERNATIVES. THE ALTERNATIVES WERE EVALUATED BASED ON THE FOLLOWING CRITERIA FOR CONDUCTING FEASIBILITY STUDIES;

(1) OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT,
(2) SHORT TERM EFFECTIVENESS IN PROTECTING HUMAN HEALTH AND THE ENVIRONMENT,
(3) LONG-TERM EFFECTIVENESS AND PERMANENCE IN PROTECTING HUMAN HEALTH AND THE ENVIRONMENT,
(4) COMPLIANCE WITH ARARS,
(5) REDUCTION OF TOXICITY, MOBILITY, AND VOLUME OF CONTAMINANTS,
(6) TECHNICAL AND ADMINISTRATIVE FEASIBILITY OF IMPLEMENTATION,
(7) STATE ACCEPTANCE,
(8) COMMUNITY ACCEPTANCE, AND
(9) CAPITAL AND OPERATION AND MAINTENANCE COSTS.

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THE NINE CRITERIA AND THE RELATIVE PERFORMANCE OF THE ALTERNATIVES IN RELATION TO EACH CRITERION AND EACH OTHER IS SUMMARIZED BELOW.

OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

ALTERNATIVES 3, 4, AND 5 PROVIDE THE BEST PROTECTION TO HUMAN HEALTH AND THE ENVIRONMENT. ENVIRONMENTAL DEGRADATION WOULD BE REDUCED SINCE THE PLUME OF GROUNDWATER CONTAMINATION WOULD BE REDUCED IN CONCENTRATION AND EXTENT. INSTITUTIONAL CONTROLS WOULD CONTROL THE RISK OF INGESTION OF CONTAMINATED GROUNDWATER, SINCE ONLY TREATED WATER WOULD BE SERVED. DRINKING WATER WOULD BE PROVIDED VIA SURFACE WATER FROM THE MWD AND/OR TREATED GROUNDWATER FROM THE STRIPPING UNITS.

ALTERNATIVES L, 2 AND 6 ARE NOT AS PROTECTIVE OF THE ENVIRONMENT BECAUSE ENVIRONMENTAL DEGRADATION WOULD INCREASE OVER TIME. ALTERNATIVE 1, THE NO ACTION ALTERNATIVE, WOULD ALLOW THE CONTAMINATION TO CONTINUE SPREADING. ALTHOUGH ALTERNATIVES 2 AND 6 EXTRACT AND TREAT SOME OF THE CONTAMINATED GROUNDWATER, THE EXTRACTION WELLS WOULD NOT BE STRATEGICALLY LOCATED TO CAPTURE THE HIGHER GROUNDWATER CONTAMINANT CONCENTRATIONS. INSTITUTIONAL CONTROLS IN ALTERNATIVES 1, 2, AND 6 FOR THE PROTECTION OF DRINKING WATER WOULD BE THE SAME AS IN ALTERNATIVES 3, 4, AND 5.

COMPLIANCE WITH ARARS

THIS SECTION WILL OUTLINE THE APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) AND OTHER INFORMATION THAT EPA CONSIDERED FOR THIS SITE. THEN IT WILL COMPARE THE ALTERNATIVES WITH ONE ANOTHER REGARDING THESE ARARS AND TO BE CONSIDEREDS (TBCS).

THERE ARE ARARS AND TBCS THAT APPLY TO BOTH THE WATER AND AIR FOR THIS RESPONSE ACTION. THESE CAN BE SEPARATED INTO CHEMICAL SPECIFIC AND PRIMARY ACTION SPECIFIC ARARS AND TBCS.

WATER ARARS AND TBCS: THERE ARE CHEMICAL SPECIFIC ARARS AND TBCS FOR WATER WHICH WILL BE DESCRIBED HERE. FIRST, THE ARARS FOR THE WATER ARE THE SAFE DRINKING WATER ACT MAXIMUM CONTAMINANT LEVELS (MCLS). IN ACCORDANCE WITH THE EPA "INTERIM GUIDANCE ON COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (OSWER DIRECTIVE 9234.0-05)," THE MCLS ARE CONSIDERED THE CHEMICAL-SPECIFIC ARARS BECAUSE THEY ARE THE ENFORCEABLE DRINKING WATER STANDARDS. THEY ARE REQUIRED TO BE SET AS CLOSE TO THE MAXIMUM CONTAMINANT LEVEL GOALS (MCLGS) AS IS FEASIBLE, TAKING INTO CONSIDERATION THE BEST AVAILABLE TECHNOLOGY, TREATMENT TECHNIQUES AND OTHER FACTORS (INCLUDING COST). THEY ARE ALSO PROTECTIVE OF PUBLIC HEALTH TO WITHIN EPA'S ACCEPTABLE CARCINOGGEN RISK RANGE OF 10-4 TO 10-7. THE MCL OF PARTICULAR IMPORTANCE FOR THIS RESPONSE ACTION IS THE MCL OF 5 PPB FOR TCE.

MCLGS, WHICH ARE BASED ONLY UPON HEALTH CRITERIA, ARE NOT DIRECTLY APPLICABLE AS CHEMICAL-SPECIFIC REQUIREMENTS BECAUSE THEY ARE NOT ENFORCEABLE STANDARDS.

EPA ALSO CONSIDERED THE CALIFORNIA DHS'S ACTION LEVELS FOR VOCS, A FEW OF WHICH ARE MORE STRINGENT THAN THE MCLS OR FOR WHICH NO MCL HAS BEEN ESTABLISHED. WHILE THE DHS ACTION LEVELS ARE NOT PROMULGATED STANDARDS AND ARE NOT, THEREFORE, ARARS, THEY HAVE BEEN TAKEN INTO CONSIDERATION DURING DEVELOPMENT OF REMEDIAL ACTION ALTERNATIVES AS ALLOWED FOR IN THE NATIONAL CONTIGENCY PLAN (NCP). IN ADDITION, DHS HAS RECENTLY PROPOSED MCLS FOR A NUMBER OF VOCS. OF PARTICULAR SIGNIFICANCE, THE PROPOSED MCL FOR PCE IS 5 PPB, WHICH IS JUST SLIGHTLY HIGHER THAN THE CURRENT DHS ACTION LEVEL OF 4 PPB.

TABLE 4 LISTS THE FEDERAL MCLS, MCLGS AND SALS FOR THE PRIMARY CONTAMINANTS DETECTED IN THE BURBANK OPERABLE UNIT AREA. THE REMEDIAL ACTION SELECTED WILL MEET THE FEDERAL MCL FOR TCE (LESS THAN 5 PPB) AND THE SAL FOR PCE (LESS THAN 4 PPB).

IT HAS BEEN DETERMINED THAT PURE PRODUCT IN THE FORM OF TCE AND PCE (U210 AND U228) ARE CONTAINED IN THE GROUNDWATER MAKING RCRA SECTION 261.33 APPLICABLE FOR THIS ACTION. THE GROUNDWATER ALSO CONTAINS SPENT TCE AND PCE THAT WAS USED IN DEGREASING. THE LISTING IN 40 CFR SUBPART D SECTION 261.31 THAT PERTAINS TO SPENT HALOGENATED SOLVENTS USED IN DEGREASING IS F001. THIS LISTING REQUIRES KNOWLEDGE OF THE PERCENT SOLVENT BY VOLUME BEFORE USE. THIS INFORMATION IS UNAVAILABLE FOR THE BURBANK OU MAKING THE RCRA F001 LISTING NOT APPLICABLE BUT RELEVANT AND APPROPRIATE FOR THIS ACTION.

AIR ARARS AND TBCS: THERE ARE PRIMARY ACTION-SPECIFIC ARARS AND TBCS FOR THE AIR DISCHARGE WHICH WILL AFFECT THIS RESPONSE ACTION. IN CALIFORNIA, THE AUTHORITY TO REGULATE STATIONARY

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SOURCES OF EMISSIONS HAS BEEN DELEGATED TO LOCAL AIR QUALITY MANAGEMENT DISTRICTS. THE BURBANK OU IS LOCATED IN THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD). THEREFORE, SCAQMD REGULATIONS CONSTITUTE GENERALLY APPLICABLE, PROMULGATED STATE REQUIREMENTS UNDER STATE ENVIRONMENTAL LAW, AS SET FORTH IN SECTION 121(D) OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA).

EPA CONSIDERED SCAQMD REGULATION XIII (COMPRISING RULES 1300 TO 1313), WHICH REQUIRES THAT STATIONARY SOURCES OF AIR EMISSIONS MEET BEST AVAILABLE CONTROL TECHNOLOGY (BACT) STANDARDS. REGULATION 13 STATES THAT NEW STATIONARY SOURCES OF AIR CONTAMINANTS IN THE AIR BASIN THAT EMIT REACTIVE ORGANIC GASES MUST EMPLOY BACT AIR POLLUTION CONTROL DEVICES. THESE BACT DEVICES ARE DEFINED AS "THE MOST STRINGENT EMISSION...CONTROL TECHNIQUE WHICH... IS FOUND... TO BE TECHNOLOGICALLY FEASIBLE AND COST EFFECTIVE...." (SEE THE ADMINISTRATIVE RECORD FOR THE BURBANK OU FOR A COPY OF REGULATION XIII.) IT IS ESTIMATED THAT, IF THERE ARE NO EMISSIONS CONTROLS, THE AIR STRIPPERS CONTEMPLATED FOR THE BURBANK OU WOULD EMIT OVER 168 POUNDS PER DAY OF REACTIVE ORGANIC GASES TO THE ATMOSPHERE. FOR AIR STRIPPERS, SCAQMD CONSIDERS VAPOR PHASE GAC (WITH 90 TO 99% REMOVAL EFFICIENCY) DEVICES TO BE BACT.

EPA ALSO CONSIDERED SCAQMD RULES 1401 AND 1167 AS "OTHER INFORMATION TO BE CONSIDERED," PURSUANT TO THE NCP.

PROPOSED RULE 1401 - NEW SOURCE REVIEW OF CARCINOGENIC AIR CONTAMINANTS - SPECIFIES LIMITS FOR INDIVIDUAL CANCER RISK AND EXCESS CANCER CASES FROM NEW STATIONARY SOURCES WHICH EMIT CARCINOGENIC AIR CONTAMINANTS. THE RULE REQUIRES BACT FOR TOXIC AIR DISCHARGE FOR NEW STATIONARY SOURCES WHERE A LIFETIME MAXIMUM INDIVIDUAL CANCER RISK OF ONE IN ONE MILLION OR GREATER IS ESTIMATED TO OCCUR. TCE IS A LISTED CARCINOGENIC AIR CONTAMINANT. RESULTS FROM THE PUBLIC HEALTH ASSESSMENT SHOW THAT TCE EMISSIONS AFTER TREATMENT ON THE VAPOR PHASE WOULD MEET RULE 1401'S REQUIREMENTS.

RULE 1167'S PURPOSE IS TO CONTROL VOCS AS PRECURSOR EMISSIONS TO OZONE FORMATION IN THE SOUTH COAST AIR BASIN. THE SOUTH COAST AIR BASIN IS CURRENTLY IN NON-ATTAINMENT STATUS WITH RESPECT TO THE NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS) FOR OZONE, AND VOCS ARE KNOWN PRECURSORS TO OZONE FORMATION. RULE 1167 IS DESIGNED TO REDUCE VOC EMISSIONS FROM NEW AND EXISTING AIR STRIPPING EQUIPMENT USED FOR TREATMENT OF CONTAMINATED WATER. THE RULE REQUIRES THAT ALL AIR STRIPPING FACILITIES TREATING CONTAMINATED GROUNDWATER THAT EMIT MORE THAN ONE POUND PER DAY OF TOTAL VOC EMISSIONS INSTALL AIR EMISSION CONTROLS CAPABLE OF REDUCING AIR EMISSIONS BY 90%.

ALTHOUGH RULE 1167 WAS STAYED BY THE CALIFORNIA SUPERIOR COURT UNTIL AN ENVIRONMENTAL IMPACT REPORT IS COMPLETED, IT IS CONSIDERED IN THE REMEDY SELECTION PROCESS AS A TBC SINCE SCAQMD FULLY INTENDS TO MEET THE REQUIREMENTS SET BY THE COURT JUDGMENT AND PROCEED TOWARD ADOPTION OF THIS RULE AS A PROMULGATED, LEGALLY ENFORCEABLE, GENERALLY APPLICABLE REQUIREMENT IN THE NEAR FUTURE.

INSTALLATION OF AN AIR STRIPPING SYSTEM WITH AIR EMISSION CONTROLS IS MORE PROTECTIVE OF THE ENVIRONMENT IN THAT IT WILL REDUCE OZONE PRECURSOR EMISSIONS TO THE ATMOSPHERE BY 90 TO 99% AND WILL SUPPORT EFFORTS BY SCAQMD TO REACH ATTAINMENT STATUS FOR OZONE IN THE SOUTH COAST AIR BASIN.

COMPARISON OF ALTERNATIVES: ALTERNATIVE 1, THE NO ACTION ALTERNATIVE, WOULD MEET THE DRINKING WATER ARARS BECAUSE INSTITUTIONAL CONTROLS WOULD CONTINUE TO ASSURE THAT THE PUBLIC WAS PROVIDED WITH DRINKING WATER THAT MEETS THE FEDERAL AND STATE MCLS AND SALS. ALSO SINCE NO SYSTEM WOULD BE IN PLACE, THE SCAQMD'S RULES WOULD NOT BE VIOLATED. WATER TREATED AND DISCHARGED FROM ALTERNATIVES 2 - 6 WOULD MEET THE FEDERAL AND STATE MCLS AND SALS BEFORE REUSE, INJECTION OR SPREADING. AIR STRIPPING SYSTEMS WOULD HAVE VAPOR PHASE GAC ADSORPTION UNITS TO CONTROL AIR EMISSIONS TO 90 - 99% REMOVAL EFFICIENCY TO MEET THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT'S RULES. STEAM STRIPPING WOULD RECOVER THE VOCS FOR RECYCLING SO NO AIR EMISSION CONTROL SYSTEM WOULD BE NECESSARY.

HOWEVER, ALTERNATIVES 1, 2, AND 6 DO NOT DO AS MUCH AS ALTERNATIVES 3, 4, AND 5 TO MEET FEDERAL AND STATE MCLS IN THE AQUIFER. ALTERNATIVES 3, 4, AND 5 MORE EFFECTIVELY AID IN RESTORING THE AQUIFER (TO VOC CONCENTRATIONS AT OR BELOW THE MCLS AND SALS) AND CONTROLLING THE PLUME MIGRATION.

BY MEETING THE FEDERAL AND STATE MCLS AND SALS BEFORE REINJECTION, ALTERNATIVES 2 AND 3 WILL

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SATISFY THE RCRA LAND DISPOSAL RESTRICTIONS REQUIREMENTS. BY MEETING THE FEDERAL MCLS AND SALS, THE GROUNDWATER WILL NO LONGER CONTAIN THE LISTED WASTES WHEN IT IS SPREAD FOR RECHARGE IN ALTERNATIVE 4.

FOR ALTERNATIVES 1 - 6, THE MCLS ARE RELEVANT AND APPROPRIATE IN THE AQUIFER. UPON COMPLETION OF THE FINAL REMEDIAL ACTION FOR THE SITE, THIS ARAR WILL BE SATISFIED.

LONG-TERM EFFECTIVENESS AND PERMANENCE

ALTERNATIVES 3,4, AND 5 WOULD HAVE THE GREATEST ABILITY TO MAINTAIN RELIABLE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT OVER TIME. AFTER 20 YEARS OF EXTRACTION, CONCENTRATIONS OF TCE AND PCE IN THE GROUNDWATER ARE EXPECTED TO STILL EXCEED THE FEDERAL MCLS AND SALS, HOWEVER THEY WOULD BE GREATLY REDUCED AS DISCUSSED IN THE PREVIOUS SECTION. PLUME MIGRATION WOULD BE CONTROLLED AND AQUIFER RESTORATION WOULD CONTINUE AS LONG AS THE SYSTEM KEPT OPERATING.

ALTERNATIVES 1,2, AND 6 DO NOT OFFER LONG TERM EFFECTIVENESS OR PERMANENCE. IN FACT, THESE ALTERNATIVES MIGHT ALLOW CONTAMINATION TO SPREAD TO CLEAN ZONES WITHIN THE SFVB.

ALTERNATIVE 1 RELIES SOLELY ON INSTITUTIONAL CONTROLS TO PREVENT EXPOSURE TO THE CONTAMINATED GROUNDWATER. THE CURRENT WATER SUPPLY FROM SURFACE WATER VIA THE MWD MAY NOT ALWAYS BE AVAILABLE IN THE FUTURE BECAUSE OF PERIODIC DROUGHT CONDITIONS AND STATE AND FEDERAL WATER RIGHTS ISSUES.

REDUCTION OF TOXICITY, MOBILITY, OR VOLUME

ALTERNATIVES 3, 4 AND 5 OFFER THE MOST REDUCTION OF TOXICITY, MOBILITY, AND/OR VOLUME OF THE CONTAMINATION. THE MOST CONTAMINATED GROUNDWATER IN THE BURBANK OU AREA WOULD BE EXTRACTED AND TREATED TO REMOVE THE VOCS FROM THE GROUNDWATER, THUS THE VOC CONTAMINATION IN THE GROUNDWATER WOULD BE GREATLY REDUCED IN TOXICITY, VOLUME AND MOBILITY. MOREOVER, THE AIR EMISSION CONTROL UNITS WOULD REDUCE THE MOBILITY OF THE VOCS TO THE AIR.

ALTERNATIVE 1 WOULD HAVE NO REDUCTION IN TOXICITY, MOBILITY, OR VOLUME SINCE NO TREATMENT IS EMPLOYED.

ALTERNATIVE 2 WOULD REDUCE THE VOLUME OF CONTAMINATION BY EXTRACTING AND TREATING 16,000 GPM. ALTERNATIVE 6 WOULD REDUCE THE VOLUME OF CONTAMINATION BY EXTRACTING AND TREATING 4000 GPM. HOWEVER, THE EXISTING WELLS USED FOR ALTERNATIVES 2 AND 6 WOULD NOT BE STRATEGICALLY LOCATED TO CONTROL MIGRATION OR CAPTURE THE CONTAMINATION. THEREFORE, CONTINUED CONTAMINANT MIGRATION WOULD OCCUR AND A LESSER AMOUNT OF CONTAMINATION WOULD BE CAPTURED THEN FOR ALTERNATIVES 3, 4, AND 5.

SHORT TERM EFFECTIVENESS

FOR ALTERNATIVES 3,4, AND 5, NO ADVERSE IMPACTS WOULD BE EXPECTED DURING THE CONSTRUCTION AND IMPLEMENTATION PERIOD OR REMEDIATION. DRINKING WATER SUPPLIES WOULD BE PROVIDED FROM TREATED GROUNDWATER AND/OR SURFACE WATER FROM THE MWD DURING THE INTERIM BEFORE CONSTRUCTION COMPLETE AND DURING REMEDIATION. INSTITUTIONAL CONTROLS WOULD ASSURE THAT ALL DRINKING WATER WOULD MEET DRINKING WATER STANDARDS. THE PLUME MIGRATION WOULD BE EFFECTIVELY CONTROLLED WITH THESE ALTERNATIVES AND AQUIFER RESTORATION WOULD BE INITIATED IN THIS AREA.

ALTERNATIVE 1, THE NO ACTION ALTERNATIVE, WOULD NOT BE EFFECTIVE IN CONTROLLING MIGRATION OR AQUIFER RESTORATION. IT WOULD ALLOW THE CONTAMINATED GROUNDWATER TO SPREAD TO UNCONTAMINATED DOWNGRADIENT WELLS. THERE WOULD BE SOLE RELIANCE ON INSTITUTIONAL CONTROLS TO PREVENT EXPOSURE VIA DRINKING WATER INGESTION.

ALTERNATIVE 2 AND 6 WOULD BE MORE EFFECTIVE THAN ALTERNATIVE 1. THERE WOULD BE LESS RELIANCE ON INSTITUTIONAL CONTROLS FOR DRINKING WATER, SINCE TREATED GROUNDWATER THAT MEETS MCLS AND SALS WOULD BE SERVED, AS A PORTION OF THE TOTAL DRINKING WATER SUPPLY FOR THE AFFECTED AREAS. HOWEVER, THESE ALTERNATIVES WOULD NOT BE AS EFFECTIVE IN CONTROLLING PLUME MIGRATION AND IN AQUIFER RESTORATION AS ALTERNATIVES 3, 4, AND 5.

IMPLEMENTABILITY

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ALTERNATIVES 1 - 6 WOULD ALL BE TECHNICALLY IMPLEMENTABLE. HOWEVER, ALTERNATIVE 5 APPEARS THE EASIEST TO IMPLEMENT WITH THE CURRENT INFORMATION, DUE TO THE PRACTICAL UNCERTAINTIES ASSOCIATED WITH INJECTION AND SPREADING AND THE TECHNICAL UNCERTAINTIES ASSOCIATED WITH PLUME LOCATION AND MIGRATION.

CONSTRUCTION OF MONITORING WELLS FOR ALL ALTERNATIVES IS STRAIGHT FORWARD, USING WELL KNOWN TECHNOLOGY. THERE ARE MANY MONITORING WELLS IN THE SFVB.

ALTERNATIVES 2 - 6 WOULD EMPLOY AIR STRIPPING WITH VAPOR PHASE GAC ADSORPTION UNITS (OR STEAM STRIPPING*) WHICH IS A PROVEN TREATMENT TECHNOLOGY AND RELATIVELY EASY TO IMPLEMENT. ADMINISTRATIVE AGREEMENTS WOULD BE NEEDED FOR THE USE OF TREATED GROUNDWATER. APPROVAL FOR HOOKUP TO THE CITY OF BURBANK WOULD ALSO NEED TO BE ARRANGED PRIOR TO DISTRIBUTION. PRELIMINARY DISCUSSIONS HAVE ALREADY TAKEN PLACE AND NO SIGNIFICANT PROBLEMS HAVE BEEN IDENTIFIED.

ALTERNATIVE 5 WOULD REQUIRE AGREEMENTS BETWEEN THE CITY OF BURBANK, LA DWP, AND MWD TO ACCOMODATE THE EXCHANGE OF WATER BEYOND THE CITY OF BURBANK'S EXTRACTION CREDITS. HOWEVER, PRELIMINARY DISCUSSIONS BETWEEN EPA AND THE AFFECTED PARTIES REGARDING THE REUSE OF THE WATER HAVE SHOWN THAT THE AGREEMENTS COULD BE ARRANGED.

THE USE OF INJECTION WELLS IN ALTERNATIVES 2 AND 3 COULD BE DIFFICULT TO IMPLEMENT TECHNICALLY DUE TO OPERATIONAL PROBLEMS ENCOUNTERED WITH INJECTION WELLS AND THE UNKNOWNS ASSOCIATED WITH EXTENT OF CONTAMINATION. FURTHER SPREAD OF CONTAMINATION COULD OCCUR IF THE INJECTION WELLS WERE IMPROPERLY PLACED.

SPREADING IN ALTERNATIVE 4. COULD BE MORE RELIABLE THAN THE INJECTION WELLS. HOWEVER, THERE ARE ALSO UNCERTAINTIES ASSOCIATED WITH POSSIBLE CONTAMINATION IN THE AREA OF THE SPREADING GROUNDS. AN ADDITIONAL LOAD FROM DISCHARGING THE WATER BY SPREADING COULD CAUSE FURTHER CONTAMINATION OF THE AREA BY ENHANCING MOVEMENT OF THE CONTAMINANTS IN THE SOIL AND/OR GROUNDWATER.

ALTERNATIVES 1 AND 6 WOULD ALLOW THE CONTAMINATION TO SPREAD AND THUS MAKE REMEDIATION MORE DIFFICULT IN THE FUTURE.

[* STEAM STRIPPING IS DISCUSSED IN SECTION 10, DOCUMENTATION OF SIGNIFICANT CHANGES.]

COST

ALTERNATIVE 1 WOULD BE THE LEAST EXPENSIVE WITH AN EXPECTED PRESENT WORTH VALUE OF $500,000. (PRESENT WORTH EVALUATIONS ASSUME 10% ANNUAL INTEREST RATE AND 20 YEARS FOR THE PROJECT LIFE.)

ALTERNATIVE 2 HAS AN ESTIMATED CAPITAL COST OF $36.6 MILLION AND TOTAL O&M OF $45.2 MILLION. THE EXPECTED PRESENT TOTAL WORTH VALUE IS $81.8 MILLION.

ALTERNATIVE 3 HAS AN ESTIMATED CAPITAL COST OF $43.4 MILLION AND TOTAL O&M OF $44.7 MILLION. THE EXPECTED PRESENT TOTAL WORTH VALUE IS $88.1 MILLION.

ALTERNATIVE 4 HAS AN ESTIMATED CAPITAL COST OF $42.3 MILLION AND TOTAL O&M OF $52.9 MILLION. THE EXPECTED PRESENT TOTAL WORTH VALUE IS $95.2 MILLION.

ALTERNATIVE 5 HAS AN ESTIMATED CAPITAL COST OF $32.1 MILLION ($25.1 M FOR PHASE 1 AND $7.0 M FOR PHASE 2) AND TOTAL O&M OF $54.2 MILLION ($43.9 M FOR PHASE 1 AND $10.3 M FOR PHASE 2). THE EXPECTED PRESENT WORTH VALUE IS $86.3 MILLION ($69.0 M FOR PHASE 1 AND $17.3 M FOR PHASE 2).

ALTERNATIVE 6 IS ASSUMED TO BE 25% OF THE COST OF ALTERNATIVE 2, OR $20.5 MILLION.

THE COST SUMMARIES CAN BE FOUND IN GREATER DETAIL IN THE BURBANK OUFS REPORT.

COMMUNITY ACCEPTANCE

ALTERNATIVES 3, 4, AND 5 RECEIVED THE MOST COMMUNITY ACCEPTANCE. THE COMMUNITY GENERALLY WANTS THE AQUIFER RESTORED FOR BENEFICIAL USE AND THE PLUME MIGRATION HALTED AS SOON AS POSSIBLE.

COMMUNITY WORKGROUP MEMBERS EXPRESSED SOME CONCERN OVER REINJECTION AND SPREADING DUE TO THE UNCERTAINTIES ASSOCIATED WITH THE EXTENT OF CONTAMINATION. THEIR CONCERN WAS THAT REINJECTION OR SPREADING COULD CONTRIBUTE TO THE SPREAD OF CONTAMINATION IF THE WELLS OR SPREADING AREAS

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WERE IMPROPERLY LOCATED. THEREFORE ALTERNATIVE 5, THE WATER REUSE OPTION, WAS MOST ATTRACTIVE TO THE COMMUNITY WORKGROUP.

THE COMMUNITY FEELS STRONGLY THAT AIR EMISSION CONTROLS MUST BE EMPLOYED DUE TO THE POOR AIR QUALITY IN THE BURBANK AREA. EPA ADDRESSES THIS CONCERN WITH THE REQUIREMENT THAT VAPOR PHASE GAC ADSORPTION UNITS WOULD BE INSTALLED IF AIR STRIPPING IS USED.

THE RESPONSE SUMMARY (ATTACHED) ADDRESSES MORE SPECIFIC CONCERNS AND COMMENTS RAISED DURING THE PUBLIC COMMENT PERIOD.

STATE ACCEPTANCE

LIKE THE COMMUNITY, THE STATE (DHS AND RWQCB) WANTS AQUIFER RESTORATION AND CONTROL OF THE PLUME MIGRATION INITIATED AS SOON AS POSSIBLE.

THEY PREFER ALTERNATIVE 5 BECAUSE THEY (LIKE THE COMMUNITY) HAVE CONCERNS WITH REGARDS TO THE REINJECTION AND SPREADING OPTIONS ASSOCIATED WITH ALTERNATIVES 3 AND 4. (SEE PREVIOUS DISCUSSION.)

THEY ALSO BELIEVE IT IS IMPORTANT TO HAVE AIR EMISSION CONTROLS ON THE AIR STRIPPERS. MOREOVER, THE SCAQMD INSISTS THAT IF AERATION IS USED TO TREAT THE WATER THAT VAPOR PHASE GAC ADSORPTION UNITS (OR COMPARABLE BACT) BE INSTALLED.

CALIFORNIA DHS HAS CONCURRED WITH THE BURBANK OU REMEDY SELECTION.

10. DOCUMENTATION OF SIGNIFICANT CHANGES

THE PROPOSED PLAN WAS RELEASED FOR PUBLIC COMMENT IN OCTOBER 1988. THE PROPOSED PLAN IDENTIFIED ALTERNATIVE 5, PHASE I, EXTRACTION, TREATMENT, AND REUSE, AS THE PREFERRED ALTERNATIVE.

DUAL STAGE AIR STRIPPERS WITH VAPOR PHASE GAC ADSORPTION UNITS WERE CHOSEN AS THE PREFERRED TREATMENT TECHNOLOGY. DURING THE PUBLIC COMMENT PERIOD, A POTENTIALLY RESPONSIBLE PARTY, LOCKHEED AERONAUTICAL SYSTEMS COMPANY (LASC), PRESENTED EPA WITH A SIMILAR TREATMENT TECHNOLOGY - STEAM STRIPPING, MORE SPECIFICALLY, THE AQUADETOX SYSTEM.

IN THE BURBANK OUFS REPORT, CONVENTIONAL STEAM STRIPPING WAS SCREENED OUT BECAUSE TCE AND PCE ARE HIGHLY VOLATILE COMPOUNDS WHICH ARE EASILY REMOVED FROM WATER WITHOUT INPUT OF HEAT. FURTHERMORE, THE EXPECTED CONCENTRATIONS OF TCE AND PCE WERE NOT HIGH ENOUGH TO WARRANT THE ADDED ENERGY INPUT. THEREFORE, STEAM STRIPPING WAS NOT CONSIDERED COST EFFECTIVE AND WAS NOT CONSIDERED FURTHER IN THE OUFS.

STEAM STRIPPING WITH THE AQUADETOX SYSTEM WAS ALSO SCREENED OUT DURING THE BURBANK OUFS ON THE BASIS THAT ADEQUATE EXPERIENCE DID NOT EXIST EITHER FOR AQUADETOX SYSTEMS WITHOUT EXTERNAL STEAM SUPPLY OR FOR THE EFFLUENT TO BE USED AS DRINKING WATER.

THE AQUADETOX PROCESS IS A PROPRIETARY AND PATENTED STEAM STRIPPING TECHNOLOGY DEVELOPED BY AWD TECHNOLOGIES, INC., WHICH USES STEAM STRIPPING UNDER MODERATE OR DEEP VACUUM PRESSURE. WHILE CONVENTIONAL STEAM STRIPPING WAS CONSIDERED NOT APPLICABLE BECAUSE OF ITS HIGHER COST THAN AIR STRIPPING, THE AQUADETOX SYSTEM, MAY BE COST-EFFECTIVE DUE TO THE LOWER ENERGY REQUIREMENTS. OTHER CLAIMED ADVANTAGES OF THE SYSTEM ARE: (1) THE VOCS CAN BE RECOVERED FOR RECYCLING INSTEAD OF DISCHARGED TO THE AIR OR CARBON, AND (2) IT IS A CLOSED LOOP SYSTEM AND THEREFORE THERE IS MINIMAL VOC DISCHARGE TO THE AIR (LESS THAN 1 LB/DAY, GIVEN ESTIMATED GROUNDWATER VOC CONCENTRATIONS).

THE AQUADETOX SYSTEM UNDER MODERATE VACUUM PRESSURE WAS SELECTED BY LASC FOR GROUNDWATER TREATMENT AT A SITE WITHIN THE BURBANK OU AREA. THIS 1200 GPM EXTRACTION AND TREATMENT FACILITY BEGAN OPERATION IN JANUARY 1989 AND SHOULD PROVIDE PERFORMANCE DATA RELATIVE TO THE USE OF THIS TECHNOLOGY IN THE REMOVAL OF THE VOCS.

INFORMATION ON THE INFLUENT FROM THE LASC AQUADETOX EXTRACTION AND TREATMENT SYSTEM IS SHOWING HIGHER CONCENTRATION LEVELS FOR TCE AND PCE THAN ESTIMATED IN THE BURBANK OUFS REPORT. LASC'S TREATMENT FACILITY IS EXTRACTING GROUNDWATER WITH CONCENTRATIONS UP TO 12,000 PPB PCE AND TCE COMBINED (AS OF FEBRUARY 1989). THEREFORE STEAM STRIPPING MAY BE MORE APPLICABLE (E.G.

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ECONOMICAL) THAN ORIGINALLY THOUGHT DUE TO THE HIGHER CONCENTRATIONS AND ADDED STRIPPING EFFICIENCY OF STEAM STRIPPING.

SINCE AIR AND STEAM STRIPPING FALL UNDER THE SAME CLASS OF TREATMENT - STRIPPING - EITHER TECHNOLOGY CAN BE EMPLOYED TO MEET THE PERFORMANCE STANDARDS, THEREFORE ACHIEVING THE STATED BURBANK OPERABLE UNIT OBJECTIVES.

AIR STRIPPING WAS USED DURING THE DISCUSSION OF THE DESCRIPTION OF ALTERNATIVES AND COMPARISON ANALYSIS. HOWEVER, THE SELECTED REMEDY WILL BE EITHER AIR OR STEAM STRIPPING, AS LONG AS THE STEAM STRIPPING MEETS THE PERFORMANCE STANDARDS AND IS AS EFFECTIVE AS THE AIR STRIPPING IN MEETING THE EVALUATION CRITERIA. THIS ALLOWS FLEXIBILITY DURING THE REMEDIAL DESIGN TO PROCURE THE MOST COST-EFFECTIVE UNIT THAT ALSO PROTECTS HUMAN HEALTH AND THE ENVIRONMENT.

#SR
11.0 THE SELECTED REMEDY

ALTERNATIVE 5, PHASE 1, USING EITHER STEAM OR AIR STRIPPING FOR TREATMENT, IS THE SELECTED REMEDY FOR THE BURBANK OPERABLE UNIT. THE REMEDY INCLUDES EXTRACTION OF CONTAMINATED GROUNDWATER, TREATMENT BY STRIPPING, AND REUSE OF THE WATER BY THE CITY OF BURBANK FOR DRINKING WATER. IF AIR STRIPPING IS CHOSEN DURING THE REMEDIAL DESIGN, VAPOR PHASE GAC ADSORPTION UNITS WILL BE NEEDED TO COMPLY WITH THE ARARS AND TBCS.

THE EXTRACTION SYSTEM WILL BE DESIGNED TO CAPTURE GROUNDWATER CONTAINING 100 PPB OR GREATER OF TCE AND 5 PPB OR GREATER OF PCE. THE EXTRACTION FLOW RATE IS CURRENTLY PROJECTED TO BE 12,000 GPM.

THE FEDERAL AND STATE MCLS ARE RELEVANT AND APPROPRIATE IN THE AQUIFER. UPON THE COMPLETION OF THE FINAL REMEDIAL ACTION FOR THE SITE, THIS ARAR WILL BE SATISFIED.

ALTHOUGH IT WAS ESTIMATED IN THE BURBANK OUFS REPORT THAT EXTRACTION AT A RATE OF 16,000 GPM COUPLED WITH INJECTION WELLS FOR A PERIOD OF 20 YEARS WAS NECESSARY TO FULLY REMEDIATE THE BURBANK OU AREA (I.E. REMOVING GROUNDWATER UNTIL THAT LEFT CONTAINED CONTAMINANTS TO CONCENTRATION LEVELS AT OR BELOW MCLS AND SALS), THE DECISION TO PUMP AND TREAT 12,000 GPM WAS DETERMINED TO BE THE MOST APPROPRIATE GIVEN THE AMOUNT OF TECHNICAL INFORMATION CURRENTLY AVAILABLE. MORE INFORMATION WILL BE GATHERED DURING THE BASINWIDE RI, NORTH HOLLYWOOD OU REMEDY OPERATION, LASC'S EXTRACTION AND TREATMENT SYSTEM, BURBANK OU REMEDIAL DESIGN, AND THE OPERATION OF THE BURBANK OU TREATMENT SYSTEM TO DETERMINE WHETHER MORE EXTRACTION IS NECESSARY TO CONTINUE AQUIFER RESTORATION AND CONTROLLING THE MIGRATION OF THE PLUME. IF ADDITIONAL EXTRACTION IS DETERMINED NECESSARY, EPA WOULD AGAIN GO OUT FOR PUBLIC COMMENT WITH A PROPOSED PLAN BEFORE SIGNING ANOTHER RECORD OF DECISION.

EXTRACTION WELLS WILL BE STRATEGICALLY PLACED (BOTH LATERALLY AND VERTICALLY) TO MAXIMIZE THE EFFECTIVENESS OF THE SYSTEM. THE LOCATIONS PRESENTED IN THE OU MAY BE MODIFIED IF WARRANTED BY NEW DATA. STRIPPING IS THE CHOSEN TREATMENT. LASC IS CONDUCTING A TREATABILITY STUDY WITH ITS AQUADETOX SYSTEM. THIS WILL HELP DETERMINE WHETHER STEAM STRIPPING WILL BE USED FOR THE OU REMEDY. AIR STRIPPING WITH VAPOR PHASE GAC ADSORPTION UNITS WILL BE USED UNLESS STEAM STRIPPING IS SHOWN TO MEET OR EXCEED THE TREATMENT ADVANTAGES OF AIR STRIPPING WITH VAPOR PHASE GAC. EPA MAY ALSO DECIDE TO USE THE TWO TECHNOLOGIES TOGETHER IF THAT WOULD MAXIMIZE EFFICIENCY.

THE VOCS - PARTICULARLY THE PRIMARY CONTAMINANTS, TCE AND PCE - IN THE GROUNDWATER MUST BE REMOVED FROM THE GROUNDWATER SUCH THAT TREATMENT PLANT EFFLUENT CONCENTRATIONS ARE BELOW THE FEDERAL MCLS AND SALS (TCE - 5 PPB AND PCE - 4 PPB). THE WATER MUST ALSO MEET ALL DRINKING WATER STANDARDS. THIS MAY REQUIRE FURTHER TREATMENT LIKE CHLORAMINATION FOR DISINFECTION PURPOSES, OR REVERSE OSMOSIS OR ION EXCHANGE FOR NITRATES.

THE TREATED WATER WILL BE FED DIRECTLY INTO BURBANK'S DISTRIBUTION SYSTEM FOR REUSE BY THE CITY'S RESIDENTS.

MONITORING WELLS WILL BE INSTALLED DOWNGRADIENT TO MONITOR THE PERFORMANCE OF THE SYSTEM.

THE EXTRACTION OF CONTAMINATED GROUNDWATER FROM THE BURBANK OU AREA, TREATMENT OF GROUNDWATER TO DRINKING WATER STANDARDS, AND DISTRIBUTION OF THE WATER TO THE BURBANK RESIDENTS IS THE MOST COST EFFECTIVE AND TECHNICALLY SOUND MEANS OF MEETING THE OU OBJECTIVES.

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THE SELECTED REMEDY PERMANENTLY AND SIGNIFICANTLY REDUCES THE TOXICITY, MOBILITY, AND VOLUME OF HAZARDOUS SUBSTANCES WITH RESPECT TO THEIR PRESENCE IN THE GROUNDWATER -- THE CONTAMINANTS ARE REMOVED FROM THE GROUNDWATER, THEREBY REDUCING CONTAMINANT MIGRATION IN THE VICINITY OF THE BURBANK OU AREA.

STRIPPING WILL RESULT IN A SMALL INCREASE IN THE TOXICITY, MOBILITY, AND VOLUME OF HAZARDOUS SUBSTANCES WITH RESPECT TO THEIR PRESENCE IN THE AIR. HOWEVER, THE USE OF STEAM STRIPPING RECOVERS MOST OF THE VOCS FOR RECYCLING. IF DUAL STAGE AIR STRIPPING IS USED FOR TREATMENT, VAPOR PHASE GAC ADSORPTION UNITS WILL BE INSTALLED TO MINIMIZE THE AMOUNT OF VOCS DISCHARGED TO THE AIR.

THE AIR EMISSIONS ARE ESTIMATED TO ADD A MINIMAL RISK TO THE PROJECT VIA AIRBORNE CONTAMINANTS, BECAUSE THE AIR EMISSION CONTROLS WILL REMOVE 90 - 99% OF THE CONTAMINANTS BEFORE THEY ARE DISCHARGED TO THE AIR. THE ADDITION OF VAPOR PHASE GAC ADSORPTION UNITS MEETS THE ARARS AND TBCS DISCUSSED IN SECTION 9, COMPLIANCE OF ARARS.

THE SPENT CARBON FROM THE VAPOR PHASE GAC ADSORPTION SYSTEM IS CONSIDERED A RCRA WASTE OR IT IS A MIXTURE OF THE SOLID WASTE CARBON AND THE RCRA LISTED WASTES F001, U210, AND U228 (40 CFR SECTION 261.3(A)(2)(IV)). THEREFORE THE CARBON MUST SATISFY THE REQUIREMENTS OF 40 CFR PART 263 TO BE SHIPPED OFF SITE FOR REGENERATION.

THE PUMP AND TREAT SYSTEM WILL OPERATE FOR AN ESTIMATED 20 YEARS. GROUNDWATER MONITORING AND GROUNDWATER LEVEL MEASURING WILL BE CONDUCTED AS PART OF THE REMEDY TO TRACK CONTAMINANT CONCENTRATIONS IN THE BURBANK OU AREA, TO MONITOR THE PERFORMANCE OF THE TREATMENT SYSTEM AND TO DETERMINE THE EFFICIENCY OF THE SYSTEM IN RESTORING THE AQUIFER. THE SYSTEM WILL BE EVALUATED PERIODICALLY TO DETERMINE THE EFFICIENCY AND NECESSITY OF THE REMEDIATION IN ACHIEVING THE STATED GOALS. THE REVIEWS WILL ALLOW FOR MODIFICATION IN THE SYSTEM AS REQUIRED.

FOR REFERENCE, THE ESTIMATED COST OF THE SELECTED REMEDY WITH THE USE OF DUAL STAGE AIR STRIPPING WITH VAPOR PHASE GAC ADSORPTION UNITS IS $69M (SEE TABLE 5). LASC'S REMEDIAL ACTION ALTERNATIVE FOR THE BURBANK WELL FIELD OPERABLE UNIT GIVES A COST ESTIMATE OF $50.1 MILLION NET PRESENT VALUE FOR THE BURBANK OU REMEDY USING THE AQUADETOX SYTEM INSTEAD OF THE AS WITH VAPOR PHASE GAC ADSORPTION UNITS. ALTHOUGH LASC'S ALTERNATIVE IS SIMILAR TO ALTERNATIVE 5, PHASE 1 IN THE BURBANK OUFS REPORT, LASC'S ALTERNATIVE DOES HAVE SOME DIFFERENT FEATURES. (LASC'S REPORT CAN BE FOUND IN THE ADMINISTRATIVE RECORD.)

#SD
12.0 STATUTORY DETERMINATIONS

THE SELECTED REMEDY IS PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT -- AS REQUIRED BY SECTION 121 OF CERCLA -- IN THAT IT TREATS THE EXTRACTED GROUNDWATER SO THAT REMAINING CONTAMINANTS ARE AT OR BELOW THE MCLS AND SALS FOR THE CONTAMINANTS OF CONCERN.

STRIPPING HAS BEEN SHOWN TO BE THE MOST COST EFFECTIVE TECHNOLOGY FOR TREATING THE CONCENTRATIONS OF VOCS FOUND IN THE GROUNDWATER FROM THE BURBANK OU AREA. ALTHOUGH THE ADDITION OF AIR EMISSION CONTROLS (GAC) TO THE DUAL STAGE AIR STRIPPERS (IF STEAM STRIPPING FAILS TO PASS THE TREATABILITY STUDIES) WILL INCREASE THE COST OF THE SELECTED REMEDY, IT IS DETERMINED TO BE JUSTIFIED AS A COST-EFFECTIVE MEASURE FOR THE FOLLOWING REASONS;

(1) IT MEETS THE REQUIREMENTS OF SCAQMD REGULATION XIII, THE ARAR FOR AIR DISCHARGE FROM THE AIR STRIPPING TREATMENT; (2) IT REDUCES OZONE PRECURSOR EMISSIONS IN A NONATTAINMENT AREA (THE SOUTH COAST AIR BASIN) THAT HAS THE WORST AIR QUALITY IN THE NATION; AND (3) IT RESPONDS TO PUBLIC COMMENTS REQUESTING AIR EMISSION CONTROLS TO MINIMIZE THE INCREASE IN EXISTING AIR QUALITY PROBLEMS REGARDLESS OF LEGAL REQUIREMENTS.

THE SELECTED REMEDY (EITHER AIR OR STEAM STRIPPING) MEETS THE ARARS AND TBCS THAT APPLY TO THIS RESPONSE ACTION. THE SELECTED REMEDY WILL MEET THE SAFE DRINKING WATER ACT MCLS AND THE CA DHS STATE ACTION LEVELS IN THE EXTRACTED GROUNDWATER THAT IS TREATED FOR REUSE. UPON THE COMPLETION OF THE FINAL REMEDIAL ACTION FOR THE SITE, THE MCLS WILL BE MET IN THE AQUIFER.

IT WILL ALSO MEET THE SCAQMD'S REGULATION XIII AND RULES 1167 AND 1401 BY ADDING AIR EMISSION CONTROLS TO THE AIR STRIPPERS OR USING STEAM STRIPPING.

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FINALLY, IT WILL MEET THE RCRA REQUIREMENTS AS SPECIFIED IN 40 CFR SECTION 261 AND 263. RCRA SUBPART B, 40 CFR 261 - CRITERIA FOR IDENTIFYING LISTED HAZARDOUS WASTE - IDENTIFIES THE WASTE AS RELEVANT AND APPROPRIATE TO FOOL AND APPLICABLE FOR U210 AND U228. RCRA PART 263 - STANDARDS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE - SPECIFIES COMPLIANCE WITH THE MANIFEST SYSTEM FOR SHIPMENT OF THE SPENT CARBON OFF-SITE FOR REGENERATION.

THE SOLVENT PRODUCT GENERATED FROM STEAM STRIPPING IS NOT CONSIDERED A RCRA WASTE IF IN ACCORDANCE WITH 40 CFR SECTION 261.2(E)(I)(II) MATERIALS ARE NOT SOLID WASTES WHEN THEY CAN BE SHOWN TO BE RECYCLED BY BEING USED OR REUSED AS EFFECTIVE SUBSTITUTES FOR COMMERCIAL PRODUCTS.

THE SELECTED REMEDY PERMANENTLY AND SIGNIFICANTLY REDUCES THE TOXICITY, MOBILITY AND VOLUME OF HAZARDOUS SUBSTANCES WITH RESPECT TO THEIR PRESENCE IN GROUNDWATER. THE CONTAMINANTS ARE REMOVED FROM THE GROUNDWATER, THEREBY REDUCING CONTAMINANT MIGRATION AND RESTORING THE AQUIFER IN THE VICINITY OF THE BURBANK OU AREA. THE STRIPPING TECHNOLOGY WILL RESULT IN A VERY SLIGHT INCREASE IN THE TOXICITY, MOBILITY, AND VOLUME OF HAZARDOUS SUBSTANCES WITH RESPECT TO THEIR PRESENCE IN THE AIR.

AIR STRIPPING WITH VAPOR PHASE GAC INCREASES THE VOLUME OF CONTAMINATION IN THE AIR BY TRANSFERRING THAT VOLUME, WHICH IS NOT TRAPPED INTO THE CARBON FOR REGENERATION, FROM THE WATER TO THE AIR. STEAM STRIPPING SLIGHTLY INCREASES THE VOLUME OF CONTAMINATION IN THE AIR BY TRANSFERRING THAT VOLUME, WHICH IS NOT RECOVERED AS PRODUCT FOR RECYCLING, FROM THE WATER TO THE AIR. THE VOC VOLUMES RELEASED BY EITHER METHOD WILL NOT EXCEED THE SCAQMD'S LIMITS.

THE INCLUSION OF AIR EMISSIONS CONTROL (VAPOR PHASE GAC ADSORPTION UNITS) IN THE SELECTED REMEDY (IF AIR STRIPPING IS USED) REDUCES THE IMPACT OF THE AIR EMISSIONS IN A COST-EFFECTIVE MANNER TO THE MAXIMUM EXTENT POSSIBLE. THE AIR EMISSIONS ARE ESTIMATED TO ADD A MINIMAL RISK TO THE PROJECT VIA AIRBORNE CONTAMINANTS. THE MINIMAL RISK ADDITION IS DUE LARGELY TO THE CAPABILITIES OF THE VAPOR PHASE GAC ADSORPTION UNITS TO REMOVE 90 TO 99% OF THE CONTAMINANTS IN THE AIR DISCHARGED TO THE ATMOSPHERE FROM THE STRIPPER. WITH THE ADDITION OF AIR EMISSION CONTROLS, THE SELECTED REMEDY REDUCES THE POTENTIAL FOR OZONE FORMATION.

BOTH AIR AND STEAM STRIPPING MEET THE STATUTORY PREFERENCE FOR REMEDIES THAT USE ALTERNATIVE TREATMENT OR RESOURCE RECOVERY TECHNOLOGIES TO THE MAXIMUM EXTENT PRACTICABLE. STEAM STRIPPING UNDER VACUUM PRESSURE IS AN INNOVATIVE TECHNOLOGY THAT RECOVERS THE VOCS FOR REUSE. IF THE DUAL STAGE AIR STRIPPING WITH VAPOR PHASE GAC ADSORPTION UNITS IS USED, THE SPENT CARBON FROM THE GAC OFF-GAS TREATMENT SYSTEM WILL BE REGENERATED, INSTEAD OF BEING DISPOSED OF IN A LANDFILL. THEREFORE, THE VOCS WILL BE COLLECTED FOR REUSE OR DESTROYED.

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TAB#

TABLE 1

SUMMARY OF VOLATILE ORGANIC CHEMICALS DETECTED IN BURBANK PUBLIC SERVICE DEPARTMENT WELLS

BURBANK PSD WELL NO.	TCE RANGE OF CONCENTRATION (UG/L)	PCE RANGE OF CONCENTRATION (UG/L)
6A	ND-1.0	ND-1.0
7	ND--4.9	ND-1.0
9	15-61.6	144
10	110-1800	56-590
11A	10-21	18-35
12	0.7 - 38	1.0 - 33
13	0.1 - 34	ND - 52
14A	76	140
15	ND - 4.1	ND - 1.0
17	5.8	5.3 - 8.3
18	ND - 38	ND - 63

TCE = TRICHLOROETHENE
PCE = TETRACHLOROETHENE
ND = BELOW DETECTION LIMIT

SOURCES: 1. LADWP, REMEDIAL INVESTIGATION OF SAN FERNANDO VALLEY GROUNDWATER BASIN, CURRENT SITUATION REPORT, JANUARY 29, 1988.
2. JMM. GC/MS ANALYSIS OF VOLATILE ORGANICS FOR SELECTED BURBANK WELLS. 1987-1988.

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TABLE 1 (CONTINUED)

SUMMARY OF VOLATILE ORGANIC CHEMICALS DETECTED IN BURBANK PUBLIC SERVICE DEPARTMENT WELLS

BURBANK PSD WELL NO.	OTHER (UG/L)	NOTES
6A	- - -	- - -
7	- - -	- - -
9	- - -	TWO DATA POINTS (1981 & 1984) THEN WELL ABANDONED
10	- - -	- - -
11A	- - -	- - -
12	CARBONTETRA-CHLORIDE 3.4	TREND TOWARD INCREASING CONTAMINATION SINCE 3/83
13	CHLOROFORM 2.0	TREND TOWARD INCREASEING CONTAMINATION SINCE 4/85
14A	- - -	AVERAGE OF 19 SAMPLES ANALYZED BY LOCKHEED
15	- - -	- - -
17	- - -	- - -
18	TRACE CONCENTRATIONS OF CHLOROFORM DICHLOROBROMOMETHANE	- - -

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TABLE 4

MCLS, MCLGS AND STATE ACTION LEVELS FOR PRIMARY ORGANIC CONTAMINANTS DETECTED IN THE GROUNDWATER BENEATH THE BURBANK OPERABLE UNIT AREA

	FEDERAL MAXIMUM CONTAMINANT A LEVEL (MCL) (UG/1)	FEDERAL MAXIMUM CONTAMINANT LEVEL GOAL A (MCLG) (UG/1)	STATE ACTION LEVEL (SAL) (UG/1)
TRICHLOROETHENA (TCE)	5	ZERO	5
PERCHLOROETHANE (PCE)			C
CARBON TETRACHLORIDE (CTC)	5	ZERO	5C
CHLOROFORM	100 D	-	-

NOTES: '-' INDICATES THAT THERE IS NOT A SET LEVEL.
A MCL AND MCLG ARE SET BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY.

B SALS ARE SET BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES (DHS)

C DHS HAS RECENTLY PROPOSED ESTABLISHING STATA MCLS FOR PCE AND CTC OF 5 AND 0.5 UG/1, RESPECTIVELY.

D VALUE RAPORTED IS TORAL TRIHALOMETHANES (CHLOROFORM, DIBROMOCHLOROMATHANA, BROMODICHLOROMETHANE, AND BROMOFORM).

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TABLE 5
COST SUMMARY FOR ALTERNATIVE 5, PHASA 1
(AIR STRIPPING, WITH VAPOR PHASE GAC)

ITEM/DESCRIPTION	ESTIMATED COST ($)
CAPITAL COSTS	
EXTRACTION AND PIPELINE TO TREATMENT SYSTEM	5,125,000
TREATMENT (DUAL-STAGE AS WITH VAPOR PHASE GAC)	6,740,000
CONNECTION TO BURBANK PSD DISTRIBUTION SYSTEM	25,000
MONITORING WELL	2,220,000
CAPITAL COSTS	$14,100,000
FEES AND CONTINGENCIES	4,510,000
ENGINEERING, LEGAL, ADMINISTRATION	6,520,000
TOTAL CAPITAL REQUIREMENT	$25,100,000
OPERATION AND MAINTENANCE COSTS	
EXTRACTION	793,000
TREATMENT	3,465,500
MONITORING	33,200
CONTINGENCIES	
TOTAL ANNUAL COSTS	$ 4,300,000
PRESENT WORTH OF O&M COSTS (INTEREST RATE = 10%; YEARS = 20; PRESENT WORTH FACTOR = 8.51)	$43,900,000
TOTAL PRESENT WORTH COST	$69,000,000

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EXHIBIT C

Submission 4483 (Kimberly Bick, Lockheed Martin Corporation, December 2, 2022) - Continued

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2ND CD

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Continued After Caption

FILED CLERK, U.S. DISTRICT COURT JUN 22 1998 CENTRAL DISTRICT OF CALIFORNIA DEPUTY
LODGED CLERK, U.S. DISTRICT COURT MAY 26 1998 CENTRAL DISTRICT OF CALIFORNIA DEPUTY
ENTERED CLERK, U.S. DISTRICT COURT JUN 23 1998 CENTRAL DISTRICT OF CALIFORNIA DEPUTY

IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA

UNITED STATES OF AMERICA and STATE OF CALIFORNIA, DEPARTMENT OF TOXIC SUBSTANCES CONTROL,

Plaintiffs,

vs.

LOCKHEED MARTIN CORPORATION; CITY OF BURBANK, CALIFORNIA, a Charter City; WEBER AIRCRAFT, INC.; ACCRA-TRONICS SEALS CORPORATION; WILLIAM H. FISCH TRUST, DATED OCTOBER 29, 1993; JONES FAMILY TRUST, DATED MAY 14, 1993; ADLER SCREW PRODUCTS, INC.; EIRIK LIRHUS; BERGLJOT LIRHUS; LIRHUS FAMILY TRUST; AEROQUIP CORPORATION; TRINOVA CORPORATION; A-H PLATING, INC.; THE WASCHAK FAMILY TRUST; [illegible]N P. WASCHAK; MELBA R. [illegible]AK; AVIALL SERVICES, INC.; [illegible]NC.; MCENTEE FAMILY [illegible]IP; B.J. GRINDING, INC.; HOISETH; GLENDA HOISETH; HOISETH FAMILY TRUST; JOSEPH F. BANGS, DBA BANGS MANUFACTURING COMPANY; BANGS TRUST, DATED OCTOBER 3, 1990; MEL BERNIE & COMPANY, INC., DBA ACCESSORY PLATING AND 1928 JEWELRY LTD.; LAURIE S. BERNIE AND MELVYN J. BERNIE, AS TRUSTEES OF THE BERNIE TRUST; THE BERNIE TRUST; BURMAR METAL FINISHING CORP. DBA BARRON ANODYZING AND PAINT; CRANE CO., HYDRO-AIRE DIVISION; DELTRON ENGINEERING, INC.; FILIJAN AND KUEBLER PROPERTIES; MICHAEL FILIJAN; TONY KUEBLER; HYDRA-ELECTRIC COMPANY; DAVIS INDUSTRIES, INC.; JANCO CORPORATION, BKT ENTERPRISES, INC.; JOSLYN CORPORATION, LLC, FKA JOSLYN CORPORATION, JOSLYN SUNBANK COMPANY, LLC FKA JOSLYN SUNBANK CORPORATION; OCEAN TECHNOLOGY, INC.; TEXTRON, INC.; HR TEXTRON INC.; PACIFIC PARTNERSHIP; SARGENT INDUSTRIES, INC.; ANTONINI FAMILY TRUST; MARIO E. ANTONINI AND MARISI A. ANTONINI, TRUSTEES; SIERRACIN CORPORATION; INDUSTRIAL BOWLING CORPORATION; R&G SLOANE MANUFACTURING CO., INC.; SPACE-LOK, INC., LERCO DIVISION; THE ESTATE OF ALBINA BREBBIA; CHRISTINA COGAR, INDIVIDUALLY AND AS EXECUTRIX FOR THE ESTATE OF ALBINA BREBBIA; STAINLESS STEEL PRODUCTS, INC.; ZIMMERMAN HOLDINGS, INC.; THE UHLMANN OFFICES, a California corporation; SUNHILL PARTNERS, a California partnership; STEVE'S PLATING CORPORATION; TERRY S. KNEZEVICH; UNIFACTOR, INC., WALTON R. EMMICK; CLELTA SPELMAN; DIANE BARR; ELAINE S. BARR; THE HOMER R. BARR AND ELAINE S. BARR FAMILY TRUST; L.A. GUAGE COMPANY, INC.; TWISS HEAT TREATING CO., INC. DBA TWISS HEAT TREATING CO.; THE WILLIAM E. AND EVELYN TWISS FAMILY TRUST; WILLIAM E. TWISS AND EVELYN TWISS; W AND E TWISS TRUST; VALLEY ENAMELLING CORP.;

CIVIL ACTION NO. 91-4527-MRP (Tx)

SECOND CONSENT DECREE FOR SAN FERNANDO VALLEY SUPERFUND SITE, BURBANK OPERABLE UNIT

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CONSENT DECREE

I. BACKGROUND

A. Summary of Site Background.

The following is a summary of the Site background as alleged by the United States which, for the purposes of this Consent Decree, Settling Defendants neither admit nor deny:

1. The United States of America ("United States"), on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), and the State of California Department of Toxic Substances Control ("State") have filed concurrently with this Consent Decree a supplemental complaint pursuant to Sections 106 and 107 of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9606 and 9607 ("CERCLA"), as amended by the Superfund Amendments and Reauthorization Act of 1986 ("SARA").

2. The United States and the State in the supplemental complaint, seek, inter alia: (1) reimbursement of costs of response incurred by EPA, the Department of Justice, and the State for response actions at the Burbank Operable Unit Site ("Site") of the San Fernando Valley Superfund sites, with accrued interest; and (2) performance of response work by the Defendants at the Site consistent with the National Contingency Plan, 40 C.F.R. Part 300 (as amended) ("NCP").

3. This is the second complaint the United States has filed in this action. Pursuant to the first complaint, a consent decree ("First Consent Decree") was entered by this Court on

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March 25, 1992. A copy of the First Consent Decree is included as Exhibit 1 to this Consent Decree. Under Section XXIII (Continuing Jurisdiction) of the First Consent Decree, this Court retained jurisdiction over both the subject matter and the parties to the original action for the duration of the First Consent Decree and for the purpose of issuing such further orders or directions as may be necessary or appropriate to construe, implement, modify, enforce, terminate or reinstate the terms of the First Consent Decree or for any further relief as the interest of justice may require.

4. The First Consent Decree provided for the defendants to the first complaint, Lockheed Corporation (now Lockheed Martin Corporation, hereinafter "Lockheed Martin"), the City of Burbank, and Weber Aircraft, Inc. ("Weber"), to fund and/or to perform certain response actions at the Site, and for Lockheed Martin and Weber to pay certain costs of response incurred by EPA and the Department of Justice with respect to the Site. This consent decree ("Second Consent Decree" or "this Consent Decree") provides for the defendants that have entered into this Consent Decree (collectively, "Settling Defendants") to fund and/or to perform the remainder of the response actions and to pay part of EPA's, the Department of Justice's, and the State's remaining costs of response for the Site. In general, the Second Consent Decree provides for the continued operation and maintenance of (1) the facilities constructed under the First Consent Decree, and (2) the facilities constructed under EPA Unilateral Administrative Order No. 92-12 ("UAO 92-12") by the

parties to UAO 92-12 ("UAO Parties"), during the final eighteen years of the interim remedy operating period. The Second Consent Decree further provides for: (a) the performance of the UAO Remedial Action Work by the UAO Parties (who are all Settling Defendants), pursuant to UAO 92-12, to the extent that work has not been completed at the time the Second Consent Decree is entered; and (b) the possible dismantling or decommissioning of these facilities upon completion of the interim remedy.

5. Tests conducted on San Fernando Valley groundwater in the early 1980's revealed significant concentrations of volatile organic compounds ("VOCs") in San Fernando Valley basin ("Basin") groundwater. The primary VOCs found in the Basin groundwater were trichloroethylene ("TCE") and perchloroethylene ("PCE"), which were widely used solvents in machinery degreasing, metal plating and dry cleaning. TCE and PCE have been found at the Site at levels that exceed the Maximum Contaminant Levels ("MCLs") for these hazardous substances. MCLs are safe drinking water standards established under the Safe Drinking Water Act of 1974, as amended, 42 U.S.C. § 300f et seq. The Federal MCL for TCE and PCE is 5 parts per billion ("ppb").

B. Based on investigations of Basin groundwater, and pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, in June 1986 EPA placed four well field sites in the San Fernando Valley on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register (see 51 Fed. Reg. 21054): (1) the North Hollywood Superfund site (Area 1); (2) the Crystal Springs Superfund site (Area 2); (3) the Pollock

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Superfund site (Area 3); and (4) the Verdugo Superfund site (Area 4).

C. EPA is conducting a Basin-wide Remedial Investigation and Feasibility Study ("RI/FS") for the San Fernando Valley Superfund sites, which EPA manages as one large Superfund site. EPA has also entered into a multi-site cooperative agreement with the California Department of Health Services ("DHS") which funds DHS participation in remedial activities at many California Superfund sites, including the San Fernando Valley sites. In September of 1989, EPA entered into a cooperative agreement with the California State Water Resources Control Board ("SWRCB"). Under that cooperative agreement, SWRCB funds the Los Angeles Regional Water Quality Control Board's ("RWQCB") ongoing source investigation and source control work in the Basin.

D. EPA has designated four operable units within the San Fernando Valley Superfund sites known as the North Hollywood, Burbank, Glendale North and Glendale South operable units. This Site, the Burbank Operable Unit Site, is one of those four operable units.

E. EPA has issued interim Records of Decision ("RODs") prescribing interim remedies for each of these operable units.

F. The Site is part of the North Hollywood (Area 1) Superfund site, and is the second operable unit in the Basin for which EPA has issued an interim ROD. The Site includes the northeast corner of the North Hollywood Superfund site, as well as the areas to which the plume of TCE and PCE has spread beyond the original boundaries drawn at the time the North Hollywood

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Superfund site was listed on the NPL.

G. EPA completed an Operable Unit Feasibility Study ("OU/FS") Report on the Site in October 1988.

H. The comment period on the OU/FS Report and the Proposed Plan for the Site opened on October 19, 1988 and closed December 2, 1988. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the OU/FS and of the Proposed Plan in two major local newspapers of general circulation, the Los Angeles Times and the Burbank Leader. EPA provided an opportunity for written and oral comments from the public on the Proposed Plan for remedial action. A copy of the transcript of the public meeting is available to the public as part of the Administrative Record upon which the Regional Administrator based the selection of the interim response actions selected for the Site.

I. EPA issued an interim ROD for the Site on June 30, 1989, which the State had a reasonable opportunity to review. A copy of the ROD is appended as Appendix A to the First Consent Decree. The ROD included a responsiveness summary responding to the public comments received at the public meeting. Notice of the Final Plan was published in accordance with Section 117(b) of CERCLA. The remedy described in the ROD was modified by EPA's Explanation of Significant Differences issued by EPA on November 21, 1990 ("ESD 1"). A copy of ESD 1 is included as Appendix B to the First Consent Decree. Furthermore, EPA included in the First Consent Decree certain modifications to the interim remedy, as provided in Subpart F of Section VII of that decree (Work To Be

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Performed). Those modifications did not represent a fundamental change to the remedy selected in the ROD and ESD1. The remedy described in the ROD was further modified by EPA's second Explanation of Differences executed by EPA on February 12, 1997 ("ESD2"). Those modifications also did not represent a fundamental change to the remedy selected in the ROD and ESD1. A copy of EPA's ESD2 is included as Appendix 5 to this Consent Decree.

J. In 1989, pursuant to Section 122(e) of CERCLA, 42 U.S.C. § 9622(e), EPA issued Special Notice for Remedial Design and Remedial Action to potentially responsible parties for the Site. By its 1989 Special Notice, EPA sought the construction, operation and maintenance of the interim remedy for the Site. As more fully described in the ROD, that remedy consists of groundwater extraction and treatment facilities, a blending facility, and systems for delivering the treated groundwater to the public water supply. The treated, blended groundwater delivered to the public water supply shall meet all drinking water standards established by the United States and the State of California. The interim remedy is required to operate for twenty (20) years.

K. In the First Consent Decree, Lockheed Martin, Weber and the City of Burbank agreed to construct and/or to fund the construction of the treatment plant for the Burbank Operable Unit, and to operate and maintain and/or to fund the operation and maintenance of the treatment plant for two years after construction is complete. Lockheed Martin and Weber also agreed

to pay part of EPA's and the Department of Justice's costs for the Site.

L. In March 1992, EPA issued UAO 92-12 to six potentially responsible parties who had received the 1989 Special Notice: Aeroquip Corporation, Crane Company, Inc., Janco Corporation, Sargent Industries, Incorporated, the Antonini Family Trust and Ocean Technology, Incorporated. Copies of UAO 92-12 and the April 28, 1992 Amendment to UAO 92-12 are included as Exhibit 2 to this Decree. UAO 92-12 ordered these parties to construct a blending facility to receive and blend the treated groundwater with another source of water to reduce nitrate levels, and to deliver the water to the public water supply system.

M. In this action, EPA and the State seek reimbursement of past and future response costs, including Basin-wide Response Costs for the Site, which are not reimbursed pursuant to the First Consent Decree. EPA also seeks the performance of the Operation and Maintenance ("O&M") of the treatment and blending facilities for the period not provided by the First Consent Decree or UAO 92-12.

N. Based on the information presently available to EPA and the State, EPA and the State believe that this work will be properly and promptly conducted by the Settling Defendants if conducted in accordance with the requirements of this Consent Decree and its appendices.

O. The State is not a party to the First Consent Decree. In accordance with the NCP and Section 121(f)(1)(F) of CERCLA, 42 U.S.C. § 9621(f)(1)(F), EPA notified the State on September 7,

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1994 of negotiations with potentially responsible parties regarding the implementation of the remainder of the remedial action for the Site, and EPA has provided the State with an opportunity to participate in such negotiations and be a party to this Consent Decree.

P. The State has joined in the United States' supplemental complaint and is alleging that the defendants are liable to the State under Section 107 of CERCLA, 42 U.S.C. § 9607, and under Chapter 6.8, Section 25300 et seq., of the California Health & Safety Code, for the State's past and future response costs at the Site.

Q. In accordance with Section 122(j)(1) of CERCLA, 42 U.S.C. § 9622(j)(1), EPA notified the United States Department of the Interior on September 15, 1994 of negotiations with potentially responsible parties regarding the release of hazardous substances that may have resulted in injury to natural resources under federal trusteeship and encouraged the trustee(s) to participate in the negotiation of this Consent Decree.

R. Settling Defendants deny any and all legal or equitable liability under any federal, state, or local statute, regulation or ordinance, or the common law, for any response costs, damages or claims caused by or arising out of conditions at or arising from the Burbank well field or the Site. By entering into this Consent Decree, or by taking any action in accordance with it, Settling Defendants do not admit any allegations contained herein or in the complaints, nor do Settling Defendants admit liability for any purpose or admit any issues of law or fact or any

responsibility for releases of hazardous substances into the environment. Nothing in this Paragraph shall alter Settling Defendants' agreement not to challenge the Court's jurisdiction as set forth in Section II ("Jurisdiction"), or in any manner whatsoever affect Settling Defendants' obligations or rights under this Consent Decree, the First Consent Decree or UAO 92-12.

S. The Parties recognize, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the Parties in good faith and implementation of this Consent Decree will expedite the cleanup of the Site and will avoid prolonged and complicated litigation between the Parties, and that this Consent Decree is fair, reasonable, and in the public interest.

T. Solely for the purposes of Section 113(j) of CERCLA, 42 U.S.C. § 9613(j), the interim remedial action selected by the ROD and the work to be performed by the Settling Defendants shall constitute a response action taken or ordered by the President. NOW, THEREFORE, it is hereby Ordered, Adjudged, and Decreed:

II. JURISDICTION

This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1345, and 42 U.S.C. §§ 9606, 9607, and 9613(b). This Court also has personal jurisdiction over the Settling Defendants. Solely for the purposes of this Consent Decree and the underlying complaints, Settling Defendants waive all objections and defenses that they may have to jurisdiction of the Court or to venue in this District. Settling Defendants shall not challenge the terms of

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this Consent Decree or this Court's jurisdiction to enter and enforce this Consent Decree.

III. PARTIES BOUND

A. This Consent Decree applies to and is binding upon the United States and the State and upon Settling Defendants and their heirs, successors and assigns. Any change in ownership or corporate status of a Settling Defendant including, but not limited to, any transfer of assets or real or personal property shall in no way alter such Settling Defendant's responsibilities under this Consent Decree.

B. Settling Work Defendant (as defined below) shall provide a copy of this Consent Decree to each contractor hired to perform the O&M Activities (as defined below) required by this Consent Decree and to each person representing Settling Work Defendant with respect to the Site or the O&M Activities and shall condition all contracts entered into hereunder upon performance of the O&M Activities in conformity with the terms of this Consent Decree. Settling Work Defendant or its contractor shall provide written notice of this Consent Decree to all subcontractors hired to perform any portion of the O&M Activities required by this Consent Decree. Settling Work Defendant shall nonetheless be responsible for ensuring that its contractors and subcontractors perform the O&M Activities contemplated herein in accordance with this Consent Decree. With regard to the activities undertaken pursuant to this Consent Decree, each contractor and subcontractor shall be deemed to be in a contractual relationship with Settling Work Defendant within the

meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3).

IV. DEFINITIONS

A. Unless otherwise expressly provided herein, terms used in this Consent Decree which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Consent Decree or in the appendices attached hereto and incorporated hereunder, the following definitions shall apply:

"Basin-wide Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs and interest, payroll costs, contractor costs, travel costs, laboratory costs, attorneys' fees and just compensation, that the United States or the State has incurred or paid or will incur and pay with regard to basin-wide non-operable unit-specific response actions.

"Blending Facility" shall mean the blending facility and related pipeline designed and constructed by the UAO Parties pursuant to UAO 92-12, beginning generally with the B-5 Connection and concluding with the Point of Interconnection, as "B-5 Connection" and "Point of Interconnection" are defined in the First Consent Decree.

"CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601 et seq.

"City" or "City of Burbank" shall mean the City of Burbank, California, as a charter city, and any of its divisions, departments and other subdivisions. "City" or "City of Burbank"

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shall not include any joint powers authority of which the City of Burbank is a member.

"Consent Decree" or "Second Consent Decree" shall mean this Consent Decree and all appendices attached hereto (listed in Section XXX). In the event of conflict between this Consent Decree and any appendix, this Consent Decree shall control.

"Date of Commencement" shall mean, in general, the date specified by EPA that Settling Work Defendant will assume the O&M responsibilities for the Burbank Operable Unit interim remedy, and Lockheed Martin and the UAO Parties shall cease their respective obligations to perform under the First Consent Decree or UAO 92-12. The parties anticipate that this date will be two years after the System Operation Date for phase two of the Remedial Action Work as specified in the First Consent Decree unless delays, including without limitation delays which any party attributes to a force majeure event, cause that date to be extended. Within thirty (30) days of the System Operation Date for phase two of the Remedial Action Work as specified in the First Consent Decree, EPA will specify the tentative Date of Commencement and notify the Settling Work Defendant, Lockheed Martin and the UAO Parties of the tentative Date of Commencement. EPA may revise the tentative Date of Commencement at any time during phase two of the Remedial Action Work as specified in the First Consent decree, and shall notify the Settling Work Defendant, Lockheed Martin and the UAO Parties of any such revision. EPA's specified tentative Date of Commencement shall control all reporting and similar requirements which are required

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to occur in relation to the Date of Commencement. However, in no event shall the Date of Commencement specified by EPA extend the amount of time the interim remedy is required to operate under the ROD.

"Day" shall mean a calendar day unless expressly stated to be a working day. "Working Day" shall mean a day other than a Saturday, Sunday, or federal or State of California holiday. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or federal or State of California holiday, the period shall run until the close of business of the next Working Day.

"Department of Health Services," or "DHS" shall mean the California pollution control agency of that name and any successor departments or agencies of the State of California with authority to implement the Safe Drinking Water Act.

"Department of Toxic Substances Control" or "DTSC" shall mean the California pollution control agency of that name and any successor departments or agencies of the State of California.

"Design Defect" shall mean a failure of any system required to be designed and constructed pursuant to the First Consent Decree or UAO 92-12 to perform as originally designed, which results from a failure by a design professional used by Lockheed Martin or the UAO Parties to adequately design the system to perform in the manner intended, and as described in the design specifications contained in the Final Remedial Design Reports prepared by Lockheed Martin pursuant to the First Consent Decree or the UAO Parties pursuant to UAO 92-12.

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"Downstream Facilities" shall mean the Blending Facility constructed by the UAO Parties pursuant to UAO 92-12 and facilities constructed or repaired by the City of Burbank pursuant to the First Consent Decree. Downstream Facilities also shall mean additional facilities which may be constructed pursuant to this Consent Decree downstream of the Upstream Facilities, as defined in this Section. "Downstream" shall mean the flow of extracted, treated groundwater beginning generally with the Point of Delivery as "Point of Delivery" is defined by the First Consent Decree.

"EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

"Explanation of Significant Differences 1" or "ESD1" shall mean the document dated November 21, 1990, Appendix B to the First Consent Decree. "Explanation of Significant Differences 2" or "ESD2" shall mean the Explanation of Significant Differences dated February 12, 1997, Appendix 5 to this Consent Decree.

"First Consent Decree" shall mean the consent decree entered by this Court on March 25, 1992, resolving the underlying complaint filed by the United States against defendants Lockheed Martin, the City of Burbank and Weber, appended to this Consent Decree as Exhibit 1, and any amendments or modifications to that consent decree.

"Future Basin-wide Response Costs" shall mean all Basin-wide Response Costs incurred or paid by EPA after September 30, 1995 or incurred or paid by the State after March 31, 1996.

"Future Site-Specific Response Costs" shall mean all types of costs described in the definition of Basin-wide Response Costs, (e.g., payroll costs) above, incurred or paid by the United States after the Certification of Completion issues with respect to the First Consent Decree, or by the State after March 31, 1996, with regard to Burbank Operable Unit-specific response actions.

"Interest" shall mean interest at the rate specified for interest on investments of the Hazardous Substance Superfund established under Subchapter A of Chapter 98 of Title 26 of the U.S. Code, compounded on October 1 of each year, in accordance with 42 U.S.C. § 9607(a).

"Los Angeles Department of Water and Power" or "LADWP" shall mean the department of the City of Los Angeles, and any successor agencies or departments, with which EPA has entered into cooperative agreements for the performance of the Basin-wide Remedial Investigation and Feasibility Study for the San Fernando Valley Superfund sites.

"National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, including, but not limited to, any amendments thereto.

"Operation and Maintenance" or "O&M" or "O&M Activities" shall mean the activities required to operate, maintain and monitor the effectiveness of the interim remedial action as required under the Operation and Maintenance Plan(s) approved or

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developed by EPA in conformance with this Consent Decree, UAO 92-12, the Second Stage O&M Work Plan to be developed under this Consent Decree, and the Second Stage Statement of Work attached as Appendix 4 to this Consent Decree.

"O&M Trust Account" shall mean the trust account which Lockheed Martin shall be required to establish pursuant to Section XIV (Funding of Response Activities), Paragraph D of this Consent Decree.

"Operations and Maintenance Contractor" or "O&M Contractor" shall mean the principal contractor retained by the Settling Work Defendant to perform the O&M Activities. The O&M Contractor shall, inter alia: (1) provide the staff to operate and maintain the Plant Facilities; (2) conduct the day-to-day physical tasks of operating the Plant Facilities; (3) perform routine water quality monitoring; (4) physically perform the routine and non-routine maintenance of the Plant Facilities; and (5) maintain the daily operational records of the Plant Facilities.

"Owner Settling Defendants" shall mean the Settling Defendants listed in Appendix 2.

"Paragraph" shall mean a portion of this Consent Decree or the First Consent Decree identified by an Arabic numeral or an upper case letter.

"Parties" shall mean the United States, the State of California DTSC and the Settling Defendants.

"Past Basin-wide Response Costs" shall mean all Basin-wide Response Costs incurred and paid by EPA prior to September 30, 1995, or incurred and paid by the State prior to March 31, 1996.

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"Past Site-Specific Response Costs" shall mean all costs, including, but not limited to, all types of costs described in the definition of Basin-wide Response Costs, (e.g. payroll costs), above, that the United States incurred and paid with regard to the Burbank Operable Unit Site prior to the issuance of the Certification of Completion for the First Consent Decree or that the State incurred and paid prior to March 31, 1996.

"Performance Standards" shall mean those operation and maintenance standards, standards of control, and other substantive requirements, criteria or limitations set forth in the ROD, the First Consent Decree or this Consent Decree, the Second Stage Statement of Work, Appendix 4 to this Consent Decree, and any work plan established pursuant to the First Consent Decree or this Consent Decree. In the event of any conflict between the First Consent Decree and this Consent Decree, or between any work plan established pursuant to the First Consent Decree or this Consent Decree as to the Performance Standards that apply to the O&M Activities, this Consent Decree or the work plan established pursuant to this Consent Decree shall control.

"Plaintiffs" shall mean the United States and the State of California DTSC.

"Plant Facilities" shall mean all parts of the infrastructure necessary to carry out the Burbank Operable Unit interim remedy, as constructed pursuant to the First Consent Decree and UAO 92-12, including without limitation the extraction wellfield, treatment plant, disinfection facility, booster

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station, blending water interconnection and pipeline, connecting pipelines for extraction wells to treatment plant, and Blending Facility.

"Regional Water Quality Control Board" or "RWQCB" shall mean the California pollution control agency and any successor agencies or departments of the State of California, which performs ongoing source investigation and source control work in the San Fernando Valley Basin pursuant to a cooperative agreement between EPA and the State Water Resources Control Board.

"RCRA" shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901 et seq., (also known as the Resource Conservation and Recovery Act).

"Record of Decision" or "ROD" shall mean the EPA Record of Decision relating to the Burbank Operable Unit, signed on June 30, 1989, by the Regional Administrator, EPA Region IX, and all attachments thereto, as modified by the First Consent Decree, ESD1 and ESD2.

"Related Settling Defendants" shall mean entities related to Settling Cash Defendants and identified as such in Appendix 1.

"Released Parties" shall mean Settling Defendants and their officers, directors, employees and agents; where the Settling Defendant or other Released Party is a trust, Released Party also shall mean its trustees and successor trustees appointed to carry out the purposes of said trust; where the Settling Defendant or other Released Party is a corporate entity, Released Party also shall mean its corporate successors to potential liability for the Site; and where the Settling Defendant or other Released

Party is a partnership, Released Party also shall mean its partners. "Released Parties" also shall mean the named entities described in Appendix 1 as Released Parties related to one or more of the Settling Defendants.

"Remedial Action" or "Remedial Action Work" shall mean those activities, except for Operation and Maintenance, to be undertaken or which have been undertaken by any of the Settling Defendants to implement the final plans and specifications submitted by certain of the Settling Defendants pursuant to the Remedial Design Work Plan under the First Consent Decree or the UAO Remedial Design Work Plan under UAO 92-12 and approved by EPA.

"Remedial Action Work Plan" shall mean the documents submitted by Lockheed Martin and/or the City of Burbank pursuant to the Statement of Work, Appendix D to the First Consent Decree.

"Remedial Design" shall mean those activities which were undertaken by Lockheed Martin and/or the City of Burbank pursuant to the Statement of Work ("SOW"), Appendix D to the First Consent Decree, to develop the final plans and specifications for the Remedial Action pursuant to the Remedial Design Statement of Work, or by the UAO Parties pursuant to the Work Schedule, Appendix A to UAO 92-12, to develop the final plans and specifications for the Blending Facility.

"Remedial Design Statement of Work" or "SOW" shall mean the document appended as Appendix D to the First Consent Decree.

"Remedial Design Work Plan" shall mean the work plans prepared by Lockheed Martin and/or the City of Burbank pursuant

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to the SOW, Appendix D to the First Consent Decree, to describe the final plans and specifications for the Remedial Action.

"Second Consent Decree Trust Account" pertains to the trust account which Lockheed Martin shall be required to establish pursuant to Section XIV (Funding of Response Activities), Paragraph C of this Consent Decree.

"Second Stage Operation and Maintenance Work Plan" or "Second Stage O&M Work Plan" shall mean the document prepared pursuant to Section VI of this Consent Decree (Performance of the Work), which shall describe certain Settling Defendants' obligations to operate and maintain, and to dismantle, decommission or otherwise dispose of the Plant Facilities.

"Second Stage Statement of Work" or "Second Stage SOW" shall mean the statement of work for implementation of the O&M Activities, attached as Appendix 4 to this Consent Decree.

"Section" shall mean a portion of this Consent Decree or the First Consent Decree identified by a Roman numeral.

"Settling Cash Defendants" shall mean those Settling Defendants who have funded, in whole or in part, the Second Consent Decree Trust Account described in Section XIV (Funding of Response Activities), via a settlement with Lockheed Martin in the action Lockheed Martin Corporation v. Crane Company et al., United States District Court, Central District of California, Case No. CV 94 2717 MRP (Tx). This term includes each of the UAO Parties.

"Settling Defendants" shall mean Lockheed Martin, Settling Cash Defendants, Related Settling Defendants and Settling Work

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Defendant.

"Settling Work Defendant" shall mean the Settling Defendant that is obligated to perform the Operation and Maintenance Activities pursuant to this Consent Decree, except as to Design Defects as provided in Section VI (Performance of the Work), capital expenditures that are not integral to the Upstream Facilities as provided in Section XIV (Funding Obligations), Paragraph K (Capital Expenditures), and as provided for in Section XIV (Funding Obligations), Paragraph M (Funding Obligation for Design Defects). The City of Burbank is the sole Settling Work Defendant pursuant to this Consent Decree.

"Site" shall mean the areal extent of hazardous substance groundwater contamination that is presently located in the vicinity of the Burbank well field and includes any areas to which and from which such hazardous substance groundwater contamination migrates.

"State" shall mean the Department of Toxic Substances Control and any successor agencies or departments of the State.

"State Water Resources Control Board" or "SWRCB" shall mean the California pollution control agency and any successor agencies or departments of the State of California, with which EPA has entered into a series of cooperative agreements for the ongoing source identification and source control in the Basin conducted by the RWQCB.

"Statement of Work" or "SOW" shall mean the statement of work for implementation of the Remedial Action, and the first two years of Operation and Maintenance at the Site, as set forth in

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Appendix D to the First Consent Decree and any modifications made pursuant to the First Consent Decree.

"Supervising Contractor" shall mean the principal contractor retained or otherwise selected by the Settling Work Defendant, and approved by EPA, to (1) develop the Second Stage O&M Work Plan; (2) prepare the Project Time Line and Staffing Plan required by Section VI, Paragraph C.8 of this Consent Decree; (3) prepare bid documents to select the O&M Contractor; and (4) conduct periodic oversight, including engineering oversight of the O&M Contractor, and submit reports on such periodic oversight to EPA.

"UAO 92-12" shall mean the unilateral administrative order executed by EPA on March 26, 1992 as amended by a letter of April 28, 1992, from Jeffrey Zelikson to the UAO Parties, appended as Exhibit 2 to this Consent Decree.

"UAO Parties" shall mean the Respondents as defined in Section VII.V of UAO 92-12: Aeroquip Corporation, Crane Company, Inc., Janco Corporation, Sargent Industries, Incorporated, Antonini Family Trust, and Ocean Technology, Incorporated.

"UAO Remedial Action Work Plan" shall mean the document submitted by the UAO Parties pursuant to Attachment A to UAO 92-12.

"UAO Remedial Design" shall mean those activities which were undertaken by the recipients of UAO 92-12 to develop the final plans and specifications for the Blending Facility pursuant to Attachment A to UAO 92-12.

"UAO Remedial Design Statement of Work" or "UAO SOW" shall

mean the remedial design document prepared by the recipients of UAO 92-12 and submitted pursuant to Attachment A to UAO 92-12.

"UAO Remedial Design Work" shall mean the activities to be undertaken by the UAO Parties as defined in Section VII.T of UAO 92-12.

"UAO Remedial Design Work Plan" shall mean the work plan prepared by the UAO Parties pursuant to the Work Schedule, Appendix A to UAO 92-12, to describe the final plans and specifications for the Blending Facility.

"Upstream Facilities" pertains to all facilities designed and constructed by Lockheed Martin pursuant to the First Consent Decree and modifications thereto, and to additional facilities which may be constructed pursuant to this Consent Decree upstream of the Blending Facility as originally constructed by the UAO Parties pursuant to UAO 92-12. "Upstream" pertains to the flow of extracted, treated groundwater beginning with its extraction from the aquifer and generally concluding with the Point of Delivery as "Point of Delivery" is defined in the First Consent Decree.

"United States" shall mean the United States of America.

"Waste Material" shall mean (1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any pollutant or contaminant under Section 101(33), 42 U.S.C. § 9601(33); (3) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27); and (4) any "hazardous material" under California Health & Safety Code Section 25100 et seq.

"Working Day" shall mean a day other than a Saturday, Sunday

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or federal or State of California holiday.

V. GENERAL PROVISIONS

A. Purpose.

The purposes of this Consent Decree are to protect public health, welfare or the environment at the Site by the implementation of response actions at the Site, to reimburse part of the Plaintiffs' response costs related to the Site, and to resolve amicably the claims asserted against Settling Defendants in the underlying complaints filed in this matter.

B. Commitments by Settling Defendants.

1. Lockheed Martin, the City of Burbank, the UAO Parties and the other Settling Cash Defendants shall finance and/or perform the O&M Activities and other obligations, if any, described in Sections VI, (Performance of the Work), VII (Additional Response Actions), VIII (EPA Periodic Review) and XIV (Funding of Response Activities) herein in accordance with this Consent Decree and all plans, standards, specifications, and schedules set forth in or developed or approved by EPA pursuant to this Consent Decree. Lockheed Martin shall also reimburse the United States and the State for Past and Future Site-Specific and Past Basin-wide Response Costs as provided in Section XVII of this Consent Decree (Reimbursement of Response Costs).

2. The obligations of Lockheed Martin, the City of Burbank, the UAO Parties and the other Settling Cash Defendants to finance and/or to perform the O&M Activities, and other obligations, if any, and to pay amounts owed to the United States and the State under this Consent Decree are several, except with

respect to the UAO Parties' obligation to fund response actions pursuant to Section XIV (Funding of Response Activities), Paragraph M, which is joint and several as among the UAO Parties, and the Settling Cash Defendants' obligation to fund response actions pursuant to Section XIV, Paragraph N, which is joint and several among the Settling Cash Defendants.

3. Compliance With Applicable Law.

All response activities undertaken by any Settling Defendants pursuant to this Consent Decree shall be performed in accordance with the requirements of all applicable federal and State of California laws and regulations. Settling Defendants who perform response activities also shall comply with all applicable or relevant and appropriate requirements of all federal and State of California environmental laws as set forth in the ROD, the Explanations of Significant Differences, the SOW, the First Consent Decree, this Consent Decree, and any deliverables developed or approved by EPA under the First Consent Decree, UAO 92-12 or this Consent Decree. The activities conducted in accordance with this Consent Decree shall be considered to be consistent with the NCP.

C. Permits.

1. As provided in Section 121(e) of CERCLA, 42 U.S.C. § 9621(e) and Section 300.5 of the NCP, no permit shall be required for any portion of the O&M Activities conducted entirely on-site. Where any portion of the O&M Activities requires a federal or State of California permit or approval, Settling Work Defendant shall submit timely and complete applications and take

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all other reasonable actions necessary to obtain all such permits or approvals. Nothing in this Paragraph shall require the City of Burbank to exercise condemnation, eminent domain, or similar powers or authorities.

2. Settling Work Defendant may seek relief under the provisions of Section XIX (Force Majeure) of this Consent Decree for any delay in the performance of the O&M Activities resulting from a failure to obtain, or a delay in obtaining, any permit required for the O&M Activities.

3. This Consent Decree is not, and shall not be construed to be, a permit issued pursuant to any federal or State of California statute or regulation.

D. Notice of Obligations to Successors-in-Title.

1. The obligations of each Owner Settling Defendant with respect to the properties it owns which are identified in Appendix 2 to this Consent Decree, and the provision of access under Section X (Access) shall be binding upon such Owner Settling Defendant and any and all persons who subsequently acquire by conveyance any fee ownership interest in such property or portion thereof within the Site, hereinafter "Successors in Title." Each Owner Settling Defendant warrants and represents that to the best of its knowledge and belief, the properties it owns which are identified in Appendix 2 to this Consent Decree are the only properties it owns within the Site, and the United States relies upon such representations with respect to the mutual agreements in this Consent Decree concerning properties within the Site which are owned by any Settling Defendant.

2. In the event of any conveyance of such fee ownership or portion thereof, each such Owner Settling Defendant's obligations under this Consent Decree, including its obligations to provide or secure access pursuant to Section X, shall continue to be met by such Owner Settling Defendant. In no event shall the conveyance of an interest in property that includes, or is a portion of, the Site release or otherwise affect the liability of such Owner Settling Defendant to comply with this Consent Decree.

3. Any Owner Settling Defendant and any Successor-in-Title shall, at least thirty (30) days prior to the conveyance of any fee ownership interest in such property, give written notice of this Consent Decree to the grantee. The City shall, at least thirty (30) days prior to the conveyance of any such interest in the real property it owns at 164 West Magnolia Boulevard in the City of Burbank, as depicted in Appendix 8 to this Consent Decree, give written notice of this Consent Decree to the grantee. No later than thirty (30) days after the conveyance of any such interest, such Owner Settling Defendant, Successor-in-Title, or the City shall give written notice to EPA and the State of the conveyance, including the name and address of the grantee, and the date on which notice of the Consent Decree was given to the grantee, and evidence such action by providing a copy of its notice to the grantee.

E. The obligation to provide notice pursuant to this Section shall terminate upon issuance of the Certification of Completion pursuant to Section XV (Certification of Completion)

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of this Consent Decree.

F. In the event of any such conveyance by the City of the property at 164 West Magnolia Boulevard in the City of Burbank, the City's obligations under this Consent Decree shall continue to be met by the City. In no event shall the conveyance of an interest in the property release or otherwise affect the liability of the City to comply with the Consent Decree. Any Successor-in-Title to the real property at 164 West Magnolia Boulevard shall be bound by the provisions of Paragraph D.1 through D.3 of this Section.

VI. PERFORMANCE OF THE WORK

A. Selection of Supervising Contractor.

1. All aspects of the O&M Activities to be performed by Settling Work Defendant pursuant to Sections VI (Performance of the Work), VII (Additional Response Actions), VIII (U.S. EPA Periodic Review), and IX (Quality Assurance, Sampling and Data Analysis) of this Consent Decree shall be under the direction and supervision of the Supervising Contractor, the selection of which shall be subject to disapproval by EPA after a reasonable opportunity for review and comment by the State. Within one hundred and eighty (180) days after the entry of this Consent Decree, Settling Work Defendant shall notify EPA and the State in writing of the name, title, and qualifications of any contractor proposed to be the Supervising Contractor. Settling Work Defendant may submit a list of contractors for pre-qualification prior to engaging in any bidding process. Settling Work Defendant may also propose to directly serve in the role of

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Supervising Contractor, subject to EPA's review and approval. EPA will issue a notice of approval or disapproval of the Supervising Contractor. Upon its approval of the Supervising Contractor, EPA will issue an authorization to proceed. If at any time thereafter, Settling Work Defendant proposes to change a Supervising Contractor, Settling Work Defendant shall give such notice to EPA and the State and must obtain an authorization to proceed from EPA, after a reasonable opportunity for review and comment by the State, before the new Supervising Contractor performs, directs, supervises or implements any O&M Activities under this Consent Decree. In addition, if the Supervising Contractor proposes to subcontract any portion of the supervision, direction or implementation of the O&M Activities under this Consent Decree, Settling Work Defendant shall give such notice to EPA and the State and must obtain an authorization to proceed from EPA, after a reasonable opportunity for review and comment by the State, before the subcontractor supervises, directs, or implements any O&M Activities under this Consent Decree.

2. If EPA disapproves a proposed Supervising Contractor, EPA will notify Settling Work Defendant in writing. Settling Work Defendant shall submit to EPA and the State a list of contractors, including the qualifications of each contractor, that would be acceptable to it within thirty (30) days of receipt of EPA's disapproval of the contractor previously proposed. EPA will provide written notice of the names of any contractor(s) that it disapproves and an authorization to proceed with respect

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to any of the other contractors. Settling Work Defendant may select any contractor from that list that is not disapproved and shall notify EPA and the State of the name of the contractor selected within twenty-one (21) days of EPA's authorization to proceed.

3. If EPA fails to provide written notice of its approval, authorization to proceed or disapproval as provided in this Paragraph, and this failure prevents Settling Work Defendant from meeting one or more deadlines pursuant to this Consent Decree, Settling Work Defendant may seek relief under the provisions of Section XIX (Force Majeure) hereof.

B. Selection of O&M Contractor.

1. The day-to-day conduct of the O&M Activities will be performed by the O&M Contractor as defined in Section IV (Definitions) of this Consent Decree. The selection of the O&M Contractor shall be subject to disapproval by EPA after a reasonable opportunity for review and comment by the State. Within one hundred and eighty (180) days after the System Operation Date for Phase Two of the Remedial Action Work as specified in the First Consent Decree, Settling Work Defendant shall notify EPA and the State in writing of the name, title and qualifications of any contractor proposed to be the O&M Contractor. EPA will issue a notice of approval or disapproval. Upon issuance of a notice of approval, EPA shall issue an authorization to proceed. If at any time thereafter, Settling Work Defendant proposes to change the O&M Contractor, Settling Work Defendant shall give such notice to EPA and the State and

must obtain an authorization to proceed from EPA, after a reasonable opportunity for review and comment by the State, before the new O&M Contractor performs, directs, supervises or implements any O&M Activities under this Consent Decree. In addition, if the O&M Contractor proposes to subcontract any portion of O&M Activities under this Consent Decree, Settling Work Defendant shall give such notice to EPA and the State and must obtain an authorization to proceed from EPA, after a reasonable opportunity for review and comment by the State, before the subcontractor supervises, directs, or implements any O&M Activities under this Consent Decree.

2. EPA's approval or disapproval of Settling Work Defendant's selection of an O&M Contractor shall be governed by the procedures set forth in Section VI (Performance of the Work), Paragraphs A.2 and A.3 of this Consent Decree.

C. Completion of the Response Action.

1. Under Section VII of the First Consent Decree, Lockheed Martin, Weber and the City of Burbank submitted to EPA, inter alia, a work plan for the Remedial Design ("Remedial Design Work Plan"), a work plan for the Remedial Action at the Site ("Remedial Action Work Plan") and a plan for the first two years of the Operation & Maintenance ("O&M Work Plan") of the interim remedy. The Remedial Design, Remedial Action and O&M Work Plans provided for design and implementation of part of the interim remedy set forth in the ROD in accordance with the SOW and, upon approval by EPA, were incorporated into and became enforceable under the First Consent Decree. Under Section VII, Paragraph H.1

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of the First Consent Decree, the City of Burbank agreed to accept the treated, blended groundwater for distribution to the public water supply.

2. Lockheed Martin, Weber and the City of Burbank are performing their obligations under the First Consent Decree. Unless otherwise stated in this Consent Decree, these parties' obligations under the First Consent Decree are not altered in any manner by this Consent Decree.

3. Under Section X of UAO 92-12, the UAO Parties were required to submit, inter alia, a Remedial Design Work Plan and Remedial Action Work Plan for the design, construction and operation of the Blending Facility.

4. The UAO Parties are performing their obligations under UAO 92-12. Unless otherwise stated in this Consent Decree, these parties' obligations under UAO 92-12 are not altered in any manner by this Consent Decree. The UAO Parties agree to perform and complete their obligations under UAO 92-12.

5. Settling Work Defendant shall begin conducting the Operation and Maintenance of the Plant Facilities, beginning on the Date of Commencement and concluding upon EPA's issuance of a Certification of Completion in accordance with Section XV (Certification of Completion) of this Consent Decree. Specifically, Settling Work Defendant shall operate and maintain the Plant Facilities and monitor the effectiveness of such facilities, for the duration of the time required by the ROD.

6. Lockheed Martin shall perform all work necessary to dismantle and decommission the Plant Facilities upon EPA's

determination pursuant to Paragraph A.1 of Section XV (Certification of Completion) of this Consent Decree that dismantling and/or decommissioning is required.

7. As provided in Section XIV (Funding of Response Activities), Paragraphs D and M, Lockheed Martin shall fund the O&M Activities for the Upstream Facilities and any response activities required because of a Design Defect in the Upstream Facilities. As is also provided in Section XIV (Funding of Response Activities), Paragraph C, the Settling Cash Defendants shall fund the Second Consent Decree Trust Account according to their respective shares as set forth in Appendix 6 to this Consent Decree, which is submitted under seal. As provided in Section XIV, Paragraph M.2(c)(2), the UAO Parties also shall fund any response activities required because of a Design Defect in the Blending Facility. Lockheed Martin, the City of Burbank, and the Settling Cash Defendants shall fund any response activities required because of an earthquake or Uninsurable Force Majeure Event, as defined in Section XIV, Paragraph N, as provided in that Paragraph. The City of Burbank shall fund the Operation and Maintenance of the Downstream Facilities except insofar as the UAO Parties may be required to fund such activities because of a Design Defect, or Lockheed Martin or the Settling Cash Defendants may be required to fund such activities because of an earthquake or Uninsurable Force Majeure Event.

8. Within one year after the Effective Date of this Consent Decree, as defined in Section XXVIII (Effective Date), Settling Work Defendant shall submit to EPA:

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a. A Staffing Plan indicating lines of responsibility and communication for day-to-day operations, and designating the person or persons responsible for oversight of the O&M Activities on behalf of Settling Work Defendant. Such person or persons may be a member or members of Settling Work Defendant's staff or a member of Settling Work Defendant's Supervising or O&M Contractors' staffs. Settling Work Defendant shall also designate a single contact for communications with EPA for the O&M Activities from the Effective Date of this Consent Decree, as defined in Section XXVIII (Effective Date), through completion of the Remedial Action.

b. A Time Line and Schedule describing the timing of the O&M Activities which will be carried out during the period of time covered by the First Consent Decree, including but not limited to any transitions in operations responsibility to take place between Lockheed Martin and the City of Burbank prior to or at the Date of Commencement.

9. Within two (2) years after the Effective Date of this Consent Decree, as defined in Section XXVIII (Effective Date), the Settling Work Defendant shall submit to EPA a Second Stage O&M Work Plan describing in detail the tasks to be performed to operate and maintain the Plant Facilities.

D. Settling Defendants acknowledge and agree that nothing in the First Consent Decree, this Consent Decree, the Second Stage O&M Work Plan or in any plan approved pursuant to the First Consent Decree or this Consent Decree constitutes a warranty or representation of any kind by Plaintiffs that compliance with the

work requirements set forth in the O&M Second Stage Work Plan and completion of the O&M Activities will achieve the Performance Standards. Settling Work Defendant's compliance with the requirements of Section VI (Performance of the Work) shall not foreclose Plaintiffs from seeking achievement of all requirements of the ROD including, but not limited to, the applicable Performance Standards.

E. Settling Work Defendant shall, prior to any off-site shipment of Waste Material from the Site to an out-of-state waste management facility, provide written notification to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator of such shipment of Waste Material. However, this notification requirement shall not apply to any off-site shipments when the total volume of all such shipments will not exceed 10 cubic yards.

1. The Settling Work Defendant shall include in the written notification the following information, where available: (1) the name and location of the facility to which the Waste Material(s) are to be shipped; (2) the type and quantity of the Waste Material to be shipped; (3) the expected schedule for the shipment of the Waste Material; and (4) the method of transportation. The Settling Work Defendant shall notify the state in which the planned receiving facility is located of major changes in the shipment plan, such as a decision to ship the Waste Material to another facility within the same state, or to a facility in another state.

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2. The Settling Work Defendant shall provide the information required by this Section, Paragraph E.1 as soon as practicable and before the Waste Material is actually shipped.

F. Miscellaneous Standards of Control.

1. Settling Work Defendant may discharge extracted water to any offsite conveyance(s) leading to any Publicly Owned Treatment Works ("POTW") or to any off-site conveyance(s) leading to any water(s) of the United States for a period of up to five (not necessarily consecutive) days during any month, if the water is not accepted by the City and cannot be vended, provided that the following requirements are met for such discharge:

a. All substantive and procedural requirements applicable to such discharge at the time of such discharge shall be met, including any limits on the quantity of water to be discharged;

b. The total combined amount of any discharge(s) of extracted water to any off-site conveyance(s) leading to any POTW(s) at any time shall not exceed 6,000 gpm; and

c. The total combined amount of extracted water discharged to any off-site conveyance(s) leading to any POTW(s) and to any off-site conveyance(s) leading to any water(s) of the United States at any time shall not exceed 9,000 gpm.

Nothing in this Paragraph shall excuse Settling Work Defendant from stipulated penalties for failure to comply with any other requirements of this Consent Decree.

2. Settling Work Defendant may discharge development and purge water from wells to any off-site conveyance(s) leading

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to any POTW or to any offsite conveyance(s) leading to any water(s) of the United States, provided that any such discharge is in compliance with all substantive and procedural requirements applicable to such discharge at the time of such discharge. Water discharged pursuant to this Section, Paragraph F.2 shall not be included in the limits on the amount of water allowed to be discharged pursuant to this Section, Paragraph F.1.

3. Any water containing hazardous constituents and stored onsite for more than ninety (90) days shall be handled as a hazardous waste onsite. Such storage shall be accomplished in compliance with the substantive requirements of 40 C.F.R. Part 264, Subparts I and J, and 22 California Code of Regulations, Chapter 30, Article 24 ("Use and Management of Containers") and Article 25 ("Tank Systems"). These requirements are applicable or relevant and appropriate requirements for the O&M Activities.

4. With respect to requirements for the operation of the groundwater treatment plant's VOC-stripper (i.e., air stripper with vapor phase granulated activated carbon absorption units), South Coast Air Quality Management District ("SCAQMD") Rule 1167 was rescinded in December of 1988 and Settling Work Defendant is not required to comply with this Rule despite any other language in this Consent Decree. Furthermore, some of the regulations cited in the ROD have been changed by the SCAQMD. The only requirements of the SCAQMD that Settling Work Defendant is required to comply with in performing Work onsite are the substantive requirements of the following applicable or relevant and appropriate requirements for the groundwater treatment plant

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VOC stripper:

a. SCAQMD Regulation XIII, as amended through June 28, 1990; and

b. SCAQMD Rule 1401, as adopted on June 1, 1990.

G. System Operation Minimum Standards. The work to be performed shall achieve the Performance Standards and shall, at a minimum, achieve the following standards during system operation:

1. All groundwater to be extracted shall be treated by Settling Work Defendant to a level such that the following chemicals do not exceed their respective MCL:

Chemical	MCL
PCE	5.0 micrograms/liter
TCE	5.0 micrograms/liter

2. All treated groundwater shall be disinfected and then blended by the Settling Work Defendant to meet all legal requirements for introduction of the blended water into the City's water supply system, including, but not limited to, the MCL for nitrate.

3. Settling Work Defendant shall operate and maintain the facilities it is required to operate and maintain in such a way as to ensure that failure to attain drinking water standards promulgated and in effect on the date of delivery (other than the MCL for nitrate), regardless of when any such standards were promulgated, shall result in the immediate, and, in all cases where possible, automatic shut-down of the groundwater treatment plant and water delivery system. Such a shut-down shall not, in and of itself, release Settling Work Defendant from any other

requirement of this Consent Decree and specifically shall not, in and of itself, affect the requirement that Settling Work Defendant pay stipulated penalties for failure to extract and deliver water in the amounts and of the quality required by Paragraphs G.3 and H.1 of this Section.

H. Extraction Requirements.

1. The Settling Work Defendant shall extract and treat an annual average of 9,000 g.p.m. of contaminated groundwater except as otherwise provided in this Section. Settling Work Defendant shall purvey all treated groundwater which satisfies the treatment standards established by Paragraphs G and H of this Section up to an amount which, when blended with the blending water, will meet the City's Water Demand (as defined in the Second Stage Statement of Work) without resulting in a nitrate concentration in the blended water that exceeds the promulgated MCL for nitrate in effect at that time; provided however that, in order to maximize the Settling Work Defendant's use of treated groundwater while providing a margin of safety in achieving compliance with the MCL for nitrate, the Settling Work Defendant shall be deemed to be in compliance with this Paragraph if it

a. Achieves at all times a level of nitrate in the blended water which is no greater than eighty-nine percent (89%) of the promulgated MCL for nitrate that is in effect at the time of the blending;

b. Extracts contaminated groundwater at an annual average rate of 9,000 g.p.m. at all times when the nitrate level in the extracted groundwater does not exceed 50 mg/l as nitrate;

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and

c. Maximizes the use of the extracted groundwater to the degree possible when the nitrate level in the extracted groundwater exceeds 50 mg/l as nitrate.

2. Notwithstanding the requirements of Paragraph H.1 of this Section, the Settling Work Defendant shall not be charged a stipulated penalty for failure to meet a nitrate level specified in that Paragraph except where the nitrate concentrations of the blended water exceed the promulgated MCL for nitrate in effect at the time of the blending.

3. Settling Work Defendant shall maximize the amount of extraction from the Phase I and Phase II extraction wells and shall preferentially extract groundwater from these wells to meet its Water Demand as limited by the amount of water the Settling Work Defendant is required to accept pursuant to Paragraph H.1 of this Section.

4. Settling Work Defendant shall extract, treat and use its best efforts to vend or discharge, in compliance with Paragraphs F and G of this Section, additional groundwater such that the total amount of water extracted, treated and then delivered by the Settling Work Defendant, or vended or discharged by the Settling Work Defendant, equals or exceeds 9,000 g.p.m. on an annual average. Extraction from the City's liquid phase GAC wellfield located at 164 West Magnolia Boulevard, Burbank, California, as depicted in the plot plan attached as Appendix B to this Consent Decree, may be counted towards Settling Work Defendant's achievement of the 9,000 g.p.m. annual average

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extraction requirement. Settling Work Defendant shall be subject to stipulated penalties if it fails to achieve the 9,000 g.p.m. annual average extraction requirement, unless such failure is due to nitrate levels in the extracted groundwater which exceed 50 mg/l as nitrate.

I. Settling Work Defendant shall not be obligated to meet the requirements of this Section, Paragraph H.1 if a new drinking water standard is promulgated after March 1, 1997, EPA has identified such standard as applicable or relevant and appropriate for the treated groundwater and necessary to protect public health or the environment and such standard cannot be met without modifying the facilities constructed pursuant to Section VII, Subpart A of the First Consent Decree or changing their operation.

VII. ADDITIONAL RESPONSE ACTIONS

A. In the event that EPA determines or the Settling Work Defendant proposes that additional response actions are necessary to meet the Performance Standards or to carry out the interim remedy selected in the ROD, notification of such additional response actions shall be provided to EPA and to each of the Settling Defendants.

B. Within thirty (30) days of receipt of notice from EPA or Settling Work Defendant pursuant to Paragraph A of this Section that additional response actions are necessary (or such longer time as may be specified by EPA), Settling Work Defendant shall submit for approval by EPA, after reasonable opportunity for review and comment by the State, a work plan for the additional

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response actions. The plan shall conform to the applicable requirements under law or EPA guidance. Upon approval of the plan pursuant to Section XII (Submissions Requiring Agency Approval), Settling Work Defendant shall implement the plan for additional response actions in accordance with the schedule contained therein.

C. Any additional response actions that Settling Work Defendant proposes are necessary to meet the Performance Standards or to carry out the interim remedy selected in the ROD shall be subject to approval by EPA, after reasonable opportunity for review and comment by the State, and, if authorized by EPA, shall be completed by Settling Work Defendant in accordance with plans, specifications, and schedules approved or established by EPA pursuant to Section XII (Submissions Requiring Agency Approval).

D. Any Settling Defendant required to fund, perform, or operate and maintain completed additional response actions may invoke the procedures set forth in Section XX (Dispute Resolution) to dispute EPA's determination that additional response actions are necessary to meet the Performance Standards or to carry out the interim remedy selected in the ROD. Such a dispute shall be resolved pursuant to Section XX (Dispute Resolution), Paragraph F of this Consent Decree.

E. The United States and the State reserve all rights against Settling Defendants, pursuant to Paragraph E of Section XXII (Covenants Not to Sue by Plaintiffs), if any new requirement(s) are promulgated or if any requirement(s)

promulgated on or before the Effective Date of this Consent Decree as defined in Section XXVIII (Effective Date) subsequently are changed and such requirement(s) are determined by EPA to be both (a) applicable or relevant and appropriate and (b) necessary to insure that the interim remedy is protective of human health and the environment and such standard cannot be met without modifying the Plant Facilities or significantly changing their operation.

F. If EPA determines that reinjection capacity is necessary for the remedy to meet the Performance Standards or to protect human health or the environment, the development of such capacity shall not be considered an additional response action under this Section. The United States and the State reserve all rights against Settling Defendants as provided in Paragraph E of Section XXII (Covenants Not to Sue by Plaintiffs) concerning installation of such capacity.

VIII. EPA PERIODIC REVIEW

A. Settling Work Defendant shall conduct any studies and investigations as requested by EPA in order to permit EPA to conduct reviews at least every five years as required by Section 121(c), 42 U.S.C. § 9621(c) of CERCLA and any applicable regulations.

B. Settling Defendants and, if required by Sections 113(k)(2) or 117 of CERCLA, 42 U.S.C. §§ 9613(k)(2) or 9617, the public will be provided with an opportunity to comment on any further response actions proposed by EPA as a result of the review conducted pursuant to Section 121(c), of CERCLA, 42 U.S.C.

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§ 9621(c), and to submit written comments for the record during the public comment period. After the period for submission of written comments is closed, the Regional Administrator, EPA Region IX, or his/her delegate will determine in writing whether further response actions are appropriate.

C. The United States reserves the right pursuant to Section XXII, Paragraphs A and E of this Consent Decree (Covenants Not to Sue by Plaintiffs) to institute proceedings in this action or in a new action, or to issue an administrative order seeking to compel Settling Defendants or any of them (1) to perform further response actions relating to the Site or (2) to reimburse the United States for additional costs of response if the Regional Administrator, EPA Region IX, or his/her delegate determines that information received, in whole or in part, during the review conducted pursuant to Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), indicates that the Remedial Action or the O&M Activities are not protective of human health or the environment.

IX. QUALITY ASSURANCE, SAMPLING, AND DATA ANALYSIS

A. Settling Work Defendant shall use quality assurance, quality control, and chain of custody procedures for all treatability, design, compliance and monitoring samples in accordance with EPA's "Interim Guidelines and Specifications For Preparing Quality Assurance Project Plans," December 1980, (QAMS-005/80); "Data Quality Objective Guidance," (EPA/540/G87/003 and 004); "EPA NEIC Policies and Procedures Manual," May 1978, revised November 1984, (EPA 330/9-78-001-R); and subsequent

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amendments to such guidelines upon notification by EPA to Settling Work Defendant of such amendment. Amended guidelines shall apply only to procedures conducted after such notification. Prior to the commencement of any monitoring project under this Consent Decree, Settling Work Defendant shall submit to EPA for approval, after a reasonable opportunity for review and comment by the State, a Quality Assurance Project Plan ("QAPP") that is consistent with the Second Stage O&M Work Plan, the NCP and applicable guidance documents. If relevant to the proceeding, the Parties agree that validated sampling data generated in accordance with the QAPP(s) and reviewed and approved by EPA shall be admissible as evidence, without objection, in any proceeding under this Consent Decree. Settling Work Defendant shall ensure that EPA and State personnel and their authorized representatives are allowed access at reasonable times to all laboratories utilized by Settling Work Defendant in implementing this Consent Decree. In addition, Settling Work Defendant shall ensure that such laboratories shall analyze all samples submitted by EPA pursuant to the QAPP for quality assurance monitoring. Settling Work Defendant shall ensure that the laboratories it utilizes for the analysis of samples taken pursuant to this Consent Decree perform all analyses according to accepted EPA methods. Accepted EPA methods consist of those methods which are documented in the "Contract Lab Program Statement of Work for Inorganic Analysis" and the "Contract Lab Program Statement of Work for Organic Analysis," dated February 1988, and any amendments made thereto during the course of the implementation

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of this Consent Decree. Settling Work Defendant shall ensure that all laboratories it uses for analysis of samples taken pursuant to this Consent Decree participate in an EPA or EPA-equivalent QA/QC program.

B. Upon request, Settling Work Defendant shall allow split or duplicate samples to be taken by EPA and the State or their authorized representatives. Settling Work Defendant shall include in the O&M Second Stage Work Plan a schedule of routine, pre-scheduled sampling events, for example those required by the California Department of Health Services under the operating permit for the Plant Facilities, or under existing regulations. As regulations or permit conditions change and affect this schedule, Settling Work Defendant shall submit revised schedules as amendments to the Second Stage O&M Work Plan. For non-routine, non-emergency sampling events, for example, an unscheduled performance evaluation study of the Plant Facilities, Settling Work Defendant shall notify EPA and the State not less than fourteen (14) days in advance of any sample collection activity unless shorter notice is agreed to by EPA. In addition, EPA and the State shall have the right to take any additional samples that EPA or the State deem necessary. Upon request, EPA and the State shall allow any Settling Defendant to take split or duplicate samples of any samples either Plaintiff takes as part of either Plaintiff's oversight of the implementation of the O&M activities.

C. Settling Work Defendant shall submit to EPA three (3) copies each of the results of all sampling and/or tests

performed, or data gathered pursuant to the implementation of this Consent Decree unless EPA agrees otherwise. Such results and other data may be submitted as part of the progress reports required pursuant to Paragraph A.1 of Section XI (Reporting Requirements). EPA will provide to Settling Work Defendant's Project Coordinator results of analyses conducted by EPA pursuant to Section IX, (Quality Assurance, Sampling and Data Analysis), Paragraph B of this Consent Decree.

D. Notwithstanding any provision of this Consent Decree, the United States and the State hereby retain all of their information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, RCRA and any other applicable statutes or regulations.

E. Settling Work Defendant may deviate from EPA guidance on Quality Assurance/Quality Control ("QA/QC") as referenced in Section IX, Paragraph A of this Consent Decree under the following circumstances. For compliance monitoring required under federal and/or State of California drinking water regulations, Settling Work Defendant may follow QA/QC procedures required under those regulations so long as EPA determines that such procedures are equally protective of human health and the environment as EPA QA/QC procedures.

X. ACCESS

A. Commencing upon the Effective Date of this Consent Decree and terminating upon issuance of a final ROD for the Site, each Owner Settling Defendant agrees to provide the United States, the State, and their representatives, including EPA and

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its contractors, access at all reasonable times to real property to which EPA informs such Owner Settling Defendant access is required for the implementation of this Consent Decree, to the extent access to the property is controlled by such Owner Settling Defendant, for the purposes of conducting any activity related to this Consent Decree including, but not limited to:

a. Monitoring the O&M Activities;

b. Verifying any data or information submitted to the United States;

c. Conducting investigations relating to contamination at or near the Site;

d. Obtaining samples;

e. Assessing the need for, planning, or implementing additional response actions at or near the Site;

f. Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Settling Defendants or their agents, pursuant to Section XXV (Access to Information); and

g. Assessing Settling Defendants' compliance with this Consent Decree.

B. Except to the extent Plaintiffs deem necessary to protect human health or the environment, Plaintiffs will provide the affected Settling Defendant with twenty-four (24) hours notice prior to entry to properties accessed pursuant to this Consent Decree. In exercising their rights to access under this Paragraph, Plaintiffs shall to the extent practicable not unreasonably interfere with Settling Defendants' business or

municipal activities. However, nothing in this Paragraph shall provide Settling Defendants with any claim or cause of action whatsoever against Plaintiffs, including without limitation any claim for injunctive relief. In addition, it shall not constitute an unreasonable interference for Plaintiffs to take any action they deem necessary to avoid endangerment to human health or the environment or to respond to an emergency.

C. To the extent that any other real property to which access is required for the implementation of this Consent Decree is owned or controlled by persons other than Owner Settling Defendants, Settling Work Defendant shall use best efforts to secure from such persons access for Settling Work Defendant, as well as for the United States and the State and their representatives, including, but not limited to, their contractors, as necessary to effectuate this Consent Decree. For purposes of this Paragraph, "best efforts" may include the payment of reasonable sums of money in consideration of access. "Best efforts" does not include the exercise of eminent domain, condemnation or similar authorities. Settling Defendants shall coordinate and cooperate with Settling Work Defendant as appropriate and necessary to obtain such access to properties which they own, control, or to which they otherwise have access. If any access required to effectuate this Consent Decree is not obtained within forty-five (45) days of the date of lodging of this Consent Decree, or within forty-five (45) days of the date EPA notifies the Settling Work Defendant in writing that additional access beyond that previously secured is necessary,

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Settling Work Defendant shall promptly notify the United States, and shall include in that notification a summary of the steps Settling Work Defendant, or other Settling Defendants in coordination and cooperation with Settling Work Defendant, have taken pursuant to this Section to attempt to obtain access. The United States or the State may, as either deems appropriate, assist Settling Work Defendant in obtaining access. Lockheed Martin shall reimburse the United States or the State, in accordance with the procedures in Section XVII (Reimbursement of Response Costs), for all costs incurred by the United States or the State in obtaining access pursuant to this Section.

D. Notwithstanding any provision of this Consent Decree, the United States and the State retain all of their access authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA and any other applicable statute or regulations.

XI. REPORTING REQUIREMENTS

A. In addition to any other requirement of this Consent Decree, Settling Work Defendant shall submit to EPA and the State, with the frequency described below, three (3) copies each of written progress reports that: (a) describe the actions which have been taken toward achieving compliance with this Consent Decree during the previous reporting period; (b)include a summary of all results of sampling and tests and all other data received or generated by Settling Work Defendant or its contractors or agents in the previous reporting period; (c) identify all work plans, plans and other deliverables required by this Consent

Decree completed and submitted during the previous period; (d) describe all actions, including, but not limited to, data collection and implementation of work plans, which are scheduled for the subsequent two reporting periods, (e) include information regarding unresolved delays encountered or anticipated that may affect the future schedule for implementation of the O&M Activities, and a description of efforts made to mitigate those delays or anticipated delays; (f) include any modifications to the O&M Second Stage Work Plan or other schedules that Settling Work Defendant has proposed to EPA or that have been approved by EPA; (g) describe all activities undertaken in support of the Community Relations Plan during the period dating from the submission of the last progress report and those to be undertaken prior to the submission of the next progress report, and (h) report any out-of-state shipments of Waste Materials that occurred during the previous reporting period. Settling Work Defendant shall submit these progress reports to EPA with the frequency described below, commencing from the Effective Date of this Consent Decree until EPA notifies the Settling Work Defendant pursuant to Paragraph A.5 of Section XV (Certification of Completion). If requested by EPA or the State, Settling Work Defendant shall also provide briefings for EPA and the State to discuss the progress of the work.

1. The progress reports shall be submitted with the following frequency:

a. Semi-annually from the Effective Date of this Consent Decree until one year prior to the Date of Commencement;

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b. Quarterly during the year prior to the Date of Commencement;

c. Monthly commencing with the Date of Commencement for a period of three years ("the Monthly Reporting Requirement").

d. Quarterly from completion of the Monthly Reporting Requirement until EPA notifies the Settling Work Defendant pursuant to Paragraph A.5 of Section XV (Certification of Completion) of this Consent Decree.

2. The Settling Work Defendant shall notify EPA of any change in the schedule described in the progress reports for the performance of any activity, including, but not limited to, data collection and implementation of work plans, no later than seven (7) days prior to the performance of the activity.

B. Upon the occurrence of any event during performance of the O&M Activities that Settling Work Defendant is required to report pursuant to Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-Know Act (EPCRA), 42 U.S.C. § 11004, Settling Work Defendant shall within twenty-four (24) hours of the onset of such event orally notify the EPA Project Coordinator or the Alternate EPA Project Coordinator (in the event of the unavailability of the EPA Project Coordinator), or, in the event that neither the EPA Project Coordinator or Alternate EPA Project Coordinator is available, the Emergency Response Section, Region IX, United States Environmental Protection Agency. These reporting requirements are in addition to the reporting required by CERCLA

Section 103, 42 U.S.C. § 9603 or EPCRA Section 304, 42 U.S.C. § 11004.

C. Within twenty (20) days of the onset of such an event, Settling Work Defendant shall furnish to Plaintiffs a written report, signed by the Settling Work Defendant's Project Coordinator, setting forth the events which occurred and the measures taken, and to be taken, in response thereto. Within thirty (30) days of the conclusion of such an event, Settling Work Defendant shall submit a report setting forth all actions taken in response thereto.

D. Settling Work Defendant shall submit three (3) copies of all plans, reports, and data required by the Second Stage O&M Work Plan to EPA. Settling Work Defendant shall simultaneously submit three (3) copies of all such plans, reports and data to the State.

E. All reports and other documents submitted by Settling Work Defendant to EPA (other than the progress reports referred to above) which purport to document Settling Work Defendant's compliance with the terms of this Consent Decree shall be signed by an authorized representative of the Settling Work Defendant.

F. Settling Work Defendant shall immediately notify EPA of any failure to attain MCLs or State of California Action Levels ("SALs") when such failures occur at a point of compliance as defined under federal or State of California drinking water regulations.

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XII. SUBMISSIONS REQUIRING AGENCY APPROVAL

A. After review of the Second Stage O&M Work Plan or other item which is required to be submitted for approval pursuant to this Consent Decree, EPA, after reasonable opportunity for review and comment by the State, shall: (1) approve, in whole or in part, the submission; (2) approve the submission upon specified conditions; (3) modify the submission to cure the deficiencies; (4) disapprove, in whole or in part, the submission, directing that the Settling Work Defendant modify the submission; or (5) any combination of the above.

B. In the event of approval, approval upon conditions, modification, disapproval or partial disapproval by EPA, pursuant to this Section, Paragraph A, Settling Work Defendant shall proceed to take any action required by the Second Stage O&M Work Plan or other item, as approved or modified by EPA, subject only to its right to invoke the dispute resolution procedures set forth in Section XX (Dispute Resolution) with respect to the modifications or conditions made by EPA. However, in the event that EPA modifies the submission pursuant to this Section, Paragraphs A and D, to cure continued deficiencies, and the submission has a material defect not cured upon resubmittal, EPA retains its right to impose stipulated penalties, as provided in Section XXI (Stipulated Penalties), retroactive to the date of the initial submittal.

C. Upon receipt of a notice of disapproval of a resubmitted Second Stage O&M Work Plan or other item, or portion

thereof, pursuant to this Section, Paragraph C or D, Settling Work Defendant shall, within fourteen (14) days or such other time as specified by EPA in such notice, correct the remaining deficiencies and resubmit the Second Stage O&M Work Plan or other item for approval. Any disapproval by EPA shall include an explanation of why the deliverable is inadequate. If the resubmitted deliverable is inadequate, Settling Work Defendant shall be deemed to be in violation of this Consent Decree. Any stipulated penalties applicable to the submission, as provided in Section XXI (Stipulated Penalties), shall accrue during the fourteen-day (14-day) period or otherwise specified period but shall not be payable unless the resubmission is disapproved or modified due to a material defect as provided in this Section, Paragraph E.

Notwithstanding the receipt of an initial notice of disapproval pursuant to this Section, Paragraph A, D or E, Settling Work Defendant shall proceed, at the direction of EPA, to take any action required by any non-deficient portion of the submission. Implementation of any non-deficient portion of a submission shall not relieve Settling Work Defendant of any liability for stipulated penalties under Section XXI (Stipulated Penalties).

D. In the event that a resubmitted Second Stage O&M Work Plan or other item, or portion thereof, is disapproved by EPA, EPA may again require the Settling Work Defendant to correct the deficiencies, in accordance with the preceding Paragraphs. EPA also retains the right to amend or develop the Second Stage O&M

Work Plan or other item. Settling Work Defendant shall implement the Second Stage O&M Work Plan or other item as amended or developed by EPA, subject only to its right to invoke the procedures set forth in Section XX (Dispute Resolution).

E. If upon resubmission, the Second Stage O&M Work Plan or other item is disapproved or modified by EPA due to a material defect, Settling Work Defendant shall be deemed to have failed to submit the Second Stage O&M Work Plan or other item timely and adequately unless Settling Work Defendant invokes the dispute resolution procedures set forth in Section XX (Dispute Resolution) and EPA's action is overturned pursuant to that Section. The provisions of Section XX (Dispute Resolution) and Section XXI (Stipulated Penalties) shall govern the implementation of the O&M Activities and accrual and payment of any stipulated penalties during dispute resolution. If EPA's disapproval or modification is upheld, stipulated penalties shall accrue for such violation from the date on which the initial submission was originally required, as provided in this Section, Paragraph C.

F. The Second Stage O&M Work Plan and other items required to be submitted to EPA under this Consent Decree shall, upon approval or modification by EPA, be enforceable under this Consent Decree. In the event EPA approves or modifies a portion of the Second Stage O&M Work Plan or other item required to be submitted to EPA under this Consent Decree, the approved or modified portion shall be enforceable under this Consent Decree.

G. Items required to be submitted for approval by EPA

pursuant to this Consent Decree are set forth in the Second Stage Statement of Work, Appendix 4 to this Consent Decree.

XIII. PROJECT COORDINATORS

A. Within thirty (30) days of the Effective Date of this Consent Decree, Settling Work Defendant, Lockheed Martin, the UAO Parties, the State and EPA will notify each other, in writing, of the name, address and telephone number of their respective designated Project Coordinators and Alternate Project Coordinators. If a Project Coordinator or Alternate Project Coordinator initially designated is changed, the identity of the successor will be given to the other parties at least five (5) working days before the change occurs, unless impracticable, but in no event later than the actual day the change is made. The Settling Work Defendant's Project Coordinator shall be subject to disapproval by EPA and shall have the technical expertise sufficient to adequately oversee all aspects of the O&M Activities. The Settling Work Defendant's Project Coordinator shall not be an attorney for any of the Settling Defendants in this matter. He or she may assign other representatives, including other contractors, to serve as a Site representative for oversight of performance of daily operations during O&M Activities.

B. Plaintiffs may designate other representatives, including, but not limited to, EPA and State employees, and federal and State contractors and consultants, to observe and monitor the progress of any activity undertaken pursuant to this Consent Decree. EPA's Project Coordinator and Alternate Project

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Coordinator shall have the authority lawfully vested in a Remedial Project Manager (RPM) and an On-Scene Coordinator (OSC) by the National Contingency Plan, 40 C.F.R. Part 300. In addition, EPA's Project Coordinator or Alternate Project Coordinator shall have authority, consistent with the National Contingency Plan, to halt any O&M Activities required by this Consent Decree and to take any necessary response action when the Project Coordinator determines that conditions at the Site constitute an emergency situation or may present an immediate threat to public health or welfare or the environment due to release or threatened release of Waste Material.

C. EPA's Project Coordinator and the Defendants' Project Coordinators will meet on a regular basis as deemed appropriate by EPA's Project Coordinator.

XIV. FUNDING OF RESPONSE ACTIVITIES

A. Within sixty (60) days of the Effective Date, Lockheed Martin shall establish and maintain financial security in the amount of $ 48 million, in one or a combination of the following forms:

1. A surety bond guaranteeing performance of the O&M Activities for the Upstream Facilities;

2. One or more irrevocable letters of credit;

3. A trust fund or combination of trust funds;

4. A guarantee to fund the O&M Activities for the Upstream Facilities by one or more parent corporations or subsidiaries, or by one or more unrelated corporations that have a substantial business relationship with Lockheed Martin;

5. A demonstration that Lockheed Martin satisfies the requirements of 40 C.F.R. Part 264.143(f); or

6. A demonstration, by submittal of its annual report on Form 10-K filed with the Securities and Exchange Commission, that Lockheed Martin possesses the requisite financial ability to assure completion of the O&M Activities for the Upstream Facilities.

B. The amount of financial security that Lockheed Martin is required to maintain shall be decreased in the following increments:

1. Nine years after the Date of Commencement, Lockheed Martin shall maintain financial security in the amount of $ 39 million.

2. Twelve years after the Date of Commencement, Lockheed Martin shall maintain financial security in the amount of $ 31 million.

3. Fifteen years after the Date of Commencement, Lockheed Martin shall maintain financial security in the amount of $ 18 million.

4. Upon decreasing the amount of financial security as provided by this Paragraph, Lockheed shall make a new demonstration of such financial security in the manner described in Paragraph A.1 through A.6 of this Section.

C. Within sixty (60) days of the Effective Date, each Settling Cash Defendant shall cause the funds in the escrow account established pursuant to the settlement agreement reached in the action entitled Lockheed Corporation v. Crane Company,

United States District Court, Central District of California No. CV 94-2717 MRP (Tx) ("Escrow Account") to be transferred into a segregated account ("Second Consent Decree Account"), which shall be used to satisfy Lockheed Martin's obligations as required by this Consent Decree.

D. Within thirty (30) days prior to the Date of Commencement, Lockheed Martin shall establish a trust account ("O&M Trust Account"). The O&M Trust Account shall be used to satisfy Lockheed Martin's obligation to fund the O&M Activities for the Upstream Facilities and other obligations as required by this Section XIV (Funding of Response Activities), Section VI (Performance of the Work), Paragraph C.7, and Section XVIII (Indemnification and Insurance), of this Consent Decree. Lockheed Martin also shall fund transition activities and the Settling Work Defendant's preparation of an integrated O&M manual for the combined Plant Facilities as agreed to in a separate agreement between Lockheed Martin and Settling Work Defendant.

1. The costs of O&M Activities with respect to the Upstream Facilities, including but not limited to the costs of rectifying any construction defect in the Upstream Facilities, all costs of additional response actions required by EPA pursuant to Section VII (Additional Response Actions) related to the Upstream Facilities, and costs incurred for the Site pursuant to Section VIII (EPA Periodic Review) shall be paid from the O&M Trust Account subject to the limitations and in accordance with the provisions set forth in this Section.

2. All costs of O&M Activities with respect to the

Downstream Facilities, including but not limited to the costs of rectifying any construction defect in the Downstream Facilities, and all costs of additional response actions required by EPA pursuant to Section VII (Additional Response Actions) related to the Downstream Facilities shall be paid directly by the City and shall not be subject to reimbursement from the O&M Trust Account. The City's contracting and accounting systems shall be established so as to clearly distinguish between costs incurred for O&M Activities or other activities associated with the Upstream Facilities and costs incurred for O&M Activities or other activities associated with the Downstream Facilities.

3. Prior to the Date of Commencement and contemporaneously with the execution of appropriate documents under Section XIV, Paragraph L of this Consent Decree, the UAO Parties shall execute such agreements as are necessary to assign to the City of Burbank any and all express and implied warranties, rights, claims or causes of action they have or may have as against their construction contractors related to the construction of the Blending Facility, specifically including, but not limited to, claims for defects in the construction of the Blending Facility, but not including claims arising from delays in or excess costs of construction.

E. Lockheed Martin and the City shall, by January 1, 1999, jointly retain an independent cost estimating consultant ("Cost Consultant") acceptable to both parties and EPA, whose responsibilities shall include preparation of the annual budgets and audit reports for O&M Activities with respect to the Upstream

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Facilities required by this Section. The Cost Consultant may be replaced by mutual agreement of Lockheed Martin and the City upon thirty (30) days written notice to EPA and the Cost Consultant, subject to approval by EPA. Either the City or Lockheed Martin may petition EPA for the replacement of the Cost Consultant.

1. If Lockheed Martin, the City and EPA are unable to agree upon a Cost Consultant by January 1, 1999, Lockheed Martin and the City shall, within thirty (30) days thereafter, each submit a list of three (3) cost estimating consultants to the other party and to EPA, along with information regarding the qualifications of each cost estimating consultant on its list. Within ten (10) days after both lists have been submitted, the City and Lockheed Martin may each veto one cost estimating consultant from the other's list. EPA shall select the Cost Consultant from the cost estimating consultants remaining on one or both of the lists, unless all such consultants are unacceptable to EPA.

2. The Cost Consultant may retain a subcontractor to perform some of his or her functions, as described herein. Any such subcontractor shall be approved by the City, Lockheed Martin and EPA prior to performing any work.

3. In the event of the resignation of the Cost Consultant, the City, Lockheed Martin and EPA shall attempt to agree upon the selection of a replacement. If the parties cannot agree upon a replacement, the procedures described in Paragraph E.1 above shall be employed to select a replacement. The lists of three (3) cost estimating consultants referred to in Paragraph

E.1 shall be submitted forty-five (45) days prior to the effective date of resignation of the Cost Consultant or such other date as may be mutually agreed upon by the City, Lockheed Martin and EPA.

4. The Cost Consultant's fees shall be paid from the O&M Trust Account.

F. It shall be the Cost Consultant's responsibility to independently use his or her best technical judgment to prepare an annual budget for O&M Activities with respect to the Upstream Facilities for each of the years during which such O&M Activities are required by this Consent Decree ("Annual Budget"). The Annual Budget shall be developed in the following manner:

1. No later than one hundred and twenty (120) days prior to the Date of Commencement, Lockheed Martin shall provide the Cost Consultant and the City with non-proprietary information regarding its operation and maintenance costs with respect to the Upstream Facilities for the prior year.

2. Ninety (90) days prior to the Date of Commencement, and annually thereafter, the City may submit to the Cost Consultant, Lockheed Martin and EPA its estimate of the cost of O&M Activities with respect to the Upstream Facilities for the one-year period beginning on the Date of Commencement or on the anniversary thereof for the upcoming year. Such an estimate may be submitted by the City in advance of each of the eighteen (18) years for which O&M Activities are required by this Decree.

3. Sixty (60) days prior to the Date of Commencement, and annually thereafter, Lockheed Martin and EPA may submit

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comments to the Cost Consultant on the City's estimate submitted pursuant to Paragraph F.2 of this Section.

4. Thirty (30) days prior to the Date of Commencement, and annually thereafter, the Cost Consultant shall establish the Annual Budget based on: (1) O&M Activities expenditures with respect to the Upstream Facilities during prior years; (2) the City of Burbank's estimate; (3) Lockheed Martin's comments thereon, if any; (4) EPA's comments thereon, if any; and (5) any other cost estimating factors deemed relevant by the Cost Consultant.

5. The Annual Budget shall contain the following cost categories relating to the Upstream Facilities: direct labor, contracted-for labor, power, natural gas, liquid phase carbon, vapor phase carbon, laboratory costs, supplies and materials, disposal costs, permitting costs, replacement costs, insurance (including but not limited to insurance described solely in Exhibit 3 to this Consent Decree), fees of the Cost Consultant and any other cost categories related to the O&M Activities with respect to the Upstream Facilities that the Cost Consultant deems appropriate for cost accounting purposes. In addition, costs of compliance with the provisions of Sections VII (Additional Response Actions) with respect to the Upstream Facilities and VIII (EPA Periodic Review) of this Consent Decree shall be deemed to be O&M Activities and may be included in the Annual Budget.

6. The Cost Consultant shall include a 10% contingency for each cost category in the Annual Budget.

7. Lockheed Martin, the City and EPA shall each have

the right to invoke dispute resolution pursuant to Section XX (Dispute Resolution) of this Consent Decree regarding the total budgeted amount set forth in any Annual Budget, the amount budgeted for any cost item, the inclusion or exclusion of any item from the Annual Budget, or any other matter related to the establishment of the Annual Budget.

G. Lockheed Martin shall ensure that the O&M Trust Account contains funds equal to or in excess of the Annual Budget established for the upcoming year as of the Date of Commencement, and as of each anniversary of that date, by causing funds from the Second Consent Decree Account or its own funds to be transferred to the O&M Trust Account. The City shall have no obligation to undertake O&M Activities with respect to the Upstream Facilities if the O&M Trust Account has not been funded in the manner required by this Paragraph.

H. The City shall submit monthly statements to the trustee of the O&M Trust Account ("Trustee") for payment. Each statement shall be broken down into the same cost categories as set forth in the Annual Budget. The statement shall include copies of all relevant documentation, including purchasing documents, backup documentation for all internal costs, and all invoices, including backup documentation to support all invoiced contracted-for costs, and a declaration by an authorized representative of the City that each amount requested in the statement is due and payable to a party who provided materials or services for O&M Activities with respect to the Upstream Facilities conducted in accordance with the Second Consent Decree and the Second Stage

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O&M Work Plan. The City shall simultaneously provide a copy of each monthly statement to the Cost Consultant, Lockheed Martin and EPA.

1. Any monthly statement seeking payment for an expenditure outside a cost category in the Annual Budget and any statement which will cause the applicable Annual Budget cost category amount to be exceeded must be accompanied by an explanation of the necessity for that expenditure.

2. Disbursements by the Trustee.

a. The Trustee shall promptly pay all amounts requested in a monthly statement that satisfies the requirements of this Section. Lockheed Martin and EPA shall have the right to invoke dispute resolution pursuant to Section XX (Dispute Resolution) of this Consent Decree with regard to the necessity for any expenditure for which an explanation is required, within thirty (30) days of receipt of the monthly statement. If either Lockheed Martin or EPA invokes dispute resolution as to any amount included in a monthly statement, EPA shall make a preliminary determination, within ten (10) working days of dispute resolution being invoked, concerning whether the disputed amount should be paid. Such amount shall be promptly reimbursed to Lockheed Martin if Lockheed Martin thereafter prevails in dispute resolution.

b. In the event that EPA decides to take over some or all of the work related to the Upstream Facilities required to be performed by the Settling Work Defendant pursuant to Section XXII (Covenants Not to Sue by Plaintiffs), Paragraph

F, or Section XVIII (Indemnification and Insurance), Paragraph B, the Trustee shall reimburse EPA within thirty (30) days of EPA's written demand for EPA's costs not inconsistent with the National Contingency Plan which are incurred to take over and/or to perform such work. In the alternative, EPA may elect to be reimbursed for some or all of such costs as Future Site-Specific Response Costs pursuant to Section XVII (Reimbursement of Response Costs).

c. Notwithstanding whether EPA elects to be reimbursed for such costs pursuant to this Section or pursuant to Section XVII (Reimbursement of Response Costs), EPA shall not be subject to the requirements of this Section, including but not limited to Annual Budget and audit requirements, concerning such costs.

d. As is set forth in Section XXII (Covenants Not to Sue by Plaintiffs), Paragraph F of this Consent Decree, and subject to the limitations described in that Section and Paragraph, Lockheed Martin shall have the right to be reimbursed by Settling Work Defendant for that portion of such costs which is caused by the necessity for EPA to take over such work. As is set forth in Section XVIII (Indemnification and Insurance), Paragraph B, and subject to the limitations described in that Section and Paragraph, the City of Burbank shall not be required to reimburse Lockheed Martin for any portion of such costs if EPA takes over the work pursuant to that Section and Paragraph.

3. The Cost Consultant shall audit the City's requests for payments for expenditures on O&M Activities with

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respect to the Upstream Facilities on an annual basis. The audit shall cover the one-year period ending one hundred eighty (180) days prior to the beginning of the period covered by the next Annual Budget and the Cost Consultant's audit report ("Audit Report") shall be provided to the City, Lockheed Martin and EPA at least one hundred fifty (150) days prior to the beginning of the period covered by the next Annual Budget. The purpose of the audit is to: (1) assist the Cost Consultant in preparing the Annual Budget; and (2) allow the parties to determine whether any unnecessary costs have been incurred.

4. Within sixty (60) days of receipt of an annual Audit Report, the City shall reimburse the O&M Trust Account for expenditures found to be unnecessary during the audited period.

5. Lockheed Martin, the City and EPA shall each have the right to invoke dispute resolution with respect to any finding in an Audit Report.

6. The Cost Consultant shall perform a final audit of the City's request for payments for O&M Activities with respect to the Upstream Facilities within ninety (90) days following EPA's approval of the Certificate of Completion pursuant to Section XV of this Decree. Lockheed and the City shall settle all accounts with the O&M Trust Account within thirty (30) days of the issuance of the Cost Consultant's final Audit Report. At that time, the Cost Consultant shall direct the Trustee and the Trustee shall be required to pay over all remaining funds in the O&M Trust Account, if any, to Lockheed Martin. Lockheed Martin, the City and EPA shall have the right to invoke dispute

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resolution with regard to the final accounting or the final Audit Report.

I. The City of Burbank shall utilize a competitive bidding process to secure all services and materials required to perform O&M Activities with respect to the Upstream Facilities that are susceptible to contract. Award of any contract to other than the "lowest responsible bidder" within the meaning of Burbank Municipal Code § 9-122 (Section 54 of the Charter of the City of Burbank, as amended January 14, 1971), shall require a justification by the City pursuant to applicable state and local law. Lockheed Martin hereby reserves all of its rights under state or local law concerning award of any such contract to any person or persons except the "lowest responsible bidder" within the meaning of Burbank Municipal Code § 9-122.

J. For operation of the Upstream Facilities, the City of Burbank shall utilize the lowest cost power source available under any of the following options: (1) under ordinances or resolutions of general application adopted by the City, (2) mandated by federal law, or (3) in accordance with Public Utilities Code section 9602 or other applicable state law. Should a separate power generation facility, or any other capital improvement not integral to the Upstream Facilities, be proposed by Lockheed Martin as a capital expenditure under Paragraph K below, the city will consider such a proposal on the same fair and equitable basis as it would treat any similar proposal by any other industrial power consumer in the City. Power for operating the Upstream Facilities, when provided by the City, shall be

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billed by the City of Burbank at the lowest rate then charged by the City for comparable service conditions. As of September 1, 1996, "comparable service conditions" for the Upstream Facilities are Rate Class "Industrial" and Rate Code "P." If the City adopts a rate for "comparable service conditions" other than the rate charged by the City to any public or private school, or charged to any user under an agreement entered into in conjunction with a "redevelopment project" pursuant to the California Redevelopment Act, Health & Safety Code § 33000 et seq., which provides power at lower cost than Rate Code "P," the lower rate shall apply to power sold to the Upstream Facilities.

K. Lockheed Martin may at any time propose that a capital expenditure be incurred to reduce O&M expenditures with respect to the Upstream Facilities. Any such proposal shall be simultaneously submitted to the Cost Consultant, the City and EPA. Any such proposal shall be limited to facilities that can be fully accommodated within "Area F" (except necessary utilities) as shown on Appendix F to the First Consent Decree.

1. Settling Work Defendant shall have no obligation to operate any separate power generation facility. Nor shall Settling Work Defendant have any obligation to operate any capital improvement constructed pursuant to this Paragraph K, where such capital improvement is not integral to the Upstream Facilities. It shall be the obligation of Lockheed Martin to operate any such capital improvement.

2. A capital improvement shall be considered to be "integral to the Upstream Facilities" if such capital improvement

either (a) would effectively replace a facility or portion of a facility constructed by Lockheed Martin pursuant to the First Consent Decree, or (b) would be intrinsically linked to a facility or portion of a facility constructed by Lockheed Martin pursuant to the First Consent Decree.

3. The Cost Consultant shall review the proposal and any comments submitted by the City and/or the O&M Contractor, and/or EPA, and determine, based on generally accepted cost engineering principles, whether the capital expenditure is economically justified based on the size of the expenditure, the projected O&M savings and the remaining life of the project. The Cost Consultant may meet with Lockheed Martin, the City and/or the O&M Contractor, and/or EPA, with respect to the proposal and comments thereon.

4. If the Cost Consultant determines that the capital expenditure is economically justified, Lockheed Martin may submit the proposal and a conceptual design of the proposed work to EPA for approval. The City and/or the O&M Contractor may submit comments to EPA regarding the proposal and the conceptual design.

5. EPA shall review the proposal and the conceptual design, and any comments submitted by the City and/or the O&M Contractor, and determine based on relevant regulations and policies (which may include but shall not be limited to the remedy selection criteria set forth in the National Contingency Plan), whether the proposed capital expenditure may be incorporated into the remedy. EPA shall document its decision in accordance with applicable laws and regulations. EPA may meet

with Lockheed Martin and/or the City and/or the O&M Contractor with respect to the proposal and conceptual design and any comments thereon. Nothing contained in this Paragraph shall be deemed or construed to limit or abrogate in any way the City's exercise of its police powers or EPA's authority under CERCLA.

6. If EPA approves the conceptual design, Lockheed Martin shall submit a final design for the proposed work. If EPA approves the final design, Lockheed Martin shall proceed to implement the capital improvement. Lockheed Martin shall be solely responsible for funding and constructing the capital improvement.

7. Lockheed Martin shall take reasonable measures to minimize any noise and other disruptions that may be associated with the construction of any capital improvements.

8. Lockheed Martin shall defend, indemnify and hold harmless the City of Burbank with respect to actions against the City based upon disturbances related to the installation of capital improvements.

L. With the exception of the four extraction wells (VO-1, 2, 3 and 4) located at the former Lockheed Martin Plant B-1 in Burbank, California, as depicted in Appendix 8 to this Consent Decree, both the Upstream Facilities and the Downstream Facilities shall be acknowledged by the City as its property for all purposes; provided, however, that any capital improvement constructed pursuant to Paragraph K of this Section that is not integral to the Upstream Facilities, including but not limited to any separate power generation facility, shall not be considered

or deemed to be the property of the City. Any such capital improvement shall be the property of Lockheed Martin, unless the City or a third party agrees to own the improvement. On or before the Date of Commencement, the UAO Parties, Lockheed Martin and the City shall execute appropriate writings documenting the City's ownership interest in such property. As to the extraction wells located on Lockheed Martin property, there shall be a recorded right of access.

M. Commencing from the Date of Commencement, and for a period not to exceed the applicable state statutes of limitations or statutes of repose under which Lockheed Martin may bring such an action against its design contractors less sixty (60) days, the Settling Work Defendant may assert as against Lockheed Martin that any of the Upstream Facilities' failure (if any) to perform as originally designed is due to a Design Defect. Commencing upon the Effective Date of this Consent Decree (as defined in Section XXVIII), and for a period not to exceed the applicable state statutes of limitations or statutes of repose under which the UAO Parties may bring such an action against their design contractors less sixty (60) days, the Settling Work Defendant may assert as against the UAO Parties that the Blending Facility's failure (if any) to perform as originally designed is due to a Design Defect. The Parties agree that the date of substantial completion of the Upstream Facilities was March 1, 1994 and the date of the substantial completion of the Blending Facility was January 6, 1996.

1. The Settling Work Defendant, Lockheed, the UAO

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Parties and EPA agree to the following procedures for the resolution of disputes arising from claims that the Upstream Facilities or the Blending Facility have failed to perform as originally designed due to a Design Defect. These disputes may include but are not limited to a determination as to whether or not a failure to perform as originally designed occurred, whether the failure (if any) was due to a Design Defect, the nature, extent and scope of the repair or other work required to cause the facility in question to meet designated operating standards, the reasonableness and necessity of the costs incurred or to be incurred for such work, and the reasonableness, necessity and timeliness of steps taken to address or mitigate such damage claims.

a. Upon the occurrence of a facility's failure to perform as originally designed which the Settling Work Defendant alleges to be due, in whole or in part, to a Design Defect in the Upstream Facilities or the Blending Facility:

(1) If the alleged occurrence or failure causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, the Settling Work Defendant shall take all actions and provide notifications required by Section XVI (Emergency Response). If the alleged occurrence or failure does not come within the provisions of Section XVI (Emergency Response), Settling Work Defendant shall immediately advise the EPA of the alleged occurrence or failure, by telephone or facsimile transmission.

(2) Settling Work Defendant shall provide a written Notice of Design Defect to EPA within ten (10) days of the date when Settling Work Defendant knew, or reasonably should have known that the alleged occurrence or failure was caused by an alleged Design Defect. The written Notice of Design Defect shall include the basis for the allegation. The Settling Work Defendant shall concurrently provide a copy of the written Notice of Design Defect to either: 1) Lockheed Martin if the alleged Design Defect relates to the Upstream Facilities, or 2) the UAO Parties if the alleged Design Defect relates to the Blending Facility.

b. The Settling Work Defendant shall take such steps as EPA directs to commence repairs to the facility, and shall take reasonable steps to mitigate all damages and costs incurred as a result of the alleged Design Defect. Within five (5) days of undertaking such steps, the Settling Work Defendant shall advise EPA and all interested Parties, in writing and by facsimile transmission, of the repairs and steps it has taken or intends to undertake.

c. The Parties shall cooperate with one another and immediately make available to each other: all facilities pertaining to the failure and the alleged Design Defect; all records pertaining to the failure and the alleged Design Defect; all records pertaining to the operations and maintenance of the facility including all repair records, all work plans or designs for repair or mitigation of damages; all persons with information about the failure and the alleged Design Defect; and all systems

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that are claimed to be defective. The information to be made available by the UAO Parties and Lockheed Martin shall include but shall not be limited to applicable contracts and correspondence with Lockheed Martin's or the UAO Parties' design contractors, internal documentation relating to the design of the facility with the alleged Design Defect, and "as-builts" of the facility with the alleged Design Defect. The Parties shall make good faith efforts to preserve evidence and information. The Settling Work Defendant's good faith efforts may include but shall not be limited to maintaining a videotape record or log of the status or condition of the facility prior to the performance of repairs or alterations, where practicable.

2. Not less than fifteen (15) nor more than thirty (30) days after receipt of the Settling Work Defendant's written Notice of Design Defect, the EPA shall make a Preliminary Finding.

a. Lockheed Martin or the UAO Parties may submit a written or oral response to the Settling Work Defendant's allegation within the fifteen (15) days.

b. The EPA's Preliminary Finding shall include a preliminary determination as to whether the affected facility or facilities failed to perform as originally designed; whether that failure was, in whole or in part, due to a Design Defect; a preliminary allocation of financial responsibility among the Settling Work Defendant, Lockheed Martin and the UAO Parties; and a preliminary finding as to the reasonableness and necessity of any repairs or other work done or proposed by the Settling Work

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Defendant as a result of the alleged Design Defect.

c. According to the preliminary allocation of financial responsibility in the EPA Preliminary Finding, the Settling Work Defendant, Lockheed Martin, and/or the UAO Parties shall finance the work deemed necessary by EPA to cause the affected facility to perform as originally designed, as follows.

(1) If EPA determines that the failure was caused, in whole or in part, by a Design Defect in any of the Upstream Facilities, Lockheed Martin shall, within twenty-five (25) days of receipt of the EPA Preliminary Finding, or within twenty-five (25) days of receipt of an itemized statement by the Settling Work Defendant of all repairs or other work performed or to be undertaken as a result of the alleged Design Defect, whichever is later, remit to the Settling Work Defendant the cost of all such work which Lockheed is required to finance pursuant to the preliminary allocation of financial responsibility.

(2) If EPA determines that the failure was caused, in whole or in part, by a Design Defect in the Blending Facility, the UAO Parties shall, within twenty-five (25) days of receipt of the EPA Preliminary Finding, or within twenty-five (25) days of receipt of an itemized statement by the Settling Work Defendant of all repairs or other work performed or to be undertaken as a result of the alleged Design Defect, whichever is later, remit to the Settling Work Defendant the cost of all such work which the UAO Parties are required to finance pursuant to the preliminary allocation of financial responsibility. Among the UAO Parties, the obligations of this Paragraph shall be joint

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and several.

(3) If EPA determines that the failure of the affected facility was not caused, in whole or in part, by a Design Defect in the Upstream Facilities or the Blending Facility, the Settling Work Defendant and Lockheed Martin shall finance such work as these parties are required to finance pursuant to this Section, Paragraphs A-L.

(4) The Settling Work Defendant shall use such funds as are remitted by Lockheed Martin or the UAO Parties pursuant to the Preliminary Finding to pay for work necessary to cause the facility with the alleged Design Defect to perform as originally designed and for no other purpose.

(5) The Preliminary Finding may require a party whose facility has been determined to have a Design Defect to provide for advance or ongoing funding of any work necessary to cause the affected facility to perform as originally designed.

(6) The Preliminary Finding also may require the Settling Work Defendant to account for expenditures of funds remitted to it under this Paragraph, and to reimburse any party who has remitted such funds if the amount remitted exceeds the expenditures necessary to perform the work necessary to cause the affected facility to perform as originally designed.

(7) EPA shall have continuing jurisdiction over the implementation of the Preliminary Finding.

d. Subject to EPA's approval, the Settling Work Defendant shall perform such work as is necessary to cause the affected facility to perform as originally designed. EPA may

require the Settling Work Defendant to submit a schedule and work plan for such work within a specified period of time. Such schedule(s) and work plan(s) shall be submitted, approved and implemented in accordance with Section XII (Submissions Requiring Agency Approval).

3. Not less than ninety (90) nor more than one hundred twenty (120) days after receipt of the Settling Work Defendant's Notice of Design Defect, the EPA shall make a further evaluation and issue a Further Determination based upon the following procedure:

a. The Settling Work Defendant, Lockheed Martin and/or the UAO Parties, upon receipt of a copy of a Notice of Design Defect pursuant to Paragraph M.1.a.2 of this Section shall have sixty (60) days from receipt of the statement to further inspect the facilities and submit a written statement to EPA. Any such Settling Defendant may request the opportunity to make an oral presentation to the EPA by sending written notice of such intent to EPA and other Settling Defendants who receive a copy of the Notice of Design Defect. EPA shall set a reasonable date, time and location for the presentation. The EPA, in its discretion, may require oral presentations from the affected Settling Defendants.

b. If any party submits a written statement as described in Paragraph M.3.a of this Section, EPA shall issue a Further Determination. In the Further Determination, if any, EPA shall determine whether or not a failure to perform as originally designed occurred; whether the failure (if any) was due, in whole

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or in part, to a Design Defect; the nature, extent and scope of any repairs or other work required to cause the facility to perform as originally designed; the reasonableness and necessity of the costs incurred or to be incurred for such work; the reasonableness, necessity and timeliness of steps taken to address or mitigate damage claims; the comparative fault of Settling Work Defendant, Lockheed Martin and/or the UAO Parties; and an allocation of financial responsibility among Settling Work Defendant, Lockheed Martin and/or the UAO Parties. EPA shall provide written notice of its decision to the parties..

c. According to the allocation of financial responsibility in the EPA Further Determination:

(1) If EPA determines that the failure was caused, in whole or in part, by a Design Defect in any of the Upstream Facilities, Lockheed Martin shall, within twenty-five (25) days of receipt of the EPA Further Determination, or within twenty-five (25) days of receipt of an itemized statement by the Settling Work Defendant of all repairs or other work performed or to be undertaken as a result of the alleged Design Defect, whichever is later, 1) remit to the Settling Work Defendant the cost of all such work which Lockheed Martin is required to finance by the Further Determination, less any portion of such amounts previously remitted to the Settling Work Defendant pursuant to the Preliminary Finding, and 2) reimburse other Settling Defendant(s) if required by the Further Determination.

(2) If EPA determines that the failure was caused, in whole or in part, by a Design Defect in the Blending

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Facility, the UAO Parties shall, within twenty-five (25) days of receipt of the EPA Further Determination, or within twenty-five (25) days of receipt of an itemized statement by the Settling Work Defendant of all repairs or other work performed or to be undertaken as a result of the alleged Design Defect, whichever is later, 1) remit to the Settling Work Defendant the cost of all such work which the UAO Parties are required to finance pursuant to the Further Determination, less any portion of such amounts previously remitted to the Settling Work Defendant pursuant to the Preliminary Finding, and 2) reimburse other Settling Defendant(s) if required by the Further Determination. Among the UAO Parties, the obligations of this Paragraph shall be joint and several.

(3) If EPA determines that the failure of the affected facility was not caused, in whole or in part, by a Design Defect, the Settling Work Defendant and Lockheed Martin shall finance such work as these parties are required to finance pursuant to this Section, Paragraphs A-L. If required by the Further Determination, Settling Work Defendant shall reimburse Lockheed Martin or the UAO Parties for amounts advanced pursuant to the Preliminary Finding.

(4) The Settling Work Defendant shall use such funds as are remitted by Lockheed Martin or the UAO Parties pursuant to the Further Determination to pay for work necessary to cause the facility with the alleged Design Defect to perform as originally designed and for no other purpose.

(5) The Further Determination may require a

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party whose facility has been determined to have a Design Defect to provide for advance or ongoing funding of any work necessary to cause the affected facility to perform as originally designed.

(6) The Further Determination shall require the Settling Work Defendant to account for expenditures of funds remitted to it under this Paragraph M, and to reimburse any party who has remitted such funds if the amount remitted exceeds the expenditures necessary to perform the work necessary to cause the affected facility to perform as originally designed. The Further Determination also shall require that the Settling Work Defendant make any such reimbursement within a reasonable, specified period of time.

(7) EPA shall have continuing jurisdiction over the Further Determination.

4. If a dispute exists among Settling Work Defendant, Lockheed Martin and/or the UAO Parties as to the EPA Further Determination, the Parties' participation in or satisfaction of the terms or conditions set forth in the EPA Preliminary Finding or Further Determination shall not act as a waiver of any claims or defenses by any party, and the Settling Work Defendant, Lockheed Martin and/or the UAO Parties may proceed to seek judicial review of such a dispute as follows:

a. The Settling Work Defendant, Lockheed Martin or the UAO Parties may seek a final resolution of the dispute between or among them concerning the EPA Further Determination by filing suit against one another in a court of competent jurisdiction. Nothing in this Section shall be construed to

provide any party with a claim or cause of action against the United States or the State.

b. The court shall determine all issues regarding the dispute among the Settling Work Defendant, Lockheed Martin, and/or the UAO Parties concerning the EPA Further Determination de novo. Discovery and evidence as to such dispute(s) shall not be limited to the Administrative Record, except that nothing in this Paragraph shall be construed to affect the restrictions on judicial review set forth in CERCLA section 113 (j) and (k), 42 U.S.C. § 9613(j)-(k) or California Health & Safety Code section 25356.1(g), Cal. Health & Safety Code § 25356.1(g).

c. Upon the entry of a final judgment by the court or upon final resolution of the dispute as agreed upon by the parties, if the court's determination and allocation or the parties' final resolution differs from that set forth in the EPA's Further Determination, then each party shall be reimbursed or the responsible party shall pay another party's previous allocation so that each party's final share of total costs shall correspond to the court's judgment or the parties' final resolution. Any such reimbursement may include pre-judgment interest pursuant to California Civil Code section 3287, Cal. Civ. Code § 3287, unless otherwise agreed by the parties. The court's final judgment or the parties' final resolution shall supersede EPA's Further Determination. Should additional costs be incurred relating to the Design Defect(s) at issue after the court's final judgment or the parties' final resolution, the court's final judgment or the parties' final resolution shall be

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followed by the parties and EPA.

N. Funding of Repairs Required by Earthquakes or Other Force Majeure Events

1. Definition of "Major Damage" As used in this Paragraph, "Major Damage" shall mean physical damage which EPA has determined was caused by a force majeure event pursuant to Section XIX (Force Majeure) of this Consent Decree and will cost more than the following amounts to repair or rebuild with respect to the affected Plant Facilities:

a. more than one million dollars ($ 1,000,000) with respect to the Upstream Facilities; or

b. more than one hundred and fifty thousand dollars ($ 150,000) with respect to the Blending Facility.

2. Definition of "Uninsurable Force Majeure Event"

"Uninsurable Force Majeure Event" shall mean a force majeure event as defined in Section XIX (Force Majeure) of this Consent Decree, other than an earthquake or damage resulting from an earthquake, that causes physical damage to any of the Plant Facilities which is not covered by any insurance maintained by the Settling Work Defendant, the O&M Contractor or its subcontractors, including but not limited to insurance maintained pursuant to this Consent Decree or Exhibit 3 hereto, and which EPA has determined such persons could not have insured at a commercially reasonable cost.

3. Earthquake

In the event of an earthquake which causes damage to any of the Plant Facilities, including but not limited to Major Damage

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to the Upstream Facilities and/or the Blending Facility, and EPA determines that the damage should be repaired:

a. Lockheed Martin shall fund the repair and/or rebuilding of the affected Upstream Facilities up to the first one million dollars ($ 1,000,000) of necessary expenditure, and/or the repair and/or rebuilding of the Blending Facility up to the first one hundred and fifty thousand dollars ($ 150,000) of necessary expenditure; and

b. The City of Burbank shall fund the repair and/or rebuilding of the other affected Downstream Facilities.

4. Uninsurable Force Majeure Event

In the event of an Uninsurable Force Majeure Event that causes damage, including but not limited to Major Damage to the Upstream Facilities and/or the Blending Facility, and EPA determines that the damage should be repaired:

a. Lockheed Martin shall fund the repair and/or rebuilding of the affected Upstream Facilities;

b. The Settling Cash Defendants shall fund the repair and/or rebuilding of the Blending Facility up to the first one hundred and fifty thousand dollars ($ 150,000) of necessary expenditure.. The obligations of this Paragraph shall be joint and several among the Settling Cash Defendants; and

c. The City of Burbank shall fund the repair and/or rebuilding of the other affected Downstream Facilities.

5. Force Majeure Events Other Than Earthquake or Uninsurable Force Majeure Events

In the event of a force majeure event (as is defined in Section XIX (Force Majeure)), other than an earthquake or

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Uninsurable Force Majeure Event, which causes damage, including but not limited to Major Damage to the Upstream Facilities and/or the Blending Facility, Lockheed Martin and/or the City of Burbank shall fund the repair and/or rebuilding of the affected Plant Facilities pursuant to their respective funding obligations as described in this Section (Funding of Response Activities), and otherwise in accordance with this Consent Decree, including but not limited to Sections VI (Performance of the Work), VII (Additional Work), and XIX (Force Majeure).

6. In the event of Major Damage to the Upstream Facilities and/or the Blending Facility as the result of an earthquake or to the Blending Facility as the result of an Uninsurable Force Majeure Event, and except as to those Settling Defendants described in Appendix 3 to this Consent Decree, EPA reserves all of its rights against Settling Defendants pursuant to Section XXII (Covenants Not to Sue by Plaintiffs), including but not limited to the right to issue an administrative order to require the complete repair and/or rebuilding of the affected Plant Facilities.

7. If EPA exercises its rights pursuant to Paragraph N.6 of this Section, the Settling Defendants agree between and among themselves that:

a. In the event of an earthquake, Lockheed Martin and the Settling Cash Defendants shall not seek funding, contribution or reimbursement from the City of Burbank for funding any repairs and/or rebuilding that EPA determines should be made to the Upstream Facilities and/or the Blending Facility;

and the City shall not seek funding, contribution or reimbursement from Lockheed Martin or the Settling Cash Defendants for funding any repairs and/or rebuilding that EPA determines should be made to the Downstream Facilities; and

b. In the event of an Uninsurable Force Majeure Event, the Settling Cash Defendants shall not seek funding, contribution or reimbursement from the City of Burbank or Lockheed Martin for funding any repairs and/or rebuilding that EPA determines should be made to the Blending Facility; the City shall not seek funding, contribution or reimbursement from Lockheed Martin or the Settling Cash Defendants for any repairs and/or rebuilding that EPA determines should be made to the Downstream Facilities; and Lockheed Martin shall not seek funding, contribution or reimbursement from the Settling Work Defendant or the Settling Cash Defendants for any repair and/or rebuilding that EPA determines should be made to the Upstream Facilities.

8. Lockheed Martin's, the City of Burbank's, and/or the Settling Cash Defendants' obligations to make repairs or to rebuild pursuant to this Paragraph shall cease if EPA notifies the affected party that EPA does not intend to require the repair and/or rebuilding of the affected Plant Facilities.

9. Any repairs that EPA determines should be made to the Plant Facilities pursuant to this Paragraph shall be performed by the City of Burbank and funded as provided in this Paragraph.

10. Any disputes between EPA and any of the Parties,

or between or among any of the Settling Defendants concerning the cause, cost or necessity for any repairs and/or rebuilding of the affected Plant Facilities pursuant to this Paragraph shall be subject to dispute resolution pursuant to Section XX of this Consent Decree (Dispute Resolution). Notwithstanding the foregoing:

a. If the City of Burbank claims that an earthquake or Uninsurable Force Majeure Event necessitates the repair and/or rebuilding of the Plant Facilities, and EPA determines that the repair and/or rebuilding should be made, EPA shall make an initial determination whether such work is required as the result of an earthquake or Uninsurable Force Majeure Event. As appropriate, EPA may also make an initial determination as to the means and manner of funding to be provided by the designated Party or Parties responsible for funding such work pursuant to this Paragraph.

b. The Parties shall fund and/or perform such repairs as EPA determines are necessary according to EPA's initial determination, and otherwise in accordance with their respective obligations under this Section (Funding Of Response Activities). If a Party prevails in dispute resolution on the contention that it should not have been required to fund repairs pursuant to this Paragraph, such Party shall be promptly reimbursed by the appropriate Party or Parties determined to be responsible for funding such repairs in accordance with the final decision in the Dispute Resolution.

XV. CERTIFICATION OF COMPLETION

Defendants' obligations for performance of the work pursuant to Section VI of this Consent Decree and Funding of Response Activities pursuant to Section XIV of this Consent Decree shall be deemed satisfied upon issuance of the Certification of Completion. It is anticipated by the Parties that the certification process set forth below will occur eighteen (18) years after the Date of Commencement.

A. Completion of the O&M Activities.

1. At least ninety (90) days prior to the date that Settling Work Defendant anticipates that the work will have been fully performed, Settling Work Defendant shall submit a written report requesting certification to EPA for approval, with a copy to the State, pursuant to Section XII (Submissions Requiring Agency Approval). During the 90-day period, EPA shall determine whether dismantling and/or decommissioning of any facilities constructed pursuant to the First Consent Decree or UAO 92-12 is required pursuant to Section VI (Work to be Performed), Paragraph C.6 of this Consent Decree.

2. In the Settling Work Defendant's report seeking Certification of Completion, a registered professional engineer and the Settling Work Defendant's Project Coordinator shall state that the O&M Activities, except for dismantling and/or decommissioning activities, will be complete in full satisfaction of the requirements of this Consent Decree. The written report shall include all appropriate and necessary information to a determination of completion, including the date upon which

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completion is anticipated, and if appropriate, drawings signed and stamped by a professional engineer. The report shall contain the following statement, signed by the Settling Work Defendant's authorized Project Coordinator:

> "To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

3. If EPA deems necessary, EPA may conduct a pre-certification inspection concerning completion of the O&M Activities. If, after review of the written report and conducting a pre-certification inspection, if EPA deems such an inspection necessary, and after reasonable opportunity to review and comment by the State, EPA determines that the O&M Activities or any portion thereof except dismantling and/or decommissioning activities will not be completed in accordance with this Consent Decree on the date anticipated by Settling Work Defendant, EPA will notify the Settling Work Defendant in writing of the activities that must be undertaken to complete the O&M Activities except dismantling and/or decommissioning activities.

4. EPA will set forth in the notice to the Settling Work Defendant a schedule for performance of such activities consistent with this Consent Decree and the Second Stage O&M Work Plan or require the Settling Work Defendant to submit a schedule to EPA for approval pursuant to Section XII (Submissions Requiring Agency Approval). Settling Work Defendant shall perform all activities described in the notice in accordance with

the specifications and schedules established pursuant to this Paragraph, subject to its right to invoke the dispute resolution procedures set forth in Section XX (Dispute Resolution).

5. If EPA concludes, based on the initial or any subsequent report(s) requesting Certification of Completion and after a reasonable opportunity for review and comment by the State, that the O&M Activities, except for dismantling or decommissioning activities, have been fully performed in accordance with this Consent Decree, EPA will so certify in writing to all Settling Defendants. This certification shall constitute the Certification of Completion of the O&M Activities for purposes of this Consent Decree, including, but not limited to, Section XXII (Covenants Not to Sue by Plaintiffs). Certification of Completion of the O&M Activities shall not affect Settling Work Defendant's or any other Settling Defendant's other obligations under this Consent Decree, including, but not limited to, Lockheed Martin's obligation to dismantle or decommission the treatment and blending facilities, if such dismantling and/or decommissioning activities are not complete at the time the Certification of Completion issues.

6. As to Lockheed Martin, the Certification of Completion shall not apply until Lockheed Martin has completed any dismantling and/or decommissioning activities EPA may require pursuant to this Section.

B. Dismantling and/or Decommissioning of Facilities.

1. If, during the 90-day period referenced in Paragraph A.1 of this Section, EPA determines that dismantling

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and/or decommissioning of the treatment and/or blending facilities is required, Lockheed Martin shall, if requested by EPA, submit a work plan for such activities to EPA, with a copy to the State, in accordance with Section XII of this Consent Decree (Submissions Requiring Agency Approval). At least ninety (90) days prior to the date Lockheed Martin anticipates that dismantling and/or decommissioning activities will have been fully completed, Lockheed Martin shall submit a written report to EPA requesting approval of such work, and confirmation that such work is complete, with a copy to the State, pursuant to Section XII (Submissions Requiring Agency Approval).

2. The report and EPA's response to the report, including but not limited to an inspection of the work and/or a notice concerning additional work to be performed, shall conform to the applicable requirements, as determined by EPA, of Paragraph A.2-5 of this Section.

3. If EPA has determined that dismantling and/or decommissioning is required and confirms that such work is complete, EPA shall promptly issue a Certificate of Completion to Lockheed Martin, with a copy to the State. If EPA has determined that dismantling and/or decommissioning is not required, it shall issue a Certificate of Completion to Lockheed Martin promptly upon making that determination.

XVI. EMERGENCY RESPONSE

In the event of any action or occurrence during the performance of the O&M Activities which causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, Settling Work Defendant shall, subject to this Section, immediately take all appropriate action to prevent, abate, or minimize such release or threat of release. Settling Work Defendant shall report such a situation to the appropriate regulatory authorities as required by law. As soon as possible and reasonable under the circumstances, but in no event more than one Working Day after making the report required by law, Settling Work Defendant shall notify EPA's Project Coordinator, or if the Project Coordinator is unavailable, EPA's Alternate Project Coordinator. If neither of these individuals is available, Settling Work Defendant shall notify the Emergency Response Unit, EPA, Region IX. Settling Work Defendant shall take such actions in consultation with EPA's Project Coordinator or other available authorized EPA officer and in accordance with all applicable provisions of the Health and Safety Plans, the Contingency Plans, and any other applicable plans or documents developed pursuant to the Second Stage SOW or the Second Stage O&M Work Plan. In the event that Settling Work Defendant fails to take appropriate response action as required by this Section, and EPA or, as appropriate, the State takes such action instead, Settling Work Defendant shall reimburse EPA and the State all costs of the response action not inconsistent with

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the NCP pursuant to Section XVII (Reimbursement of Response Costs).

Nothing in the preceding Paragraph or in this Consent Decree shall be deemed to limit any authority of the United States, or the State, to take, direct, or order all appropriate action or to seek an order from the Court to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste Material on, at, or from the Site.

XVII. REIMBURSEMENT OF RESPONSE COSTS

A. Within sixty (60) days of the Effective Date of this Consent Decree as defined in Section XXVIII (Effective Date), Lockheed Martin shall:

1. Pay to the United States $ 11,827,869 in the form of an EFT to the U.S. Department of Justice Lockbox referencing the San Fernando Valley Superfund Site/Burbank Operable Unit, and referencing CERCLA Number SSID #59, DOJ Case Number 90-11-2-442 and USAO File No. 91-03-463 in reimbursement of Past Basin-wide Response Costs.

2. Provide written verification to EPA regarding EFT transfers pursuant to this Section as specified in Section XXVII (Notices and Submissions).

3. Pay to the State $ 22,348.60 in reimbursement of Past Basin-wide Response Costs incurred by the State and $ 25,264.14 in reimbursement of Past Site-Specific Response Costs incurred by the State in the form of a certified check or checks made payable to the State of California, Department of Toxic

Substances Control, Project No. 300173. Lockheed Martin shall send the certified check(s) to: Department of Toxic Substances Control, Accounting Office, 400 P Street, 4th floor, Sacramento, California, 95814.

B. Lockheed Martin shall reimburse the United States and the State for all Future Site-Specific Response Costs not inconsistent with the National Contingency Plan incurred by the United States and the State. The United States and the State will send Lockheed Martin bills for Future Site-Specific Response Costs incurred by EPA, DOJ, the State and their contractors no more frequently than annually; provided, however, that failure to include all such costs in the submittal during any calendar year will not preclude EPA or the State from submitting such costs in any subsequent year. EPA's Agency Financial Management System Summary Data (SCORES) Report or equivalent shall constitute documentation of EPA's costs. Lockheed Martin shall make payment within sixty (60) days of the date of each bill requiring payment, except as otherwise provided in this Section, Paragraphs C and D. Lockheed Martin shall make all payments required by this Paragraph in the following manner: Lockheed Martin shall transmit such amounts in the form of a EFT to the U.S. Department of Justice Lockbox referencing the San Fernando Valley Superfund Site/Burbank Operable Unit, and referencing CERCLA Number SSID # L6, DOJ Case Number 90-11-2-442 and USAO File No. 91-03-463.

C. Lockheed Martin may contest a bill for Future Site-Specific Response Costs under this Section and Paragraph if it determines that the United States or the State has made an

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accounting error or if it alleges that a cost item that is included represents costs that are inconsistent with the NCP. Such objection shall be made in writing within sixty (60) days of receipt of the bill and must be sent to the United States (if the United States' accounting is being disputed) or the State (if the State's accounting is being disputed) pursuant to Section XXVII (Notices and Submissions). Any such objection shall specifically identify the contested Future Site-Specific Response Costs and the basis for objection. In the event of such an objection, Lockheed Martin shall within the sixty (60) day period pay all uncontested Future Site-Specific Response Costs to the United States or the State in the manner described in this Section, Paragraph B. Simultaneously, Lockheed Martin shall establish an interest-bearing escrow account in a federally-insured bank duly chartered in the State of California and remit to that escrow account funds equivalent to the amount of the contested Future Site-Specific Response Costs. Lockheed Martin shall send to the United States, as provided in Section XXVII (Notices and Submissions), and the State a copy of the transmittal letter and check paying the uncontested Future Site-Specific Response Costs, and a copy of the correspondence that establishes and funds the escrow account, including, but not limited to, information containing the identity of the bank and bank account under which the escrow account is established as well as a bank statement showing the initial balance of the escrow account. Simultaneously with establishment of the escrow account, within the sixty (60) day period, Lockheed Martin shall initiate the

dispute resolution procedures in Section XX (Dispute Resolution). If the United States or the State prevails in the dispute or concerning any aspect of the contested costs in dispute, within five (5) days of the resolution of the dispute, Lockheed Martin shall pay the sums due (with accrued Interest) to the United States in the manner described in this Section, Paragraph B, or the State, if State costs are disputed, in the manner described in this Section, Paragraph A.3. If Lockheed Martin prevails concerning any aspect of the contested costs, Lockheed Martin shall pay that portion of the costs (plus associated accrued Interest) as to which it did not prevail to the United States or the State, if State costs are disputed in the manner described in this Section, Paragraph A.3 or B, as applicable; Lockheed Martin shall be disbursed any balance of the escrow account. The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XX (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding Lockheed Martin's obligation to reimburse the United States and the State for their Future Site-Specific Response Costs, including without limitation allegations of accounting errors or allegations that costs billed are inconsistent with the NCP.

D. In the event that any payment required by this Section, Paragraph A.1 is not made within sixty (60) days of the Effective Date of this Consent Decree (as defined by Section XXVIII), Lockheed Martin shall pay Interest on the unpaid balance. The Interest to be paid shall begin to accrue sixty (60) days after

the Effective Date of this Consent Decree. Interest shall accrue at the rate specified through the date of Lockheed Martin's payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to Plaintiffs by virtue of a failure to make timely payments under this Section.

XVIII. INDEMNIFICATION AND INSURANCE

The United States and the State do not assume any liability by entering into this Consent Decree or by virtue of any designation of Settling Work Defendant or any other defendant who performs work pursuant to this Consent Decree as EPA's authorized representative under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e). Settling Work Defendant, with respect to response activities performed by Settling Work Defendant, and other Settling Defendants with respect to response activities performed by them, if any, shall indemnify, save and hold harmless the United States, the State and their officials, agents, employees, contractors, subcontractors, or representatives for or from any and all claims or causes of action arising from, or on account of, acts or omissions of such Settling Defendant, its officers, employees, agents, contractors, subcontractors, and any persons acting on its behalf or under its control, in carrying out activities pursuant to this Consent Decree, including, but not limited to, any claims arising from the designation of Settling Work Defendant or any other Settling Defendant as EPA's authorized representative under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e). Further, such Settling Defendant agrees to pay

the United States and the State all costs they incur including, but not limited to, attorneys fees and other expenses of litigation and settlement arising from, or on account of, claims made against the United States or the State based on acts or omissions of such Settling Defendant, its officers, employees, agents, contractors, subcontractors, and any persons acting on its behalf or under its control, in carrying out activities pursuant to this Consent Decree. Neither the United States nor the State shall be held out as a party to any contract entered into by or on behalf of such Settling Defendant in carrying out activities pursuant to this Consent Decree. Neither such Settling Defendant nor any such contractor shall be considered an agent of the United States or the State.

A. Settling Defendants waive all claims against the United States and the State for damages or reimbursement or for set-off of any payments made or to be made to the United States or the State arising from or on account of any contract, agreement, or arrangement between such Settling Defendants and any person for performance of O&M Activities on or relating to the Site, including, but not limited to, claims on account of construction delays. In addition, such Settling Defendant shall indemnify and hold harmless the United States and the State with respect to any and all such claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between any one or more of Settling Defendants and any person for performance of O&M Activities on or relating to the Site, including, but not limited to, claims on account of construction delays.

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B. No later than thirty (30) days prior to the Date of Commencement, Settling Work Defendant shall secure, and shall maintain until the first anniversary of EPA's Certification of Completion pursuant to Section XV (Certification of Completion), comprehensive general liability insurance with limits of not less than $ 20 million dollars ($ 20,000,000) combined single limit each occurrence, and in the annual aggregate, ten million ($ 10,000,000) of which is dedicated to the Interim Remedial Action, naming as additional insureds the United States and the State. In addition, for the duration of this Consent Decree, Settling Work Defendant shall satisfy, or shall ensure that its contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the O&M Activities on behalf of Settling Work Defendant in furtherance of this Consent Decree. Prior to commencement of the O&M Activities under this Consent Decree, Settling Work Defendant shall provide to EPA and the State certificates of such insurance and a copy of each insurance policy. Settling Work Defendant shall resubmit such certificates and copies of policies each year on the anniversary of the Date of Commencement. If Settling Work Defendant demonstrates by evidence satisfactory to EPA and the State that its contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, then, with respect to that contractor or subcontractor, Settling Work Defendant need provide only that portion of the insurance described above which is not maintained by the

contractor or subcontractor. If Settling Work Defendant fails to submit proof of insurance as described in this Paragraph, and no other Settling Defendant submits such proof, EPA shall have the right to take over all of the work required by this Consent Decree with respect to the Upstream Facilities, and the City of Burbank shall continue to fund and perform all of the work required by this Consent Decree with respect to the Downstream Facilities. If EPA takes over the work required by this Consent Decree with respect to the Upstream Facilities pursuant to this Section and Paragraph, Lockheed Martin shall fund EPA's performance of such work pursuant to Section XIV (Funding of Response Activities), Paragraph H.2.b-c of this Consent Decree. If EPA takes over such work pursuant to this Section and Paragraph, the City of Burbank shall not be required to reimburse Lockheed Martin for any portion of the costs incurred by EPA to take over and/or to perform such work.

C. If Settling Work Defendant obtains insurance as described in this paragraph, and such insurance is subsequently cancelled, Settling Work Defendant shall so notify EPA within ten (10) days of Settling Work Defendant's receipt of notice that such insurance had been cancelled. Furthermore, in the event of such cancellation, equivalent insurance for the O&M Activities shall be obtained as soon as reasonably practicable, and proof of such insurance shall be submitted by Settling Work Defendant to EPA within ten (10) days of such insurance being obtained. Delays in the O&M Activities or EPA's decision to take over the work due to the failure to obtain or submit proof of insurance

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shall not constitute a force majeure event under this Consent Decree.

D. In its bid documents, Settling Work Defendant shall require that all contractors submitting bids to become O&M Contractor agree to provide comprehensive general liability insurance in the amount specified in Paragraph B of this Section. Settling Work Defendant shall condition awarding the bid for O&M Contractor upon a contractor's ability to provide the comprehensive general liability insurance specified in Paragraph B of this Section. The contract entered into between the Settling Work Defendant and the O&M Contractor shall require the O&M Contractor to provide worker's compensation insurance in compliance with all applicable laws and regulations and comprehensive general liability insurance as specified in Paragraph B of this Section. Settling Work Defendant's compliance with this Paragraph shall constitute compliance with its obligation in Paragraph B of this Section to secure and retain insurance, provided the O&M Contractor complies with its obligations to provide the comprehensive general liability insurance specified in Paragraph B of this Section.

E. In addition to the insurance required by this Section, Lockheed Martin, the Settling Work Defendant, and the UAO Parties hereby agree among themselves that the Upstream Facilities and Blending Facility shall be insured by additional coverages as set forth in Exhibit 3 to this Consent Decree, and Lockheed Martin agrees to fund such coverages through the O&M Trust Fund.

1. The Settling Work Defendant will promptly and

diligently make and pursue claims against any available insurance for reimbursement of costs and expenses of any repairs or other work required as a result of an alleged Design Defect as described in Section XIV, Paragraph M, will not receive reimbursement under Section XIV, Paragraph M for any such costs and expenses that are recovered from insurance, and will refund to Lockheed Martin and/or the UAO Parties any monies paid by Lockheed Martin and/or the UAO Parties for costs and expenses which are subsequently paid by insurance.

2. The obligations set forth in Paragraph E.1 of this Section shall not be the subject of stipulated penalties or enforceable by Plaintiffs.

3. EPA agrees that disputes arising with regard to Exhibit 3 to this Consent Decree may be submitted to dispute resolution under Section XX (Dispute Resolution), Paragraph G of this Consent Decree.

4. Nothing in this Paragraph shall affect the obligations of Lockheed Martin, Settling Work Defendant or the UAO Parties pursuant to Section XIV of this Consent Decree (Funding of Response Activities).

XIX. FORCE MAJEURE

A. "Force majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of a Settling Defendant or of any entity controlled by such Settling Defendant, including, but not limited to, its contractors and subcontractors, that delays or prevents the performance of any obligation under this Consent Decree despite such Settling

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Defendant's best efforts to fulfill the obligation. The requirement that the Settling Defendant exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any potential force majeure event (1) as it is occurring and (2) following the potential force majeure event, such that the delay is minimized to the greatest extent possible. "Force majeure" does not include financial inability to complete the O&M Activities or a failure to attain the Performance Standards.

B. If any event occurs or has occurred that may delay the performance of any O&M Activities under this Consent Decree, or any other response activities performed under this Consent Decree, whether or not caused by a force majeure event, the Settling Defendant responsible for performing the activities shall notify orally EPA's Project Coordinator or, in his or her absence, EPA's Alternate Project Coordinator or, in the event both of EPA's designated representatives are unavailable, the Director of the Superfund Division, EPA Region IX, as soon as possible under the circumstances. It shall be presumed that notice not made within two (2) Working Days of when such Settling Defendant first knew or should have known that the event might cause a delay is untimely unless evidence credible to EPA and to the contrary is provided to EPA by the Settling Work Defendant. Within ten (10) days thereafter, such Settling Defendant shall provide in writing to EPA and the State an explanation and description of the reasons for the delay; the anticipated

duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; the Settling Defendant's rationale for attributing such delay to a force majeure event if it intends to assert such a claim; and a statement as to whether, in the opinion of the Settling Defendant, such event may cause or contribute to an endangerment to public health, welfare or the environment. The Settling Defendant shall include with any notice all available documentation supporting its claim that the delay was attributable to a force majeure. Unless the force majeure event is a natural catastrophe or similar event which inherently justifies departure from the above requirements, failure to comply with the above requirements shall preclude Settling Defendant from asserting any claim of force majeure for that event. A Settling Defendant shall be deemed to have notice of any circumstance of which its contractors or subcontractors had or should have had notice.

C. If EPA, after a reasonable opportunity for review and comment by the State, agrees that the delay or anticipated delay is attributable to a force majeure event, the time for performance of the obligations under this Consent Decree that are affected by the force majeure event will be extended by EPA, after a reasonable opportunity for review and comment by the State, for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the force majeure event shall not, of

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itself, extend the time for performance of any other obligation. If EPA, after a reasonable opportunity for review and comment by the State, does not agree that the delay or anticipated delay has been or will be caused by a force majeure event, EPA will notify the Settling Defendant claiming force majeure in writing of its decision. If EPA, after a reasonable opportunity for review and comment by the State, agrees that the delay is attributable to a force majeure event, EPA will notify the Settling Defendant claiming force majeure in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure event. Notification to EPA of any other claimed force majeure event affecting other obligations of parties to this Consent Decree shall be made by the party claiming force majeure in writing to EPA within five (5) Working Days of when such party knew or should have known that the event might cause a delay in such party's obligations. It shall be presumed that notice not made within such time is untimely unless evidence credible to EPA and to the contrary is provided to EPA by such party.

D. If the Settling Defendant claiming force majeure elects to invoke the dispute resolution procedures set forth in Section XX (Dispute Resolution), it shall do so no later than fifteen (15) days after receipt of EPA's notice. In any such proceeding, the Settling Defendant shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were

exercised to avoid and mitigate the effects of the delay, and that the Settling Defendant complied with the requirements of this Section, Paragraphs A and B, above or was excused from such compliance under the terms of this Decree. If the Settling Defendant carries this burden, the delay at issue shall be deemed not to be a violation by such Settling Defendant of the affected obligation of this Consent Decree identified to EPA and the Court.

XX. DISPUTE RESOLUTION

A. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. However, the procedures set forth in this Section shall not apply to actions by the United States to enforce obligations of a Settling Defendant that have not been disputed in accordance with this Section.

B. Any dispute which arises under or with respect to this Consent Decree shall in the first instance be the subject of informal negotiations between the parties to the dispute. The period for informal negotiations shall not exceed twenty (20) days from the time the dispute arises, unless it is modified by written agreement of the parties to the dispute. The dispute shall be considered to have arisen when one party sends the other party a written Notice of Dispute.

C. In the event that the parties cannot resolve a dispute by informal negotiations under the preceding Paragraph, then the position advanced by EPA shall be considered binding unless,

within ten (10) days after the conclusion of the informal negotiation period, the Settling Defendant asserting that there is a dispute invokes the formal dispute resolution procedures of this Section by serving on the United States a written Statement of Position on the matter in dispute, including, but not limited to, any factual data, analysis or opinion supporting that position and any supporting documentation relied upon by such Settling Defendant. The Statement of Position shall specify the Settling Defendant's position as to whether formal dispute resolution should proceed under this Section XX, Paragraph F or G.

D. Within fourteen (14) days after receipt of the Settling Defendant's Statement of Position, EPA will serve on such Settling Defendant its Statement of Position, including, but not limited to, any factual data, analysis, or opinion supporting that position and all supporting documentation relied upon by EPA. EPA's Statement of Position shall include a statement as to whether formal dispute resolution should proceed under this Section XX, Paragraph F or G.

E. If there is disagreement between EPA and a Settling Defendant asserting there is a dispute as to whether dispute resolution should proceed under Section XX, Paragraph F or G, the parties to the dispute shall follow the procedures set forth in the Paragraph determined by EPA to be applicable. However, if the Settling Defendant ultimately appeals to the Court to resolve the dispute, the Court shall determine which Paragraph is applicable in accordance with the standards of applicability set

forth in Section XX, Paragraphs F and G.

F. Formal dispute resolution for disputes pertaining to the selection or adequacy of any response action and all other disputes that are accorded review on the administrative record under applicable principles of administrative law shall be conducted pursuant to the procedures set forth in this Paragraph. For purposes of this Paragraph, the adequacy of any response action includes, without limitation: (1) the adequacy or appropriateness of plans, procedures to implement plans, or any other items requiring approval by EPA under this Consent Decree; and (2) the adequacy of the performance of response actions taken pursuant to this Consent Decree. Nothing in this Consent Decree shall be construed to allow any dispute by Settling Defendants regarding the validity of the ROD's provisions.

1. An administrative record of the dispute shall be maintained by EPA and shall contain all Statements of Position, including supporting documentation, submitted pursuant to this Paragraph. Where appropriate, EPA may allow submission of supplemental Statements of Position by the parties to the dispute.

2. The Director of the Superfund Division, EPA Region IX, will issue a final administrative decision resolving the dispute based on the administrative record described in this Section, Paragraph F.1. This decision shall be binding upon the Settling Defendant asserting that there is a dispute, subject only to the right to seek judicial review pursuant to this Section, Paragraphs F.3 and F.4.

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3. Any administrative decision made by EPA pursuant to this Section, Paragraph F.2 shall be reviewable by this Court, provided that a notice of judicial appeal is filed by the Settling Defendant with the Court and served on all parties within thirty (30) days of receipt of EPA's decision. The notice of judicial appeal shall include a description of the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Decree. The United States may file a response to the Settling Defendant's notice of judicial appeal.

4. In proceedings on any dispute governed by this Paragraph, the Settling Defendant asserting that there is a dispute shall have the burden of demonstrating that the decision of the Superfund Division Director is arbitrary and capricious or otherwise not in accordance with law. Judicial review of EPA's decision shall be on the administrative record compiled pursuant to this Section, Paragraph F.1.

G. Formal dispute resolution for disputes that neither pertain to the selection or adequacy of any response action nor are otherwise accorded review on the administrative record under applicable principles of administrative law, shall be governed by this Paragraph.

1. Following receipt of the Settling Defendant's Statement of Position submitted pursuant to Section XX, Paragraph C, the Director of the Superfund Division, EPA Region IX, will issue a final written decision resolving the dispute. The

Superfund Division Director's decision shall be binding on the Settling Defendant asserting that there is a dispute unless, within thirty (30) days of receipt of the decision, such Settling Defendant files with the Court and serves on the other party or parties a notice of judicial appeal setting forth the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of the Consent Decree. The United States may file a response to Settling Defendant's notice of judicial appeal.

2. Notwithstanding Paragraph R of Section I (Background) of this Consent Decree, judicial review of any dispute governed by this Paragraph shall be governed by applicable provisions of law.

H. The invocation of formal dispute resolution procedures under this Section shall not extend, postpone or affect in any way any obligation not directly in dispute of the Settling Defendant asserting that there is a dispute under this Consent Decree, unless EPA or the Court agrees otherwise. If a Settling Defendant prevails, the deadlines for any requirements which it could not practicably meet because of the dispute resolution proceedings shall be extended to account for any delays because of such proceedings. Stipulated penalties with respect to the disputed matter shall continue to accrue but payment shall be stayed pending resolution of the dispute as provided in Section XXI (Stipulated Penalties), Paragraph I. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first

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day of noncompliance with any applicable provision of this Consent Decree. In the event that the Settling Defendant does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XXI (Stipulated Penalties), unless EPA in its discretion elects not to assess some or all of such penalties.

XXI. STIPULATED PENALTIES

Unless excused by EPA or a force majeure event, a Settling Defendant shall be liable for stipulated penalties to the United States, as set forth in this Section, for each failure by such Settling Defendant to comply with the requirements of this Consent Decree. "Compliance" by the Settling Work Defendant shall include completion of the O&M activities under this Consent Decree or any work plan or deliverable approved under this Consent Decree or incorporated by this Consent Decree, in accordance with all applicable requirements of law, this Consent Decree, the Second Stage O&M Work Plan and any plans or other documents approved by EPA pursuant to this Consent Decree or any such work plan or deliverable, and within the specified time schedules established by and approved under this Consent Decree or any such work plan or deliverable.

A. Unless expressly stated otherwise in this Consent Decree, any reports, plans, specifications, schedules, deliverables, appendices, and attachments required by this Consent Decree, or implemented in whole or in part by this Consent Decree, are, upon approval by EPA, incorporated into this Consent Decree. A failure by the Settling Work Defendant to

comply with applicable EPA-approved reports, plans, specifications, schedules, deliverables, appendices or attachments shall be considered a failure to comply with this Consent Decree and shall subject such Settling Work Defendant to stipulated penalties as provided in Paragraphs D through F of this Section.

B. Failure to comply with this Consent Decree shall also include but is not limited to the following:

1. Failure by Settling Work Defendant to submit deliverables specified in this Consent Decree in an acceptable manner and by the date due pursuant to this Consent Decree; provided, however, that if the failure to comply results from a determination by EPA that a written deliverable is inadequate, the Settling Work Defendant shall have ten (10) working days from receipt of EPA's written notice of disapproval, or such other longer time period as provided by EPA in the notice of disapproval, within which to correct the inadequacy and resubmit the deliverable for approval. Any disapproval by EPA shall include an explanation of why the deliverable is inadequate. If the resubmitted deliverable is inadequate, the Settling Work Defendant shall be deemed to be in violation of this Consent Decree.

2. Failure by Settling Work Defendant to use best efforts to obtain any permits necessary for offsite work which Settling Work Defendant is required to perform or failure by Settling Work Defendant to use best reasonable efforts to obtain necessary access agreements.

3. Failure by Settling Work Defendant to comply with

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any permit obtained for the purpose of implementing the requirements of this Consent Decree in any offsite location.

C. Stipulated penalties for failure to perform any requirement of this Consent Decree for which a deadline is specified shall begin to accrue on the first day after the deadline. Stipulated penalties for any other violation of this Consent Decree shall begin to accrue on the first day after a Settling Defendant subject to penalties receives notice from EPA of such violation. For any violation, stipulated penalties shall continue to accrue up to and including the day on which the non-compliance is corrected. EPA, in its sole discretion, may waive or reduce stipulated penalties. If EPA does not waive stipulated penalties, EPA shall provide the Settling Defendant subject to penalties with written notice of the alleged deficiency in compliance with this Consent Decree, and accrued stipulated penalties shall become payable thirty (30) days after such Settling Defendant's receipt of EPA's written notice of deficiency; provided, however, that if EPA provides notice of an alleged deficiency, and that deficiency continues, EPA shall not be required to provide any additional notice in order for stipulated penalties to continue to accrue and become payable.

D. Stipulated penalties shall accrue in the following amounts for the violations described in this Paragraph, and a Settling Defendant subject to such penalties may not dispute the amount of stipulated penalties due per type of violation:

1. Monthly Progress Reports and Other Periodic Reports

Settling Work Defendant shall pay a stipulated

penalty of $ 750 per day for the submission of a late or deficient periodic progress report.

2. MCL Effluent Violations

a. At any time if the concentration of TCE in the treated water is greater than 5.0 parts per billion ("ppb"), Settling Work Defendant shall be considered to have been out of compliance for each day for which the representative treated water sample indicates that the concentration of TCE was greater than 5.0 ppb. Settling Work Defendant shall be subject to stipulated penalties in the amount of $ 3,750 per day for each such day of noncompliance.

b. At any time if the concentration of PCE in the treated water is greater than 5.0 ppb, Settling Work Defendant shall be considered to have been out of compliance for each day for which the representative treated water sample indicates that the concentration of PCE was greater than 5.0 ppb. Settling Work Defendant shall be subject to stipulated penalties in the amount of $ 3,750 per day for each such day of noncompliance.

c. At any time if the concentration of a volatile organic compound ("VOC") other than TCE or PCE in the treated water is greater than the MCL in effect at that time for such VOC, Settling Work Defendant shall be considered to have been out of compliance for each day for which the representative treated water sample indicates that the concentration of that VOC was greater than the MCL in effect, provided that the MCL in effect was promulgated on or before the Effective Date of this Consent Decree. Settling Work Defendant shall be subject to stipulated

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penalties in the amount of $ 3,750 per day for each such day of noncompliance.

d. At any time after the first sixty (60) days after an analytical sample result shows that the concentration of a contaminant in the treated water other than a VOC or nitrate is greater than the MCL in effect at that time for such contaminant, Settling Work Defendant shall be considered to have been out of compliance for each day for which the representative treated water sample indicates that the concentration of that contaminant was greater than the MCL in effect, provided that the MCL in effect was promulgated on or before the Effective Date of this Consent Decree. Settling Work Defendant shall be subject to stipulated penalties in the amount of $ 2,250 per day for each such day of noncompliance.

E. Class I Violations

Stipulated penalties shall accrue in the following amounts for the violations described in this Paragraph, and a Settling Defendant subject to such penalties may not dispute the amount of stipulated penalties due per type of violation:

Period of Noncompliance	Penalty Per Day Per Violation
Days 1 - 5	$ 750
Days 6 - 30	$ 2,250
After 30 Days	$ 3,750

1. Each failure to comply in a timely and adequate manner with the terms of this Consent Decree or any work plan implemented in whole or in part by this Consent Decree, that is not specifically listed as a violation elsewhere under this

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Section, and specifically including any failure to comply with the substantive standards of any applicable or relevant and appropriate requirement ("ARAR") identified in the ROD (as modified by the ESD and SOW) and not identified as a violation under Paragraphs D through F of this Section.

2. Failure by Settling Work Defendant to submit any of the following:

i. Draft Second Stage Operations and Maintenance Work Plan

ii. Draft Second Stage Operations and Maintenance Staffing Plan

iii. Draft Second Stage Operations and Maintenance Time Line and Schedule

iv. Draft Quality Assurance Project Plan

v. Draft Health and Safety Plan

3. Violation by Settling Work Defendant of ARARs, other than MCL violations, and South Coast Air Quality Management District Regulation XIII.

F. Class II Violations

Stipulated penalties shall accrue in the following amounts for the violations described in this Paragraph, and a Settling Defendant subject to such penalties may not dispute the amount of stipulated penalties due per type of violation:

Period of Noncompliance	Penalty Per Day Per Violation
Days 1 - 5	$ 1,500
Days 6 - 30	$ 3,500
After 30 Days	$ 10,000

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Each violation by Settling Work Defendant of the following:

i. Obligation to hold Final Inspection(s)

Failure by Settling Work Defendant to submit any of the following:

i. Second Stage Operations and Maintenance Work Plan

ii. Second Stage Operations and Maintenance Staffing Plan

iii. Second Stage Operations and Maintenance Time Line and Schedule

iv. Notification of Selection of O&M Contractors/Subcontractors

v. Quality Assurance Project Plan

vi. Health and Safety Plan

Failure by Settling Work Defendant to comply with any of the following:

i. Quality Assurance Project Plan

ii. Health and Safety Plan

iii. Second Stage O&M Work Plan

G. Payments of stipulated penalties shall be made by a Settling Defendant as follows:

1. Stipulated penalties assessed for failure to make full and timely payment to the O&M Trust Account pursuant to Section XIV (Funding of Response Activities) or to the United States pursuant to Section XVII (Reimbursement of Response Costs) shall be paid by Lockheed Martin. Lockheed Martin shall not be subject to stipulated penalties for failure to fund insurance costs for insurance coverages described solely in Exhibit 3 to

this Consent Decree.

2. Stipulated penalties for failure to make full and timely payment pursuant to Paragraph M of Section XIV (Funding of Response Activities) of this Consent Decree shall be paid by Lockheed Martin or the UAO Parties according to the EPA Preliminary Finding and/or Further Determination required by that Section and Paragraph. Stipulated penalties for failure to make payments pursuant to Paragraph N of Section XIV (Funding of Response Activities) shall be paid by Lockheed Martin, the Settling Cash Defendants or the City of Burbank in accordance with their obligations under that Section and Paragraph.

3. Except for stipulated penalties which arise due to Lockheed Martin's or the UAO Parties' failure to comply with their obligations under Section XIV (Funding of Response Activities) as described in this Paragraph, all other stipulated penalties assessed for failure to comply with Section VI (Performance of the Work By Settling Defendants) shall be the responsibility of and be paid by the City of Burbank. No such stipulated penalties shall be paid or reimbursed from the O&M Trust Account.

H. If a Settling Defendant fails to pay stipulated penalties in accordance with this Section, the United States may institute proceedings in this action or a new action to collect the penalties and any Interest due. Notwithstanding the stipulated penalties provided for in this Section, and to the extent authorized by law, EPA may elect to assess civil penalties or bring an action in District Court to enforce the provisions of

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this Consent Decree. Payment of stipulated penalties shall not preclude EPA from electing to pursue any other remedy or sanction it may have to enforce this Consent Decree, and nothing in this Decree shall preclude EPA from seeking statutory penalties against a Settling Defendant who violates statutory or regulatory requirements, except that the total civil penalties (including stipulated penalties) collected by EPA for any such violation shall not exceed $ 25,000 per day per violation.

I. A Settling Defendant may dispute any notice of deficiency issued to it. Penalties shall continue to accrue as provided in this Section but need not be paid until the following:

1. If the dispute is resolved by agreement or by decision or order of EPA which is not appealed to this Court, accrued penalties, plus Interest, shall be paid to EPA within thirty (30) days of the agreement or Settling Defendant's receipt of EPA's decision or order;

2. If the Settling Defendant appeals EPA's decision pursuant to Section XX (Dispute Resolution) and prevails upon final resolution of the dispute, no stipulated penalties or Interest thereon will be payable and any assessment of stipulated penalties and Interest thereon shall be set aside in writing by EPA;

3. If the Settling Defendant appeals EPA's decision pursuant to Section XX (Dispute Resolution) and does not prevail upon final resolution of the dispute, all accrued stipulated penalties, plus Interest shall be paid within thirty (30) days of

a final Court order.

4. If a Settling Defendant appeals EPA's decision to this Court and the Court's decision is appealed by any Party, the Settling Defendant shall pay all accrued penalties determined by the District Court to be owing to the United States into an interest-bearing escrow account within sixty (60) days of receipt of the Court's decision or order. Penalties determined by the Court to be accruing shall be paid into this account as they continue to accrue, at least every sixty (60) days. Within fifteen (15) days of receipt of the final appellate court decision, the escrow agent shall pay the balance of the account to EPA or to the Settling Defendant to the extent that it prevails.

J. In the event that EPA assumes performance of a portion or all of the O&M Activities pursuant to Paragraph F of Section XXII (Covenants Not to Sue by Plaintiffs), Settling Work Defendant shall remain liable for any stipulated penalties that have accrued or that may accrue under this Consent Decree.

K. All penalties owed to the United States under this section shall be due and payable within thirty (30) days of the Settling Defendant's receipt from EPA of a demand for payment of the penalties, unless the Settling Defendant invokes the dispute resolution procedures under Section XX (Dispute Resolution). All payments under this Section shall be transmitted via EFT to the U.S. Department of Justice Lockbox, and shall reference CERCLA Number SSID # L6, DOJ Case Number 90-11-2-442 and USAO File NO. 91-03-463. Written verification of EFTs pursuant to this Section

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shall be sent to the United States as provided in Section XXVII (Notices and Submissions).

L. The payment of penalties shall not alter in any way the Settling Work Defendant's obligation to complete the performance of the O&M Activities required under this Consent Decree.

M. If a Settling Defendant fails to pay stipulated penalties when due, the United States may institute proceedings to collect the penalties, as well as Interest. The Settling Defendant shall pay Interest on the unpaid balance, which shall begin to accrue thirty (30) days after the date of demand made pursuant to this Section, Paragraph K.

N. Nothing in this Consent Decree shall be construed as prohibiting, altering, or in any way limiting the ability of the United States or the State to seek any other remedies or sanctions available by virtue of a Settling Defendant's violation of this Consent Decree or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Section 122(l) of CERCLA, 42 U.S.C. § 9622(l).

XXII. COVENANTS NOT TO SUE BY PLAINTIFFS

In consideration of the actions that will be performed and/or the payments that will be made by the Settling Defendants under the terms of the Consent Decree, and except as specifically provided in this Section, the United States covenants not to sue or to take administrative action against Settling Defendants and/or the Released Parties pursuant to Sections 106 and 107(a) of CERCLA and Section 7003 of RCRA, and the State covenants not to sue or to take administrative action pursuant Section 107(a)

of CERCLA, and to Chapters 6.5, Sections 25100 et seq., and 6.8 Sections 25300 et seq. of the California Health and Safety Code for all Covered Matters expressly specified in Section XXIV (Effect of Settlement; Contribution Protection), Paragraph C. As to each Settling Defendant and its related Released Parties, these covenants not to sue are conditioned upon the complete and satisfactory performance by such Settling Defendant of its then-current obligations under this Consent Decree and shall remain in effect as to each Settling Defendant and its related Released Parties until and unless such Settling Defendant is not in compliance with the obligations imposed upon it by this Consent Decree. As to each Settling Defendant, Related Settling Defendant, or Related Released Party, as described in Appendix 1 to this Consent Decree, these covenants not to sue are conditioned upon the complete and satisfactory performance by that party's principal Settling Defendant of its then-current obligations pursuant to Section XIV (Funding of Response Actions) of this Consent Decree. These covenants not to sue extend only to each Settling Defendant and its related Released Parties. These covenants not to sue do not extend to any other person. No person otherwise liable independent of liability associated with its status as a corporate or institutional predecessor or successor to a Settling Defendant or Related Released Party shall benefit from this provision.

A. United States' Pre-certification Reservations.

Except as to the parties listed in Appendix 3, and notwithstanding any other provision of this Consent Decree, the

United States reserves, and this Consent Decree is without prejudice to, the right to institute proceedings in this action or in a new action, or to issue an administrative order seeking to compel Settling Defendants, Released Parties, or any of them (1) to perform further response actions relating to the Site or (2) to reimburse the United States for additional costs of response if, prior to Certification of Completion of O&M Activities pursuant to Section XV (Certification of Completion) of this Consent Decree:

(i) conditions at the Site, previously unknown to EPA, are discovered, or

(ii) information, previously unknown to EPA, is received, in whole or in part,

and these previously unknown conditions or information together with any other relevant information indicate that the Remedial Action or the O&M Activities are not protective of human health or the environment.

B. Except as to the parties listed in Appendix 3, the United States also reserves the right to institute proceedings in this action or in a new action, or to issue an administrative order seeking to compel Settling Defendants, Released Parties, or any of them to (1) perform further response actions relating to the Site or (2) to reimburse the United States for additional costs of response if, prior to Certification of Completion of the O&M Activities, (a) the Settling Work Defendant substantially fails and/or refuses to perform the O&M Activities, or (b) an earthquake or Uninsurable Force Majeure Event causes Major Damage

(as defined in Section XIV (Funding of Response Activities), Paragraph N) to the Plant Facilities, and EPA has reserved its rights in such circumstances in that Section and Paragraph.

C. United States' Post-certification Reservations. Except as to the parties listed in Appendix 3, and notwithstanding any other provision of this Consent Decree, the United States reserves, and this Consent Decree is without prejudice to, the right to institute proceedings in this action or in a new action, or to issue an administrative order seeking to compel Settling Defendants, Released Parties, or any of them (1) to perform further response actions relating to the Site or (2) to reimburse the United States for additional costs of response if, subsequent to Certification of Completion of the O&M Activities pursuant to Section XV (Certification of Completion) of this Consent Decree:

(i) conditions at the Site, previously unknown to EPA, are discovered, or

(ii) information, previously unknown to EPA, is received, in whole or in part,

and these previously unknown conditions or this information together with any other relevant information indicate that the Remedial Action or the O&M Activities are not protective of human health or the environment.

D. For purposes of this Section, Paragraph A, the information and the conditions known to EPA shall include only that information and those conditions set forth in the ROD for the Site, the administrative record supporting the ROD, and information required to be and actually submitted to EPA pursuant

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to the First Consent Decree or UAO 92-12 prior to the date of lodging of this Consent Decree. For purposes of this Section, Paragraph C, the information received by and the conditions known to EPA shall include only that information and those conditions set forth in the ROD, the administrative record supporting the ROD, and any information received by or required to be and actually submitted to EPA pursuant to the requirements of the First Consent Decree, this Consent Decree or UAO 92-12 prior to Certification of Completion of the O&M Activities.

E. General Reservations of Rights. The covenants not to sue set forth above do not pertain to any matters other than the Covered Matters expressly specified in Section XXIV (Effect of Settlement; Contribution Protection), Paragraph C. The United States and the State reserve, and this Consent Decree is without prejudice to, all rights against a Settling Defendant or a Released Party with respect to all other matters, including but not limited to, the following:

(1) claims based on a failure by such Settling Defendant to meet a requirement of this Consent Decree;

(2) liability arising from the past, present, or future disposal, release, or threat of release of hazardous substances outside of the Site;

(3) liability for damages for injury to, destruction of, or loss of natural resources;

(4) liability for response costs that have been or may be incurred by any federal or State of California agency which is the trustee for natural resources and which has, or

may in the future, spend funds relating to the Site;

(5) criminal liability;

(6) liability for violations of federal or State of California law which occur during or after implementation of the Remedial Action or O&M Activities;

(7) liability for additional response actions as may be required pursuant to Section VII (Additional Response Actions) or VIII (Periodic Review) of this Consent Decree, to the extent Settling Defendants do not agree in this Consent Decree to fund and/or perform such response actions under this Consent Decree;

(8) liability for additional operable units or interim remedies at the Site, for other operable units outside the Site, or any interim or final Basin-wide response action; and

(9) liability for Future Basin-wide Response Costs, and any costs that the United States or the State will incur or have incurred related to the Site which are not within the definition of Past Site-Specific Response Costs, Future Site-Specific Response Costs, or Past Basin-wide Response Costs.

F. In the event EPA determines that Settling Work Defendant has failed to implement any provisions of the O&M Activities in an adequate or timely manner, EPA may perform any and all portions of the O&M Activities as EPA determines necessary. In such event, Lockheed Martin shall fund EPA's performance of such O&M Activities pursuant to Section XIV

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(Funding of Response Activities), Paragraph H.2.b-c. Settling Work Defendant shall reimburse Lockheed Martin for that portion of EPA's costs incurred to fund EPA's takeover and/or performance of O&M Activities which is caused by the necessity for EPA to take over such O&M Activities from the Settling Work Defendant pursuant to this Section and Paragraph. If EPA takes over the performance of some or all of the O&M Activities pursuant to this Section and Paragraph, EPA shall issue a determination at the request of Settling Work Defendant or Lockheed Martin concerning which costs incurred by EPA were due to the necessity for EPA to take over such O&M Activities from the Settling Work Defendant. In no event shall the accounting of such costs for which the Settling Work Defendant may be required to reimburse Lockheed Martin pursuant to this Paragraph continue for a period longer than one year from EPA's takeover of such O&M Activities. Settling Work Defendant or Lockheed Martin may invoke the procedures set forth in Section XX (Dispute Resolution) to dispute EPA's determination concerning such costs.

G. Settling Work Defendant may invoke the procedures set forth in Section XX (Dispute Resolution) to dispute EPA's determination that the Settling Work Defendant failed to implement a provision of the O&M Activities in an adequate or timely manner as arbitrary and capricious or otherwise not in accordance with law. Such dispute shall be resolved on the administrative record. Except as is necessary to address an imminent and substantial endangerment to human health or the environment, EPA shall provide Settling Work Defendant with ten

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(10) days written notice of its intent to perform a portion or all of the O&M Activities. In the notice, EPA shall also describe the alleged deficiency. If the Settling Work Defendant disagrees with EPA's determination that it has failed to perform, in an adequate and timely manner, the O&M Activities required to be performed by this Consent Decree, and Settling Work Defendant desires to dispute EPA's determination in this regard, Settling Work Defendant shall invoke the dispute resolution provisions of Section XX (Dispute Resolution) within thirty (30) days of receiving written notice of EPA's intent. Invocation of dispute resolution shall not divest EPA of its right to perform the O&M Activities during the dispute. Upon receipt of notification that EPA intends to take over the performance of a portion or all of the O&M Activities, Settling Work Defendant's obligations to perform such O&M Activities pursuant to this Consent Decree shall terminate and stipulated penalties, if any are being incurred due to Settling Work Defendant's failure to perform such O&M Activities in a timely or adequate manner, shall cease to accrue against Settling Work Defendant for such failure.

H. Notwithstanding any other provision of this Consent Decree, the United States and the State retain all authority and reserve all rights to take any and all response actions authorized by law. However, the obligation, if any, of the Settling Defendants to reimburse the United States for taking such actions shall be governed by the provisions of this Consent Decree to the extent Settling Defendants comply with their obligations to fund or perform such response actions pursuant to

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this Consent Decree.

XXIII. COVENANTS BY SETTLING DEFENDANTS

A. Settling Defendants hereby covenant not to sue and agree not to assert any claims or causes of action against the United States with respect to the Site or this Consent Decree, including, but not limited to, any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507) through CERCLA Sections 106(b)(2), 111, 112, 113, 42 U.S.C. §§ 9606(b)(2), 9611, 9612, and 9613, or any other provision of law, any claim against the United States, including any department, agency or instrumentality of the United States under CERCLA Sections 107 or 113, 42 U.S.C. §§ 9607 or 9613, related to the Site except as expressly reserved in this Section, Paragraphs (A)(1), (2), or (3) of this Consent Decree or Section XVII, Paragraph B of the First Consent Decree, or any claims arising out of response activities at the Site. However, the Settling Defendants reserve, this Consent Decree is without prejudice to, and nothing in this Consent Decree shall be interpreted as waiving, abrogating or resolving:

(1) any claims which any Settling Defendant has or may have based upon any alleged liability of the United States Department of Defense, any branch or division thereof ("DOD"), or any predecessor agency to DOD for conditions at the Site pursuant to CERCLA Sections 106, 107, 113, 120 or 310, 42 U.S.C. §§ 9606, 9607, 9613, 9620 or 9659 or RCRA Section 7002, 42 U.S.C. § 6972;

(2) any claims which any Settling Defendant has or may

have with respect to the Site against the United States pursuant to any contract between any Settling Defendant and the United States or between any Settling Defendant and any government contractor(s) related to the Site; or

(3) actions against the United States based on negligent actions taken directly by the United States (not including oversight or approval of the Settling Defendants' plans or activities) that are brought pursuant to any statute other than CERCLA and for which the waiver of sovereign immunity is found in a statute other than CERCLA.

(4) actions against the State based on negligent actions taken directly by the State (not including oversight or approval of the Settling Defendants' plans or activities) that are brought pursuant to any statute or law other than CERCLA, RCRA, and Chapters 6.5, Sections 25100 et seq., and 6.8, Sections 25300 et seq. of the California Health & Safety Code.

B. In agreeing to these reservations, the United States and the State do not admit liability on any such claims and expressly reserve any and all defenses that either of them may have to any such claims.

C. Except as expressly set forth in this Consent Decree, Settling Defendants do not waive any claim against and do not release or covenant not to sue the United States or the State with respect to any matter. Nothing in this Consent Decree shall be deemed to constitute preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

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D. Settling Defendants hereby covenant not to sue and agree not to assert any claims or causes of action against the State with respect to the Site or this Consent Decree, including, but not limited to, (1) any direct or indirect claim for reimbursement from the Hazardous Waste Control Account, Hazardous Substance Account, or Hazardous Substance Cleanup Fund through Health and Safety Code section 25375 or any other provision of law; (2) any claim against the State under Sections 107 or 113 of CERCLA, 42 U.S.C. §§ 9607 or 9613, or Section 7003 of RCRA, 42 U.S.C. § 9673; or (3) any other claims arising out of Settling Defendants' response activities at the Site, including but not limited to nuisance, trespass, taking, equitable indemnity and indemnity under California law, contribution under California and federal law, or strict liability under California law.

XXIV. EFFECT OF SETTLEMENT; CONTRIBUTION PROTECTION

A. Nothing in this Consent Decree shall be construed to create any rights in, or grant any cause of action to, any person not a Settling Defendant or a Released Party under this Consent Decree. The preceding sentence shall not be construed to waive or nullify any rights that any person not a signatory to this Consent Decree may have under applicable law. Each of the Parties expressly reserves any and all rights (including, but not limited to, any right to contribution), defenses, claims, demands, and causes of action which each party may have with respect to any matter, transaction, or occurrence relating in any way to the Site against any person not a Settling Defendant or Released Party under this Consent Decree.

B. At such time as a judgment is entered and becomes final judicially approving this Consent Decree, each Settling Defendant hereby expressly waives any and all rights (including, but not limited to, any right to contribution, defenses, claims, demands, and causes of action under State of California or federal law) against all other Settling Defendants and Released Parties with respect to Covered Matters specified in Paragraph C of this Section. Notwithstanding the foregoing, any funding of the repair of earthquake damage ("Earthquake Funding") by Lockheed Martin pursuant to Section XIV (Funding of Response Activities), Paragraph N of this Consent Decree, is without prejudice to its right to assert claims against other Settling Defendants (except the Appendix 3 parties and Settling Work Defendant) for reimbursement of Earthquake Funding. No Settling Defendant (except the Appendix 3 parties and Settling Work Defendant) shall assert that any agreement which exists between any of the Settling Defendants at the time of entry of this Second Consent Decree acts as a bar or provides a defense to any reimbursement or contribution claim by any other Settling Defendant for Earthquake Funding. The provisions of this Paragraph specifically supersede the provisions of Paragraph B of Section XXII (Contribution Protection) of the First Consent Decree. With regard to claims by third parties for contribution against Settling Defendants and/or Released Parties for such Covered Matters specified in Paragraph C of this Section, the Parties hereto agree that the Settling Defendants and Released Parties are entitled to such protection from contribution actions or

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claims as is provided by CERCLA Section 113(f)(2), 42 U.S.C. § 9613(f)(2). Certain defendants have entered into private agreements with regard to certain matters which relate to those that form the subject matter of this Consent Decree; the waiver expressed in this Paragraph shall not operate to preclude enforcement of those private agreements.

C. The Covered Matters in this Consent Decree are:

1. EPA's and the State's Past Site-Specific Response Costs and Past Basin-wide Response Costs,

2. EPA's and the State's Future Site-Specific Response Costs,

3. all matters addressed in the First Consent Decree and this Consent Decree,

4. all matters addressed in UAO 92-12 through the period covered during this Consent Decree, and

5. all costs of implementing the O&M Activities and any other response activity to be performed under this Consent Decree, except to the extent this Consent Decree does not provide for one or more of the Settling Defendants to fund and/or to perform any part of such activities.

D. The Settling Defendants agree that with respect to any suit or claim for contribution brought by them for Covered Matters they will notify the United States and the State in writing no later than sixty (60) days prior to the initiation of such suit or claim.

E. The Settling Defendants also agree that with respect to any suit or claim for contribution brought against them for

Covered Matters they will notify the United States and the State in writing within sixty (60) days of service of the complaint on them. In addition, Settling Defendants shall notify the United States and the State in writing within ten (10) days of service or receipt of any Motion for Summary Judgment and within ten (10) days of receipt of any order from a court setting a case for trial.

F. In any subsequent administrative or judicial proceeding initiated by the United States or the State for injunctive relief, recovery of response costs, or other appropriate relief relating to the Site, Settling Defendants shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States or the State in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the enforceability of the covenants not to sue set forth in Section XXII (Covenants Not to Sue by Plaintiffs).

G. Payment of all sums which a Settling Cash Defendant is obligated to pay pursuant to Section XIV (Funding of Response Activities) of this Consent Decree, comprises full settlement as to that Settling Cash Defendant, any related Released Party as described in Appendix 1, and any Related Settling Defendant as described in Appendix 1, for all Covered Matters and thus, such Settling Cash Defendants, Related Settling Defendants and related Released Parties are entitled to such protection from

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contribution actions or claims as is provided by CERCLA Section 113(f)(2), 42 U.S.C. § 9613(f)(2).

XXV. ACCESS TO INFORMATION

A. Settling Defendants shall provide to EPA and the State, upon request, copies of all documents or portions thereof which are not privileged by the attorney-client privilege, the attorney work product doctrine, or any other privilege recognized by law, and information within their possession or control or that of their contractors or agents relating to response actions at the Site or to the implementation of this Consent Decree including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the O&M Activities. Settling Defendants shall also make available to EPA and the State, for purposes of investigation or information gathering, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the O&M Activities.

B. Settling Defendants may assert confidentiality claims covering part or all of the documents or information submitted to Plaintiffs under this Consent Decree to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Documents or information determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies documents or information when they are submitted to EPA and the State, or if EPA has notified

Settling Defendants that the documents or information are not confidential under the standards of Section 104(e)(7) of CERCLA, the public may be given access to such documents or information without further notice to Settling Defendants.

C. The Settling Defendants may assert that certain documents, records and other information are privileged under the attorney-client privilege, the attorney work product doctrine, or any other privilege recognized by law. In the case of documents, if a Settling Defendant asserts such a privilege in lieu of providing documents, it shall provide the Plaintiffs with the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of the author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the contents of the document, record, or information: and (6) the privilege asserted by such Settling Defendant. However, no documents, reports or other information created or generated pursuant to the requirements of this Consent Decree shall be withheld on the grounds that they are privileged. If a claim of privilege applies only to a portion of a document, the document shall be provided to EPA in redacted form.

D. No claim of confidentiality or privilege shall be made with respect to any document that falls within Section 104(e)(7)(F) of CERCLA, 42 U.S.C. § 9604(e)(7)(F).

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XXVI. RETENTION OF RECORDS

A. Until ten (10) years after the Settling Defendants' receipt of EPA's notification pursuant to Paragraph B.2 of Section XV (Certification of Completion of the Work), each Settling Defendant shall preserve and retain all records and documents now in its possession or control or which come into its possession or control that relate in any manner to the performance of the O&M Activities or liability of any person for response actions conducted and to be conducted at the Site, regardless of any document retention policy to the contrary. Until ten (10) years after Settling Defendants' receipt of EPA's notification pursuant to Paragraph A.2 of Section XV (Certification of Completion), Settling Defendants shall also instruct their contractors and agents to preserve all documents, records, and information of whatever kind, nature or description relating to the performance of the O&M Activities.

B. At the conclusion of this document retention period, Settling Defendants shall notify the United States and the State at least ninety (90) days prior to the destruction of any such records or documents, and, upon request by the United States or the State such Settling Defendant shall deliver any such records or documents to EPA or the State. A Settling Defendant may assert that certain documents, records and other information are privileged under the attorney-client privilege, the attorney work product doctrine, or any other privilege recognized by law. In the case of documents, if a Settling Defendant asserts such a privilege, it shall provide the Plaintiffs with the following:

(1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of the author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the subject of the document, record, or information: and (6) the privilege asserted by the Settling Defendant. However, no documents, reports or other information created or generated pursuant to the requirements of this Consent Decree shall be withheld on the grounds that they are privileged. If a claim of privilege applies only to a portion of the document, it shall be provided to EPA in redacted form.

C. Each Settling Defendant hereby certifies, individually, that it has not willfully and for an improper purpose altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents or other information relating to its potential liability regarding the Site since notification of potential liability by the United States or the State or the filing of suit against it regarding the Site and that to the best of its knowledge, that it has fully complied with any and all EPA requests for information pursuant to Section 104(e) and 122(e) of CERCLA, 42 U.S.C. § 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927.

XXVII. NOTICES AND SUBMISSIONS

A. Whenever, under the terms of this Consent Decree, written notice is required to be given or a report or other document is required to be sent by one party to another, it shall be directed to the individuals at the addresses specified below,

Submission 4483 (Kimberly Bick, Lockheed Martin Corporation, December 2, 2022) - Continued

unless those individuals or their successors give notice of a change to the other parties in writing. All notices and submissions shall be considered effective upon receipt, unless otherwise provided. Written notice as specified herein shall constitute complete satisfaction of any written notice requirement of the Consent Decree with respect to the United States, EPA, the State, and the Settling Defendants, respectively.

As to the United States:

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044
Re: DJ # 90-11-2-442

and

Director, Waste Management Division
United States Environmental Protection Agency
Region IX
75 Hawthorne St.
San Francisco, CA 94105

As to EPA:

EPA Project Coordinator, San Fernando Valley
Burbank Operable Unit
United States Environmental Protection Agency
Region IX
75 Hawthorne Street, H-6-4
San Francisco, CA 94105

As to the State:

Hamid Saebfar, Chief
Site Mitigation Cleanup Operations
Department of Toxic Substances Control
Region 3
1011 N. Grandview Avenue
Glendale, CA 91201

4483-9099

As to the Settling Work Defendant:

City of Burbank
Peter Frankel, P.E.
Supervising Civil Engineer
City of Burbank
Public Service Department
165 West Magnolia Boulevard
Burbank, CA 91503-0631

As to the Settling Defendants Other Than Settling Work Defendant:

As set forth in Appendix 7.

XXVIII. EFFECTIVE DATE

A. The Effective Date of this Consent Decree shall be the date upon which it is entered by the Court, except as otherwise provided herein.

XXIX. RETENTION OF JURISDICTION

A. This Court retains jurisdiction over both the subject matter of this Consent Decree and the Settling Defendants for the duration of the performance of the terms and provisions of this Consent Decree for the purpose of enabling any of the Parties to apply to the Court at any time for such further order, direction, and relief as may be necessary or appropriate for the construction or modification of this Consent Decree, or to effectuate or enforce compliance with its terms, or to resolve disputes in accordance with Section XX (Dispute Resolution) hereof.

XXX. APPENDICES

A. The following appendices are attached to and incorporated into this Consent Decree:

Appendix 1 is the complete list of the Settling Cash Defendants and Released Parties and/or other Settling Defendants

Submission 4483 (Kimberly Bick, Lockheed Martin Corporation, December 2, 2022) - Continued

who are related to a Settling Cash Defendant, to Lockheed Martin or to the City of Burbank in the manner described in Appendix 1.

Appendix 2 is the complete list of the Owner Settling Defendants and the properties they own within the Site.

Appendix 3 is the complete list of Settling Defendants who are excepted from the operation of Section XXII (Covenants not to Sue by Plaintiffs), Paragraphs A, B and C.

Appendix 4 is the Second Stage Statement of Work.

Appendix 5 is ESD2.

Appendix 6 is a list of the Settling Defendants and for each Settling Defendant, the person to whom notices and submissions shall be sent pursuant to Section XXVII (Notices and Submissions) of this Consent Decree.

Appendix 7 is a plot plan or plans which depict extraction wells VO-1, 2, 3 and 4 as described in Paragraph L of Section XIV (Funding of Response Activities), and the City's liquid phase GAC wellfield located at 164 West Magnolia Boulevard, Burbank, California, as described in Paragraph G of Section V (General Provisions) and Paragraph H.4 of Section VI (Performance of the Work).

B. The following exhibits are attached to this Consent Decree for reference purposes and are not incorporated herein

unless otherwise noted.

Exhibit 1 is the First Consent Decree.

"Appendix A" to the First Consent Decree is the ROD prior to its modification in ESD1, the First Consent Decree, and ESD2.

"Appendix B" to the First Consent Decree is ESD 1.

"Appendix C" to the First Consent Decree is the Map of Corrected Well Locations.

"Appendix D" to the First Consent Decree is the SOW.

"Appendix E" to the First Consent Decree is Schematics.

"Appendix F" to the First Consent Decree is a Plot Map.

Exhibit 2 is Unilateral Administrative Order 92-12 and the April 26, 1992 Amendment to Unilateral Administrative Order 92-12.

Exhibit 3 is a Scope of Work regarding Plant Facilities Insurance.

XXXI. COMMUNITY RELATIONS

A. Settling Work Defendant shall participate and cooperate with to EPA and the State concerning its participation in the community relations plan ("Plan") for the Site to be developed or which has been previously developed by EPA. In consultation with Settling Work Defendant, EPA will determine the appropriate role for the Settling Work Defendant under the Plan. Settling Work Defendant shall cooperate with EPA and the State in implementing the Plan and pursuant thereto, in providing information regarding the O&M Activities to the public. As requested by EPA, or the State, Settling Work Defendant, Lockheed Martin, and/or the

Submission 4483 (Kimberly Bick, Lockheed Martin Corporation, December 2, 2022) - Continued

Settling Cash Defendants (including the UAO Parties) shall participate in the preparation of information for dissemination to the public and in public meetings which may be held or sponsored by EPA or the State to explain activities at or relating to the Site.

XXXII. MODIFICATION

A. Schedules specified in this Consent Decree, in the Second Stage Statement of Work, or in any work plan approved by EPA pursuant to this Consent Decree for completion of the O&M Activities or any other response activities may be modified by agreement of EPA and the Settling Work Defendant, and any other Settling Defendant whose rights and/or obligations would be substantially affected thereby. All such modifications shall be made in writing.

B. No modifications shall be made to the Second Stage Statement of Work without written notification to and consent by any Settling Defendant whose rights or obligations would be substantially affected thereby, and written approval of the United States. Prior to providing its approval to any modification, the United States will provide the State with a reasonable opportunity to review and comment on the proposed modification.

C. Nothing in this Consent Decree shall be deemed to alter EPA's authority to make changes to the interim remedy for the Burbank Operable Unit in compliance with CERCLA, the National Contingency Plan, and any other applicable laws or regulations, or to require court approval of such changes.

D. Nothing in this Consent Decree shall be deemed to alter the Court's power to enforce, supervise or approve modifications to this Consent Decree.

XXXIII. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

A. This Consent Decree shall be lodged with the Court for a period of not less than thirty (30) days for public notice and comment in accordance with Section 122(d)(2) of CERCLA, 42 U.S.C. § 9622(d)(2), and 28 C.F.R. § 50.7. The United States also shall publish notice of the proposed settlement described in this Consent Decree in the Federal Register pursuant to section 122(l) of CERCLA, 42 U.S.C. § 9622(l). The United States hereby gives notice and opportunity to the public for a public meeting in the affected area, and a reasonable opportunity to comment on the proposed settlement prior to its final entry, pursuant to section 6973(d) of RCRA, 42 U.S.C. § 7003(d).

B. The United States reserves the right to withdraw or withhold its consent or suggest modifications to this Consent Decree if the comments regarding the Consent Decree disclose facts or considerations which indicate that the Consent Decree is inappropriate, improper, or inadequate. Settling Defendants consent to the entry of this Consent Decree without further notice. However, Settling Defendants' consent to the entry of this Consent Decree is not consent to any modifications, and no Settling Defendant shall be bound by modifications to this Consent Decree without its prior written consent.

C. If for any reason the Court should decline to approve this Consent Decree in the form presented, this Consent Decree is

Submission 4483 (Kimberly Bick, Lockheed Martin Corporation, December 2, 2022) - Continued

voidable as to any party at the sole discretion of such party and the terms of this Consent Decree may not be used as evidence in any litigation between the Parties.

XXXIV. SIGNATORIES/SERVICE

A. Each undersigned representative of a Settling Defendant to this Consent Decree, Plaintiffs, and the Assistant Attorneys General for the Environment and Natural Resources Division of the Department of Justice and for the State of California, certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind such Party to this document.

B. Each Settling Defendant hereby agrees not to oppose entry of this Consent Decree by this Court or to challenge any provision of this Consent Decree unless the United States has notified the Settling Defendants in writing that it no longer supports entry of this Consent Decree.

C. Each Settling Defendant shall identify, on the attached signature page, the name, address and telephone number of an agent who is authorized to accept service of process by mail on behalf of that Party with respect to all matters arising under or relating to this Consent Decree. Concerning any action brought by the United States or the State to enforce the terms of this Consent Decree, Settling Defendants hereby agree to accept service in that manner and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure and any applicable local rules of this Court, including, but not limited to, service of a summons. Concerning

the lodging and entry of this Consent Decree, Settling Defendants agree to accept in lieu of service by mail or the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure, service by the United States and the State by mail of one (1) copy of any document(s), motions or related matters upon the following persons:

For Lockheed Martin:

Gregory McClintock, Esq.
McClintock, Weston, Benshoof
Rochefort, Rubalcava, MacCuish
444 South Flower Street, 43rd floor
Los Angeles, CA 90071

For the City of Burbank:

Benjamin Kaufman, Esq.
Freilich, Kaufman, Fox & Sohagi
11755 Wilshire Blvd., Suite 1230
Los Angeles, CA 90025-1518

For the remaining Settling Defendants:

Robert Yahiro, Esq.
Rodi, Pollock, Pettker, Galbraith & Phillips
801 South Grand Avenue, Suite 400
Los Angeles, CA 90017

SO ORDERED THIS 22 DAY OF June, 1988

Marianna R. Pfaelzer
United States District Judge

Submission 4483 (Kimberly Bick, Lockheed Martin Corporation, December 2, 2022) - Continued

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THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of United States v. Lockheed Martin Corporation, et al., Civ. No. 91-4527-MRP(Tx) relating to the San Fernando Valley North Hollywood, Area 1, Burbank Operable Unit Superfund Site.

FOR THE UNITED STATES OF AMERICA

Date: 11/5/97

Lois Schiffer
Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice
Washington, D.C. 20530

Date: 4/25/98

William Weinischke
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
Washington, D.C. 20530

Date: _____

Monica Miller
Assistant United States Attorney
Central District of California
U.S. Department of Justice
Federal Building
300 North Los Angeles Street
Los Angeles, CA 90012

Date: _____

Felicia Marcus
Regional Administrator, Region IX
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

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4483-9099

THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of United States v. Lockheed Martin Corporation, et al., Civ. No. 91-4527-MRP(Tx) relating to the San Fernando Valley North Hollywood, Area 1, Burbank Operable Unit Superfund Site.

FOR THE UNITED STATES OF AMERICA

Date: _____

Lois Schiffer
Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice
Washington, D.C. 20530

Date: _____

William Weinischke
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
Washington, D.C. 20530

Date: _____

Monica Miller
Assistant United States Attorney
Central District of California
U.S. Department of Justice
Federal Building
300 North Los Angeles Street
Los Angeles, CA 90012

Date: 7/24/97

Felicia Marcus
Regional Administrator, Region IX
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

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Date: 7/24/97

Marie M. Rongone
Assistant Regional Counsel
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105

FOR THE STATE OF CALIFORNIA

Date:_____

Hamid Saebfar
Chief, Site Mitigation Cleanup Operations
Department of Toxic Substances Control
Southern California Branch

Date:_____

Ann Rushton
Deputy Attorney General
State of California

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APPENDIX I

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Appendix 1
Settling Cash Defendants, related Settling Defendants and related Released Parties

SETTLING CASH DEFENDANTS (as indicated) (in capital letters)
RELATED SETTLING DEFENDANTS (as indicated) (in capital letters)
Related Released Parties (indented and in upper and lower case letters)

Accratronics Seals Corporation:
ACCRATRONICS SEALS CORPORATION, a California corporation (Settling Cash Defendant)
WILLIAM H. FISCH TRUST, DATED OCTOBER 29, 1993, a trust (related Settling Defendant)
JONES FAMILY TRUST, DATED MAY 14, 1993, a trust (related Settling Defendant)
William H. Fisch, as an individual and as trustee of the William H. Fisch Trust
Delbert E. Jones, as an individual and as trustee of the Jones Family Trust

Adler Screw Products, Inc.:
ADLER SCREW PRODUCTS, INC., a California corporation (Settling Cash Defendant)

EIRIK LIRHUS (related Settling Defendant)
BERGLJOT LIRHUS (related Settling Defendant)
LIRHUS FAMILY TRUST, a trust (related Settling Defendant)

Aeroquip Corporation:
AEROQUIP CORPORATION, a Michigan corporation (Settling Cash Defendant)
TRINOVA CORPORATION, an Ohio corporation (related Settling Defendant)

A-H Plating, Inc.:
A-H PLATING, INC., a California corporation (Settling Cash Defendant)
THE WASCHAK FAMILY TRUST, a trust (related Settling Defendant)
JOHN P. WASCHAK, as trustee of The Waschak Family Trust (related Settling Defendant)
MELBA R. WASCHAK, as trustee of The Waschak Family Trust (related Settling Defendant)

Aviall Services, Inc.:
AVIALL SERVICES, INC., a Delaware corporation (Settling Cash Defendant)

Avica, Inc.:
AVICA, INC., a Texas corporation (Settling Cash Defendant)
(FORMERLY GENERAL CONNECTORS, INC.)
McENTEE FAMILY PARTNERSHIP, a partnership (related Settling Defendant)
James N. McEntee and Mary G. McEntee, as individuals and as trustees of the James N. McEntee and Mary G. McEntee Trust, dated August 26, 1982, a trust

B.J. Grinding, Inc.:
B.J. GRINDING, INC., a California corporation (Settling Cash Defendant)
ROBERT J. HOISETH AND GLENDA HOISETH (related Settling Defendant)
HOISETH FAMILY TRUST, a trust (related Settling Defendant)

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Appendix 1
Settling Cash Defendants, related Settling Defendants and related Released Parties

Joseph F. Bangs:
JOSEPH F. BANGS DBA BANGS MANUFACTURING COMPANY, a sole proprietorship (Settling Cash Defendant)
BANGS TRUST, DATED OCTOBER 3, 1990, a trust (related Settling Defendant)
Joseph F. and Doris B. Bangs, as individuals and as trustees of the Bangs Trust, dated October 3, 1990

Mel Bernie & Company, Inc.:
MEL BERNIE & COMPANY, INC., a California corporation, DBA ACCESSORY PLATING and 1928 JEWELRY LTD. (Settling Cash Defendant)
LAURIE S. BERNIE AND MELVYN J. BERNIE, AS INDIVIDUALS (related Settling Defendant)
LAURIE S. BERNIE AND MELVYN J. BERNIE, AS TRUSTEES OF THE BERNIE TRUST (related Settling Defendant)
THE BERNIE TRUST, a trust (related Settling Defendant)

Burmar Metal Finishing Corp.:
BURMAR METAL FINISHING CORP., a California corporation
DBA BARRON ANODIZING AND PAINT (Settling Cash Defendant)

Crane Co.:
CRANE CO., a Delaware corporation/HYDRO-AIRE DIVISION (Settling Cash Defendant)
Hydro-Aire, formerly a California corporation

Deltron Engineering, Inc.:
DELTRON ENGINEERING, INC., a California corporation (Settling Cash Defendant)
FILIJAN AND KUEBLER PROPERTIES, a California partnership (related Settling Defendant)
MICHAEL FILIJAN (related Settling Defendant)
TONY KUEBLER (related Settling Defendant)

Hydra-Electric Company:
HYDRA-ELECTRIC COMPANY, a California corporation (Settling Cash Defendant)
Hydra Electric International Limited, a United Kingdom corporation
Hidra Control S.A de C.V., a Mexico corporation
Cryogenic Applications Inc., a California corporation
DAVIS INDUSTRIES, INC., a Nevada corporation (related Settling Defendant)
Davis Trust No. 1, a trust, Allen V.C. Davis, trustee

Janco Corporation:
JANCO CORPORATION, a California corporation (Settling Cash Defendant)
BKT ENTERPRISES, INC., a California corporation (related Settling Defendant)

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Appendix 1
Settling Cash Defendants, related Settling Defendants and related Released Parties

Joslyn Sunbank Company:
JOSLYN COMPANY, LLC FKA JOSLYN COPRORATION, a Delaware corporation (Settling Cash Defendant)
JOSYLN SUNBANK COMPANY, LLC, FKA JOSLYN SUNBANK CORPORATION, a Delaware corporation (related Settling Defendant)
Sunbank Family of Companies, Inc., a California corporation

Ocean Technology, Inc.:
OCEAN TECHNOLOGY, INC., a California corporation (Settling Cash Defendant)
TEXTRON INC., Delaware corporation (related Settling Defendant)
HR TEXTRON INC., a Delaware corporation (related Settling Defendant)

Pacific Partnership:
PACIFIC PARTNERSHIP, a California partnership (Settling Cash Defendant)

Sargent Industries, Inc./Kahr Bearing Division:
SARGENT INDUSTRIES, INC., a Delaware corporation/KAHR BEARING DIVISION (Settling Cash Defendant)
ANTONINI FAMILY TRUST, a trust (Settling Cash Defendant)
MARIO E. ANTONINI AND MARISI A. ANTONINI, as trustees (Settling Cash Defendant)

Sierracin Corporation:
SIERRACIN CORPORATION, a California corporation (Settling Cash Defendant)
INDUSTRIAL BOWLING CORPORATION, a California corporation (related Settling Defendant)
Harrison Corporation, a California corporation

R&G Sloane Manufacturing Co., Inc.:
R&G SLOANE MANUFACTURING CO., INC., a Delaware corporation (Settling Cash Defendant),

Space-Lok, Inc.:
SPACE-LOK, INC., a California corporation, LERCO DIVISION (Settling Cash Defendant)

THE ESTATE OF ALBINA BREBBIA (related Settling Defendant)
CHRISTINA COGAR, INDIVIDUALLY AND AS EXECUTRIX FOR THE ESTATE OF ALBINA BREBBIA (related Settling Defendant)

Stainless Steel Products, Inc.:
STAINLESS STEEL PRODUCTS, INC., a California corporation (Settling Cash Defendant)
ZIMMERMAN HOLDINGS, INC., a California corporation (related Settling Defendant)
THE UHLMANN OFFICES, a California corporation, SUNHILL PARTNERS, a California partnerhsip (related Settling Defendant)

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Appendix 1
Settling Cash Defendants, related Settling Defendants and related Released Parties

Steve's Plating Corporation:
STEVE'S PLATING CORPORATION, a California corporation (Settling Cash Defendant)
TERRY S. KNEZEVICH (related Settling Defendant)
UNIFACTOR, INC., a California corporation (related Settling Defendant)
WALTON R. EMMICK (Settling Cash Defendant)
Walton R. Emmick Living Trust, a trust
Emmick Investment Company, an unincorporated entity
Emmick Investment Company Partnership #1, a partnership
Harold Emmick
Zola Emmick
S.D.S. Family Trust, a trust
S.D.S. Joint Venture, a partnership
SDS Management Corporation, a California corporation
CLELTA SPELMAN (Settling Cash Defendant)
Spelman Family Trust, a trust

Surface Finishing, Inc.:
DIANE BARR (Settling Cash Defendant)
ELAINE S. BARR (Settling Cash Defendant), as an individual and as trustee of the Homer R. Barr and Elaine S. Barr Family Trust
THE HOMER R. BARR AND ELAINE S. BARR FAMILY TRUST, a trust (Settling Cash Defendant)
Surface Finishing, Inc., a California corporation
Glenart Enameling Co., Inc., a California corporation

L.A. Gauge Company, Inc.:
L.A. GAUGE COMPANY, INC., a California corporation (Settling Cash Defendant)
[The Triumph Group Operations, Inc., a Delaware corporation]
THE TRIUMPH GROUP OPERATIONS, INC. DBA L.A. GAUGE COMPANY, INC.
ALCO Standard Corporation, an Ohio corporation
Nicholas P. and Margaret Trist

Twiss Heat Treating Co., Inc.:
TWISS HEAT TREATING CO., INC., a California corporation,
DBA TWISS HEAT TREATING CO. (Settling Cash Defendant)
THE WILLIAM E. AND EVELYN TWISS FAMILY TRUST, a trust (related Settling Defendant)
WILLIAM E. TWISS AND EVELYN TWISS (related Settling Defendant)
W AND E TWISS TRUST, a trust (related Settling Defendant)

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Submission 4483 (Kimberly Bick, Lockheed Martin Corporation, December 2, 2022) - Continued

Appendix 1
Settling Cash Defendants, related Settling Defendants and related Released Parties

Valley Enamelling Corp.:
VALLEY ENAMELLING CORP., a California corporation (Settling Cash Defendant)
WALTON R. EMMICK (Settling Cash Defendant)
- Walton R. Emmick Living Trust, a trust
- Emmick Investment Company, an unincorporated entity
- Emmick Investment Company Partnership #1, a partnership
- Harold Emmick
- Zola Emmick
- S.D.S. Family Trust, a trust
- S.D.S. Joint Venture, a partnership
- SDS Management Corporation, a California corporation

DENISE E. MCLAUGHLAN (Settling Cash Defendant)
- Emmick Investment Company Partnership #1, a partnership
- Emmick Investment Company, a partnership/Meriam Emmick

SHARYN E. SCHRICK (Settling Cash Defendant)
- Emmick Investment Company Partnership #1, a partnership
- Emmick Investment Company, a partnership/Meriam Emmick

SANDRA E. BOWMAN (Settling Cash Defendant)
- Sandra Emmick
- Sandra E. Bowman Trust, a trust
- Emmick Investment Company Partnership #1, a partnership
- Emmick Investment Company, a partnership/Meriam Emmick
- Meriam Emmick

Weber Aircraft, Inc.:
HM HOLDINGS, INC., a Delaware corporation (Settling Cash Defendant)
PH BURBANK HOLDINGS, INC., a Delaware corporation (Settling Cash Defendant)
WEBER AIRCRAFT, INC., a Delaware corporation (related Settling Defendant)

Appendix 1
Settling Work Defendant, Lockheed Martin Corporation and their related Released Parties

CITY OF BURBANK, a charter city (Settling Work Defendant)
- The Burbank Housing Authority
- The Burbank Youth Endowment Services Fund
- The Burbank Redevelopment Agency
- The Burbank Public Improvement Corporation
- The Burbank Parking Authority

LOCKHEED MARTIN CORPORATION, a Maryland corporation
And its current and former subsidiaries, divisions, and affiliates, including not limited to the following:
- Lockheed-California Company
- Lockheed Martin Aeronautical Systems, fka Lockheed Aeronautical Systems Company
- Lockheed Martin Skunk Works, fka Lockheed Advanced Development Company
- Lockheed Missiles and Space Company, Inc.
- Lockheed Corporation

Submission 4483 (Kimberly Bick, Lockheed Martin Corporation, December 2, 2022) - Continued

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APPENDIX II

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Appendix 2
Owner Settling Defendants

ACCRATRONICS SEALS CORPORATION site:
William H. Fisch Trust, dated 10/29/93
Jones Family Trust, dated 5/14/93
2211-2121 Kenmere Avenue
Burbank, CA 91504.

ADLER SCREW PRODUCTS, INC.
Lirhus Family Trust
3047 North California Street
Burbank, CA 91504

A-H PLATING, INC. site:
The Waschak Family Trust
John P. Waschak, trustee
Melba R. Waschak, trustee
1837 Victory Place
Burbank, CA 91504

ALIGN-RITE CORPORATION site:
Denise E. McLaughlan
Sharyn E. Schrick
Sandra E. Bowman Trust
Sandra E. Bowman, Trustee
2420, 2422, 2424, 2428 North Ontario Street
Burbank, CA 91504

AVICA, INC. site:
McEntee Family Partnership
3205 Burton Avenue
Burbank, CA 91504

B.J. GRINDING, INC. site:
Hoiseth Family Trust
Robert J. Hoiseth and Glenda I. Hoiseth, Trustees
2632 North Ontario Street
Burbank, CA 91504

JOSEPH F. BANGS DBA BANGS MANUFACTURING COMPANY site:
Bangs Trust
Joseph F. Bangs and Doris B. Bangs, Trustees
1601 West Burbank Boulevard
Burbank, CA 91506

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Appendix 2
Owner Settling Defendants

MEL BERNIE AND CO., INC., DBA 1928 JEWELRY LTD. AND ACCESSORY PLATING sites:
The Bernie Trust
Laurie S. Bernie, trustee
Melvyn J. Bernie, trustee
3000 Empire Avenue
Burbank, CA 91505

1928 Jewelry, Ltd.
2701, 2703, 2707, 2721, 3110, 3120 West Empire Avenue
2215 North Naomi Avenue
2216 North Catalina
2220 North Fairview Street
Burbank, CA 91505

CRANE CO./HYDRO-AIRE DIVISION site:
Crane Co.
3000 Winona Avenue
Burbank, CA 91504

DELTRON ENGINEERING, INC. site:
Filijan and Kuebler Properties
2800 North San Fernando Boulevard
Burbank, CA 91504

HYDRA-ELECTRIC COMPANY site:
Davis Industries, Inc.
3151 Kenwood Street
Burbank, CA 91505

JANCO CORPORATION site:
BKT Enterprises, Inc.
3111 Winona Avenue
Burbank, CA 91508

SARGENT INDUSTRIES, INC./KAHR BEARING DIVISION site:
Antonini Family Trust
3010 North San Fernando Boulevard
Burbank, CA 91504

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Appendix 2
Owner Settling Defendants

SIERRACIN CORPORATION site:
Industrial Bowling Corporation
3020 Empire Boulevard
Burbank, CA

SPACE-LOK, INC. site:
Estate of Albina Brebbia
2526 North Ontario Street
Burbank, CA 91504

STAINLESS STEEL PRODUCTS, INC. site:
The Uhlmann Offices, a California corporation./
Sunhill Partners, a California partnership
2980 San Fernando Road
Burbank, CA 91504

STEVE'S PLATING CORPORATION site:
Walton R. Emmick Living Trust
Walton R. Emmick, Trustee
Spelman Family Trust
Cleita Spelman, Trustee
3101, 3111 and 3113 San Fernando Road
Burbank, CA 91504

SURFACE FINISHING, INC./GLENART ENAMELING CO., INC. site:
Homer R. Barr and Elaine S. Barr Family Trust
2501 North Ontario Street
Burbank, CA 91504

L.A. GAUGE CO., INC. site:
L.A. Gauge Company, Inc.
7440 San Fernando Road
Sun Valley, CA 91352-4398

TWISS HEAT TREATING CO., INC. site:
The William E. and Evelyn Twiss Family Trust
William E. Twiss, Trustee
Evelyn Twiss, Trustee
2503 North Ontario Street
Burbank, CA 91504

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Submission 4483 (Kimberly Bick, Lockheed Martin Corporation, December 2, 2022) - Continued

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Appendix 2
Owner Settling Defendants

VALLEY ENAMELLING CORP. site:
Denise E. McLaughlan
Sharyn E. Schrick
Sandra E. Bowman Trust
Sandra E. Bowman, Trustee
2509 North Ontario Street
Burbank, CA 91504

WEBER AIRCRAFT, INC. site:
PH Burbank Holdings, Inc.
2801, 2820, 2913, 2917, 2923, 2925 2927, and 2929 North Ontario Street
3000 North San Fernando Road
3056 and 3068 North California Street
Burbank, CA 91504

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Appendix 2
Settling Work Defendant and Lockheed Martin Corporation as
Owner Settling Defendants

CITY OF BURBANK site:
164 West Magnolia Boulevard
Burbank, CA 91504

LOCKHEED MARTIN CORPORATION site:
Plant A-1
2555 North Hollywood Way
Burbank, CA 91505

Building 32
3401 West Empire Avenue
Burbank, CA 91504

Building 76, 76A
2311 North Hollywood Way
Burbank, CA 91506

Building B-1
1706 North Victory Place
Burbank, CA 91504

Building 170
2500 West Empire Avenue
Burbank, CA 91504

Building 199
1085 West Victory Boulevad
Burbank, CA 91506

Plant B-6
2801 North Hollywood Way
Burbank, CA 91505

Building 360
7575 North San Fernando Road
Burbank, CA 91505

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APPENDIX III

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Appendix 3
Settling Defendants
excepted from Section XXII
(Covenants not to Sue by Plaintiffs),
Paragraphs A, B and C

ACCRATRONICS SEALS CORPORATION
WILLIAM H. FISCH TRUST, DATED OCTOBER 29, 1993
JONES FAMILY TRUST, DATED MAY 14, 1993

ADLER SCREW PRODUCTS, INC.
EIRIK LIRHUS
BERGLJOT LIRHUS
LIRHUS FAMILY TRUST

AVICA, INC.
(FORMERLY GENERAL CONNECTORS, INC.)
MCENTEE FAMILY PARTNERSHIP

B.J. GRINDING, INC.
ROBERT J. HOISETH AND GLENDA HOISETH
HOISETH FAMILY TRUST

JOSEPH F. BANGS DBA BANGS MANUFACTURING COMPANY
BANGS TRUST

LAURIE S. BERNIE AND MELVYN J. BERNIE, AS INDIVIDUALS AND AS
TRUSTEES OF THE BERNIE TRUST
MEL BERNIE & CO., INC.
DBA ACCESSORY PLATING AND 1928 JEWELRY LTD.
THE BERNIE TRUST

BURMAR METAL FINISHING CORP.
DBA BARRON ANODIZING AND PAINT

DELTRON ENGINEERING, INC.
FILIJAN AND KUEBLER PROPERTIES
MICHAEL FILIJAN
TONY KUEBLER

PACIFIC PARTNERSHIP

R&G SLOANE MANUFACTURING CO., INC.

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Appendix 3
Settling Defendants
excepted from Section XXII
(Covenants not to Sue by Plaintiffs),
Paragraphs A, B and C

SPACE-LOK, INC.
THE ESTATE OF ALBINA BREBBIA
CHRISTINA COGAR INDIVIDUALLY AND
AS EXECUTRIX FOR THE ESTATE OF ALBINA BREBBIA

DIANE BARR
ELAINE S. BARR
THE HOMER R. BARR AND ELAINE S. BARR FAMILY TRUST

TWISS HEAT TREATING CO., INC. DBA TWISS HEAT TREATING CO.
THE WILLIAM E. AND EVELYN TWISS FAMILY TRUST
WILLIAM E. TWISS AND EVELYN TWISS
W AND E TWISS TRUST

VALLEY ENAMELLING CORP.
WALTON R. EMMICK
DENISE E. MCLAUGHLAN
SHARYN E. SCHRICK
SANDRA E. BOWMAN
CLELTA SPELMAN

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APPENDIX IV

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San Fernando Valley Superfund Site
Burbank Operable Unit

Second Explanation of Significant Differences
to the
Record of Decision

United States Environmental Protection Agency
Region IX - San Francisco, CA
February 12, 1997

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SECOND
EXPLANATION OF SIGNIFICANT DIFFERENCES
DECLARATION

SITE NAME AND LOCATION
San Fernando Valley Area 1
Burbank Operable Unit
Los Angeles County, California

I. Statement of Basis and Purpose

This decision document presents the Second Explanation of Significant Differences (ESD2) to the interim remedial action selected by the Burbank Operable Unit (Burbank OU) Record of Decision (ROD) signed June 1989. The Burbank OU ROD was previously modified by an Explanation of Significant Differences dated November 1990 (ESD1). Additional changes to the remedy were made in a 1992 Consent Decree, which was approved by the Central District of California federal court. ESD2 has been developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. Section 9601 et. seq.) and the National Contingency Plan (40 C.F.R. Section 300 et. seq.).

II. Description of the Selected Remedy in the ROD and ESD1

The Burbank OU ROD selected the interim remedy for an area of groundwater contamination, located within the San Fernando Valley Area 1 Superfund Site, which encompasses wellfields which were operated by the City of Burbank prior to being shut down as a result of the contamination. The ROD selected extraction of contaminated groundwater, treatment by air or steam stripping, and use of the treated water as a public water supply by the City of Burbank. The interim remedy was estimated to cost $69 million over 20 years (in 1989 dollars).

The ROD selected as the interim remedy the extraction and treatment of groundwater at a rate of 12,000 gallons per minute (gpm). This was considered to be the extraction rate necessary to hydraulically control, i.e. to prevent the spreading of, groundwater at concentrations of 100 parts per billion (ppb) of trichloroethylene (TCE) and 5 ppb of perchloroethylene (PCE). Extraction wells were to be placed in locations which would control plume migration while initiating aquifer restoration. The treatment technology specified was either air stripping or steam stripping, with off-gas control.

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The ROD states that the treated water must meet all existing federal and state Maximum Contaminant Levels (MCLs) and State Action Levels (SALs). It also states that the water must meet all drinking water treatment technology requirements. The ROD states a preference for delivering the treated water to the City of Burbank's distribution system for use as a public water supply. Using the treated water in this manner was considered preferable to discharging the water to waste because it represents a beneficial use of the groundwater resource in a water-poor region.

III. Summary of ESD1

ESD1 clarified and superseded certain parts of the Burbank OU ROD, as follows.

Based on new information regarding the occurrence of nitrate in the groundwater (nitrate levels turned out to be higher than anticipated), it became clear that additional treatment measures would be required in order for the extracted and treated groundwater to be used as a public water supply. EPA decided to require blending of the extracted and treated Burbank OU groundwater with a water supply lower in nitrates, such that the MCL is achieved in water served to the public.

The nitrate blending requirement increased the total amount of water produced by the interim remedy. The total amount to be produced was high enough that the possibility was raised that the City of Burbank would not be able to accept the total quantity of water produced at the Burbank OU. Other local water purveyors were unwilling to commit to accept excess water produced by the Burbank OU treatment plant. Therefore, in order to ensure that the interim remedy would continue to extract contaminated groundwater at the intended capacity, EPA decided to require reinjection of any excess water.

EPA clarified that the interim remedy could be designed, constructed, and operated in phases. Phasing the project allows for initial completion of a portion of the total extraction wellfield and treatment plant capacity. Operation of this first phase of the project allows collection of data on aquifer response and treatment plant efficiency. This data helps the design engineer to optimize the design of the following project phases, and helps to optimize overall groundwater containment and treatment efficiency for the project.

EPA clarified statements in the ROD pertaining to containment of groundwater containing TCE at 100 ppb and PCE at 5 ppb. These levels are not treatment goals to be attained in groundwater, but

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are to be used in designing the containment area to be developed by the extraction wellfield.

Because of the addition of reinjection as a component of the project, ARARs pertaining to reinjection of extracted and treated groundwater were identified. Specifically mentioned was the "Statement of Policy with Respect to Maintaining High Quality of Waters in California," which requires that reinjected water not degrade existing water quality.

The additional cost due to ESD1 changes in the interim remedy were estimated at $8.8 million over 20 years (in 1990 dollars).

IV. Summary of Additional Significant Differences (ESD2)

Based on additional study of the local (Burbank OU) groundwater system by Lockheed Martin, and by EPA's consultant CH2M Hill, EPA has concluded that an extraction rate of 9,000 gpm results in substantially the same level of groundwater containment as an extraction rate of 12,000 gpm. Overall costs are reduced at the lower extraction rate, because the need to construct and operate expensive reinjection facilities is eliminated. Cost effectiveness is improved because the lower extraction rate makes it less likely that the upper groundwater zone will become de-watered, and thus will allow EPA to achieve its goal of preferentially pumping the most contaminated zones. Based on these factors, EPA has lowered the interim remedy extraction rate to 9,000 gpm.

EPA has decided to eliminate reinjection as a requirement based on projections that there will essentially be no excess water at the revised groundwater extraction rate. The City of Burbank can substantially accept, and has committed to accept, an average of 9,000 gpm from the interim remedy facilities.

Due to elimination of reinjection from the project, the Burbank OU groundwater extraction rate will not be a continuous 9,000 gpm. The instantaneous extraction rate will fluctuate with the City of Burbank's water demand. In recognition of the likelihood that it will not be possible to extract groundwater at a rate of 9,000 gpm, twenty-four hours a day, three hundred and sixty-five days a year, EPA is specifying that the new extraction rate will be achieved as an average rate, not an instantaneous rate.

EPA has also decided to suspend the 9,000 gpm extraction rate requirement during times when nitrate levels in the extracted groundwater exceed 50 mg/l as nitrate. The ability to maintain an annual extraction rate of 9,000 gpm is not only dependent on the City of Burbank's water demand, but also upon nitrate concentrations in the extracted groundwater. It is possible that

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these concentrations may rise high enough such that, during periods of low water demand, it is not possible to extract an average of 9,000 gpm and also meet the nitrate MCL. EPA's analysis suggests that even under the worst case scenario for nitrates, an average of 8,500 gpm would be pumped. EPA believes the interim remedy will continue to be protective of human health and the environment even at this slightly reduced groundwater extraction rate, which, if it occurs, will only occur on an occasional basis.

EPA estimates that changes to the interim remedy effected by ESD2 will reduce implementation costs by $49 million (1995 dollars).

Further, the City of Burbank holds a public water supply operating permit, issued by the California Department of Health Services. This permit has been amended to cover operation of the Burbank OU treatment facilities. The requirements of this permit will govern off-site requirements for drinking water protectiveness.

V. Declaration

The selected remedy, as modified by this ESD, is protective of human health and the environment, attains federal and state requirements that are applicable, or relevant and appropriate, to this interim remedial action, and is cost-effective. This remedy satisfies the statutory preference for remedies that employ treatment which permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances as a principal element. It also complies with the statutory preference for remedies that utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. As part of the remedy, groundwater monitoring will be conducted to track contaminant levels at the Burbank Operable Unit and to monitor the performance of the extraction and treatment system in order to ensure adequate protection of human health and the environment.

Keith Takata — 2-12-97

Keith Takata
Director, Superfund Division

Date

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San Fernando Valley Area 1, Burbank Operable Unit

SECOND EXPLANATION OF SIGNIFICANT DIFFERENCES
February 12, 1997

I. Introduction

On June 30, 1989, the U.S. Environmental Protection Agency (EPA) signed a Record of Decision (ROD) for the San Fernando Valley Area 1 Superfund Site, Burbank Operable Unit (Burbank OU). On November 21, 1990, EPA signed an Explanation of Significant Differences (ESD1) modifying the interim remedial action selected in the ROD. The purpose of this Second Explanation of Significant Differences (ESD2) is to explain additional modifications to the interim remedial action.

Under Section 117 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendment and Reauthorization Act of 1986, and pursuant to 40 C.F.R. Sec. 300.435(c)(2)(i)(55 Fed. Reg. 8666, 8852 (March 8, 1990)), EPA is required to publish an Explanation of Significant Differences when significant (but not fundamental) changes are made to a final remedial action plan as described in a ROD.

This document provides a brief background of the Site, a summary of the remedy selected in the Burbank OU ROD, a summary of changes made to the remedy by ESD1, a description of the changes to the remedy EPA is making in this ESD2 (including how the changes affect and better refine the remedy selected in the ROD), and an explanation of why EPA is making these changes.

EPA is issuing ESD2 in order to take into account technical data received after ESD1 was signed in November, 1990. The changes are: (1) Based on additional study of the local (Burbank OU) groundwater system, EPA has concluded that an extraction rate of 9,000 gallons per minute (gpm) results in substantially the same level of groundwater containment as an extraction rate of 12,000 gpm. Therefore, the interim remedy extraction rate has been reduced to 9,000 gpm; (2) EPA is specifying that the new extraction rate will be achieved as an average rate, not an instantaneous rate; (3) EPA has decided to eliminate reinjection as a requirement based on projections that, on an annual basis, there will be no excess water at the revised groundwater extraction rate; and, (4) EPA has decided that the specified average extraction rate need not be met during times when nitrate levels in the extracted groundwater exceed 50 mg/l, because under this circumstance a greater quantity of blending water will be

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required, leaving the City of Burbank less capacity to accept extracted groundwater for use as a public water supply.

ESD2 and the supporting documentation will become part of the Burbank OU Administrative Record. Copies of the Administrative Record have been placed at the following locations:

City of Burbank Public Library
110 North Glenoaks Boulevard
Burbank, CA 91502
818-953-9737

City of Glendale Public Library
222 East Harvard Street
Glendale, CA 91205
818-956-2027

II. Background

A. Site background and description

The following gives a brief background of the Burbank OU and a short summary of the remedy selected in the ROD and modified by ESD1. Further background information can be found in the ROD (dated June 30, 1989), and in ESD1 (dated November 20, 1990), as well as in other documents in the Burbank OU Administrative Record.

In June 1986, EPA evaluated the threat posed by groundwater contamination at a number of water supply wellfields within the San Fernando Valley and Verdugo groundwater basins. The chief contaminants of concern are trichloroethylene (TCE) and perchloroethylene (PCE). As a result of its investigation, EPA designated four wellfield areas as National Priorities List (NPL) sites. EPA is managing the four sites as a single project consistent with CERCLA Section 104(d)(4).

The San Fernando Valley Groundwater Basin has historically been an important source of drinking water for the Los Angeles metropolitan area, including the City of Burbank. The groundwater basin provides enough water to serve approximately 600,000 residents.

Groundwater extracted from the basin is especially important during years of drought. Due to contamination by volatile organic chemicals (VOCs), including TCE and PCE, beneficial use of the groundwater resource has been partially lost. Surface water supplies have replaced the lost resource, but are costly, and may not be available in the future due to periodic drought conditions and the potential for changing water rights policy.

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The Burbank OU is located within the San Fernando Valley groundwater basin and encompasses wellfields which were operated by the City of Burbank prior to being shut down as a result of contamination. The Burbank OU was specifically developed to address this areal extent of groundwater contamination.

The City of Burbank's production wells have been shut down since the early 1980s because of the presence of TCE and PCE in concentrations exceeding federal and state Maximum Contaminant Levels (MCLs). Consequently, the city purchases close to one hundred percent of its water from the Metropolitan Water District of Southern California, which supplies surface water imported from outside the San Fernando basin. (The city does operate a granular activated carbon groundwater extraction and treatment plant during parts of the year, but the contribution of this plant toward meeting the overall water demand is small.)

B. Selected remedy as modified by ESD1

The Burbank OU ROD selected the interim remedy for an area of groundwater contamination generally located within the San Fernando Valley Area 1 Superfund Site. The ROD selected extraction of contaminated groundwater, treatment by air or steam stripping, and use of the treated water as a public water supply by the City of Burbank. The interim remedy was estimated to cost $69 million over the 20 year planned length of the interim remedy. ESD1 added the requirement to blend the extracted, treated, water with a lower nitrate source in order to meet nitrate MCLs. ESD1 also added the requirement for reinjection of excess water that the city could not accept due to water demand limitations. The changes to the interim remedy caused by ESD1 were estimated to cost $8.8 million, raising the total estimated project cost to $77.8 million (in 1989/1990 dollars).

Based on analyses conducted by the Los Angeles Department of Water and Power, through their consultant James M. Montgomery, in the Burbank OU Feasibility Study, the ROD specified that groundwater would be extracted and treated at a rate of 12,000 gpm. This rate was considered necessary in order to control plume migration and to initiate aquifer restoration. The 12,000 gpm rate was projected to hydraulically contain groundwater having a concentration of 100 parts per billion (ppb) of TCE and 5 ppb of PCE. ESD1 clarified that these levels are not treatment goals to be attained in groundwater, but are to be used in designing the containment area to be developed by the extraction wellfield.

The ROD states that the treated water must meet all existing federal and state MCLs and State Action Levels (SALs). It also states that the water must meet all drinking water treatment technology requirements. The treated water is being delivered to

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the City of Burbank's distribution system for use as a public water supply. Use of the treated water in this manner is considered preferable to discharging the water to waste because it restores the groundwater resource to beneficial use.

With respect to meeting drinking water standards, ESD1 concluded that, based on new information suggesting high nitrate levels in the groundwater, additional measures were required to meet the MCL for nitrate in the extracted and treated water. EPA decided to require blending of the extracted and treated groundwater with a water supply lower in nitrates, such that the MCL is achieved in water served to the public.

Addition of the nitrate blending requirement raised the possibility that the City of Burbank would not be able to accept the total quantity of water produced by the interim remedy. This is because nitrate blending raises water production, from the initially anticipated rate of 12,000 gpm, to a rate as high as 24,000 gpm. Under ESD1, EPA decided to require reinjection of any excess water, or water the City of Burbank could not use as a public water supply due to insufficient demand. EPA also identified Applicable or Relevant and Appropriate Requirements (ARARs) pertaining to reinjection of extracted and treated groundwater, specifically, the "Statement of Policy with Respect to Maintaining High Quality of Waters in California," which requires that reinjected water not degrade existing water quality.

Under ESD1, EPA also clarified that the interim remedy could be designed, constructed, and operated in phases. Phasing the project allows for initial completion of a portion of the total extraction wellfield and capacity treatment plant capacity. Operation of this first phase of the project allows collection of data on aquifer response and treatment plant efficiency. This data helps the design engineer to optimize the design of the following project phases, and helps to optimize overall groundwater containment and treatment efficiency for the project.

Portions of the Burbank OU ROD and ESD1 have already been implemented through a 1992 Consent Decree and a Unilateral Administrative Order. EPA also made additional operational changes in the interim remedy in the 1992 consent decree, which was approved by the Central District of California federal court. The 1992 consent decree, captioned United States of America v. Lockheed Corporation et al., Civil Action No. 91-4527 MRP(Tx), is included in the Administrative Record.

Under the Consent Decree, Lockheed Martin and the City of Burbank have constructed the first phase of the interim remedy. Under the Unilateral Administrative Order, a group of parties associated with six other Burbank facilities have constructed the

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blending facility, the purpose of which is to reduce nitrates in the extracted, treated groundwater. The first phase of the interim remedy was completed and became operational in January 1996. The first phase consists of groundwater extraction and treatment at a rate of 6,000 gpm, blending with Metropolitan Water District water, and use of the treated, blended water as a public water supply.

III. Summary of Significant Differences

ESD2 provides for the following changes to the interim remedy:

1) EPA has lowered the interim remedy extraction rate to 9,000 gpm. Based on additional study of the local (Burbank OU) groundwater system during the Remedial Design phase, EPA has concluded that an extraction rate of 9,000 gpm results in substantially the same level of groundwater containment as an extraction rate of 12,000 gpm. Cost effectiveness is improved at the lower extraction rate, not only due to the reduced cost of pumping less water, but because the need to construct and operate expensive reinjection facilities is eliminated. In addition, the lower extraction rate makes it less likely that the upper groundwater zone will become de-watered, and thus will allow EPA to achieve its goal of preferentially pumping the most contaminated zones.

2) EPA has decided to eliminate reinjection as a requirement. This decision is based on projections that, under existing aquifer conditions, there will be no excess water (i.e. water that cannot be used by the City of Burbank as a public water supply) produced at the revised groundwater extraction rate. The City of Burbank has committed to accept an annual average of 9,000 gpm from the interim remedy facilities.

3) EPA is specifying that the 9,000 gpm extraction rate will be achieved as an average rate, not as an instantaneous rate. Due to elimination of reinjection, the instantaneous rate will fluctuate with the City of Burbank's water demand. EPA recognizes that it will not be possible to extract groundwater at a rate of 9,000 gpm, twenty-four hours a day, three hundred and sixty-five days a year. However, EPA's analysis suggests that under the worst case scenario for nitrates, groundwater can be extracted at a minimum rate of 8,500 gpm. EPA believes protectiveness of human health and the environment is maintained even at this slightly reduced rate, which, if necessary, will only be necessary on an occasional basis. In order to maximize the amount of groundwater pumped, EPA has decided to count groundwater extraction from the city's granular activated carbon treatment plant toward the 9,000 gpm average rate. This wellfield will most likely be used by the city during the summer

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to meet peak water demand. The City of Burbank has agreed to maximize its use of treated groundwater. These decisions and agreements are to be included in a second consent decree between EPA, the city, and numerous Burbank parties.

4) EPA has decided to suspend the 9,000 gpm extraction rate requirement during times when nitrate levels in the extracted groundwater exceed 50 mg/l as nitrate. This decision is being made to ensure that under no circumstances will the MCL for nitrate be exceeded in the treated water. The ability to maintain an annual extraction rate of 9,000 gpm is not only dependent on the City of Burbank's water demand, but also upon nitrate concentrations in the extracted groundwater and in the blending water. It is possible that these concentrations may rise high enough such that, during periods of low water demand, it is not possible to extract an average of 9,000 gpm and also meet the nitrate MCL. However, as mentioned in the above paragraph, the City of Burbank has agreed to maximize its use of treated groundwater.

Lockheed Martin has estimated that changes to the interim remedy effected by ESD2 will reduce implementation costs by 49 million dollars (1995 dollars), and EPA is in agreement with this estimate..

IV. Explanation and Detailed Description of Changes and Clarifications

After the ROD and ESD1 were signed, EPA received and reviewed new data from its Alternative Remedial Contracting Strategy (ARCS) contractor CH2M Hill, from the City of Burbank, and from the Lockheed Martin Corporation, regarding the Burbank OU groundwater system. This new information included both data collected in the field (from groundwater monitoring wells) and the output from computer modeling exercises. Reports and technical memoranda were generated compiling this data, which project that the implementation of ESD2 will not reduce the protectiveness of the Burbank OU interim remedy. Thus, EPA's conclusion in the ROD and ESD1 that the interim remedy is protective of human health and the environment has not changed. The new and existing technical information that EPA relied upon to prepare ESD2 is identified in the discussion which follows, and this information can be found in the Burbank OU Administrative Record.

A. Background

Based on this new information, EPA has concluded that a lower pumping rate than originally projected will result in the desired degree of containment of the VOC contaminant plume in the vicinity of the Burbank OU. This projection results from an

improved ability on EPA's part to predict aquifer response to pumping, made possible because real operating data is now available from Phase 1 of the Burbank OU interim remedy, which includes a 6,000 gpm groundwater extraction wellfield. In addition, the local groundwater flow models designed by CH2M Hill and by Lockheed Martin have undergone additional improvement and verification since the ROD was written. Results from both models predict that a 9,000 gpm extraction rate achieves the goals of the ROD.

EPA believes it is important to implement this change not only because it is based on sound scientific analysis, but also because of cost savings to the project. Reducing the pumping rate allows for elimination of costly reinjection facilities required under ESD1. The lower pumping rate also ensures that EPA will be able to pump from the most contaminated zones of the aquifer without dewatering the aquifer.

EPA, with the assistance of CH2M Hill, the City of Burbank, and Lockheed Martin, performed the following analysis in reaching these conclusions.

B. Options

While CERCLA Section 117(c) and 40 C.F.R. Section 300.435(c)(2)(i) merely require an explanation of significant differences and the reason for these differences, ESD2 sets out in detail four options regarding the rate of groundwater extraction, along with EPA's analysis of these options. The four options are as follows:

1. Extraction and treatment of an annual average of 6,000 gpm of groundwater from the existing Phase 1 Burbank OU wellfield, with use of the treated water by the City of Burbank (this phase of the project is currently in operation; therefore, if Option 1 were selected, no further construction would be required at the Burbank OU);

2. Extraction and treatment of an annual average of 9,000 gpm of groundwater from the existing Phase 1 Burbank OU wellfield, and the planned Phase 2 wellfield, with use of the treated water by the City of Burbank;

3. Extraction and treatment of an annual average of 12,000 gpm of groundwater from the existing Phase 1 and proposed Phase 2 and Phase 3 Burbank OU wellfields, with use of the treated water by the City of Burbank, with conveyance of excess water to other purveyors;

4. Extraction and treatment of an annual average of 12,000 gpm of groundwater from the existing Phase 1 and proposed Phase 2 and

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Phase 3 Burbank OU wellfields, with use of the treated water by the City of Burbank, and reinjection of excess water (this is the option selected by the ROD as modified by ESD1).

C. Analysis of options

The four options presented above were compared with each other based on the nine criteria listed and explained in the National Contingency Plan (NCP), 40 C.F.R. Section 300.430(e)(9)(iii). The nine criteria and the results of the comparison of the options are presented in this subsection. The nine criteria are as follows:

1. compliance with ARARs
2. overall protection of human health and the environment
3. short-term effectiveness in protecting human health and the environment
4. long-term effectiveness and permanence in protecting human health and the environment
5. reduction of toxicity, mobility, and volume of contaminants
6. technical and administrative feasibility of implementation
7. capital and operation and maintenance costs
8. state acceptance
9. community acceptance

An analysis of the four options in terms of the above criteria follows.

1. Compliance with ARARs

The Burbank OU ROD recognizes that chemical-specific ARARs for the groundwater itself will be addressed in the final remedy. The remedial action adopted pursuant to the ROD, ESD1, and ESD2, is an interim action; therefore, chemical-specific ARARs for the groundwater contaminant plume do not apply to the activities taken pursuant to the ROD, ESD1, and ESD2.

However, for each of the four options being considered, drinking water standards, including state and federal MCLs, source water monitoring protocols, and treatment technology requirements, must be met. The existing treatment plant designed under Phase 1 has been shown to meet these standards during operation at flows up to 6,000 gpm. Option 1 is essentially Phase 1 of the Burbank OU interim remedy, which EPA has previously concluded meets drinking water ARARs.

The Phase 1 Burbank OU treatment plant is currently being operated to meet all standard state drinking water requirements

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and several special conditions, as specified in the public water supply operating permit issued to the City of Burbank by the California Department of Health Services (DHS). Since the treatment plant was designed with excess capacity, and can produce up to 9,000 gpm with no loss in treatment efficiency, EPA is confident that Option 2 will also meet drinking water ARARs. Options 3 and 4 would require modification to the treatment plant, but EPA is also confident that such modifications could be performed such that these standards would be met.

The treatment standards applicable to the Burbank OU treatment system were initially established in the ROD. The ROD required that the treatment system meet MCLs for all constituents (other than nitrates). Because water from the Burbank OU treatment system is conveyed offsite for use as a public water supply, and applicable drinking water standards may change, the consent decrees governing operation of the treatment plant recognize that EPA may identify requirements promulgated after the date of the ROD as ARARs in accordance with section 300.430(f)(1)(ii)(B)(1) of the NCP. That section requires attaining (or waiving) requirements promulgated after the date of the ROD where necessary to protect human health or the environment. This ESD does not change the treatment standards for operation of the treatment plant.

With respect to groundwater reinjection, ARARs include the California Regional Water Quality Control Board's (RWQCB) Non-degradation Policy, and Resource Conservation and Recovery Act (RCRA) Section 3020. The only option studied which involves reinjection is Option 4.

Any water reinjected on-site must meet all action-specific ARARs for reinjection. The reinjection must meet the "Statement of Policy With Respect to Maintaining High Quality of Waters in California," which requires that reinjected water not unreasonably degrade existing water quality. Nitrates are of concern with respect to reinjection; to avoid degradation, water from the Burbank OU treatment plant would have to be reinjected into an area of the aquifer containing as high or higher nitrate concentrations.

RCRA Section 3020 provides that the ban on the disposal of hazardous waste into a formation which contains an underground source of drinking water shall not apply to the injection of contaminated groundwater into the aquifer if: (i) such reinjection is part of a response action under CERCLA; (ii) such contaminated groundwater is treated to substantially reduce hazardous constituents prior to such reinjection; and (iii) such response action will, upon completion, be sufficient to protect human health and the environment.

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Compliance with reinjection ARARs could be problematic for implementation of Option 4 due to high nitrate levels in the extracted and treated groundwater, and limited areas of the aquifer available for reinjection based on ARARs criteria.

Based on consideration of drinking water ARARs, Options 1, 2, and 3 are considered equivalent. Option 4 is considered less favorable than Options 1-3 due to potential difficulties in meeting reinjection ARARs.

2. Overall protection of human health and the environment

Options 1-4 are all protective of human health and the environment. In each case, direct threat of human contact with contaminated groundwater has been minimized. Extracted groundwater is being treated to meet drinking water standards before being served to the public. Therefore, the selection of any of the four options for interim remedial action would result in no change in protection to human health and the environment from that achieved under the interim remedial action established in the ROD and ESD1.

Options 1-4 all inhibit the spreading of the VOC plume to downgradient wellfields, and along with federal and state source water monitoring requirements minimize the likelihood that contaminated water from downgradient wells would be served to the public. As far as the degree of overall containment is concerned, based on studies performed by CH2M Hill and Lockheed, EPA believes that protection of the aquifer is adequate under Options 2, 3, and 4, and may be adequate under Option 1. This issue is discussed further in the section on long-term protectiveness below.

Options 1-4 all protect the environment from contact with contaminated groundwater. Under all four options, extracted groundwater is being treated and used as a public water supply and is not being discharged to the land surface. Option 4 differs from the other three options in that it requires reinjection of excess water. As long as reinjection ARARs are followed, Option 4 will not result in degradation of groundwater quality.

3. Short-term effectiveness in protecting human health and the environment

The analysis regarding short-term effectiveness of the Burbank OU interim remedy in protecting human health and the environment does not differ from the above analysis of overall protection of human health and the environment. Options 1-4 are all protective in the short-term. Phase 1 of the Burbank OU project has already been constructed, and treated groundwater is being provided to

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the residents of the City of Burbank without negative impact; therefore, Option 1 would not produce additional short-term impacts.

Options 2-4 would require additional construction activity. The only potential additional short-term impact to human health and the environment would be limited to minor, standard, construction concerns such as exposure to wind-blown dust, and noise impacts. The well drilling activities necessitated under these three options would be limited to one to two months in duration, would produce very little airborne dust, and noise would be limited to daytime hours. Option 2 would not produce any other short-term impacts. Options 3 and 4 would require an upgrade of the Burbank OU treatment plant, but this would consist of modifications to an existing plant and would not require significant excavation or earth moving activities, merely the addition or modification of existing physical components to the plant.

EPA believes any construction impacts would be minimal, and that Options 1-4 are all protective of human health and the environment in the short-term.

4. Long-term effectiveness and permanence in protecting human health and the environment

Options 1-4 would all maintain reliable protection of human health and the environment over time. Minor differences arise in the permanence of the various options. Since this is an interim remedial action, and the action itself is not considered permanent, permanence has not been considered a major factor in this evaluation.

However, in ranking the options with respect to permanence, EPA has evaluated to what degree they would contribute to aquifer restoration. Option 2 results in the greatest mass removal of PCE and TCE, suggesting that the combination of pumping rate and location of extraction wells is optimized under this alternative. The other options result in a similar degree of mass removal, with differences of only a few percent. This suggests that the 20 year period of groundwater extraction, which is not changed by this ESD, may be the controlling factor for mass removal. One unknown factor in this analysis is how much mass will continue to enter the groundwater system over the 20 year period of time. The final remedy will attempt to assess this effect and will attempt to address permanence in a more thorough analysis.

A comparison of mass removal for Options 1-4 over 20 years is presented below. These figures derive from an analysis performed by Lockheed Martin Corporation and reviewed by EPA, and EPA's consultant CH2M Hill. (See the Administrative Record: document entitled Evaluation_of_Extraction_Scenarios_for_the_BOU, dated

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March 20, 1995, prepared by Hydro-Search, Inc.) The comparison of percent removal uses as a baseline the Burbank OU groundwater plume as defined by the 5 ppb contour line. Percent removal refers to the percentage of the mass within the 5 ppb contour which is removed by the Burbank OU extraction wells over the 20 year projected length of the interim remedy.

As noted, the amount of mass removed is greater at a 9,000 gpm extraction rate (Option 2) than at a 12,000 gpm extraction rate (Option 4). This is due to the need to meet reinjection ARARs for nitrates under Option 4. The locations where reinjection wells may be placed to meet ARARs are not favorable for mass removal, because under Option 4, the treated water must be reinjected in an area close to the extraction wells. The reinjected water actually displaces and dilutes contaminated water such that overall removal efficiency for TCE and PCE decreases.

Table 1 - Mass Removal Over Twenty Years

	% mass PCE removed	% mass TCE removed
Option 1[1]	89	73
Option 2[2]	92	78
Option 3[3]	91	78
Option 4[4]	88	75

The only other long-term protectiveness issue relates to air emissions from the Burbank OU treatment plant. The off-gas from the plant's aeration towers contains TCE and PCE molecules which have been stripped from the groundwater. Although this off-gas is treated with the use of air-phase granular activated carbon, a small quantity of TCE and PCE (less than 1% of the total present in the off-gas) is released to the atmosphere at an elevation of approximately sixty feet above the ground surface. The South Coast Air Quality Management District has reviewed the emission levels and found them well within ARARs for air emissions. EPA believes that emissions from Options 1-4 will not negatively impact human health and the environment, due to the low level of emissions, and due to their emission at a significant height above ground surface, away from people.

[1]6,000 gpm pumping rate, no reinjection

[2]9,000 gpm pumping rate, no reinjection

[3]12,000 gpm pumping rate, no reinjection

[4]12,000 gpm pumping rate, with reinjection

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Nonetheless, Options 1-4 can be ranked in terms of overall emissions. The lower the groundwater extraction rate, the lower the rate of TCE and PCE removal, and the lower the rate of TCE and PCE emissions. Option 1 at a groundwater extraction rate of 6,000 gpm results in the least air emissions. Option 2 performs the next best in this respect. Options 3 and 4 result in slightly higher emissions.

5. Reduction of toxicity, mobility, and volume of contaminants

As stated above, EPA has evaluated to what degree the four options will contribute to mass removal. Mass removal of contaminants relates very closely to reduction in toxicity and volume of contaminants in the groundwater. Based on EPA's evaluation, all four options would result in similar degrees of reduction in toxicity and volume.

An assessment has also been made regarding the degree of hydraulic control Options 1-4 would exert over the groundwater contamination (Evaluation of Extraction Scenarios for the BOU, dated March 20, 1995, prepared by Hydro-Search). The degree of hydraulic control achieved relates very closely to reduction in mobility of the contaminants. The following comparison of hydraulic control is made based upon the groundwater plume as defined by the 5 ppb contour line (percent control refers to the percentage of the area within the 5 ppb contour which is contained, i.e. which does not move downgradient):

Table 2 - Hydraulic Control Over Twenty Years

	% control PCE	% control TCE
Option 1[5]	66	51
Option 2[6]	72	60
Option 3[7]	74	68
Option 4[8]	71	58

Based on this analysis, Option 3 would result in the greatest reduction in mobility, particularly with respect to control of the TCE plume. Options 2, 3, and 4 control to a similar degree the PCE plume. Option 1 clearly results in a lesser degree of

[5]6,000 gpm pumping rate, no reinjection

[6]9,000 gpm pumping rate, no reinjection

[7]12,000 gpm pumping rate, no reinjection

[8]12,000 gpm pumping rate, with reinjection

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control. Option 3 turns out to be more efficient than Option 4, despite the fact that these options use the same pumping rate of 12,000 gpm, because based on current projections nitrate levels in the aquifer will not accommodate reinjection in hydraulically advantageous locations. A hydraulically advantageous location would be one where the reinjected water would assist in plume containment. ARARs requirements would restrict the placement of reinjection wells in areas where groundwater quality would not be degraded, meaning in areas where nitrates in groundwater are higher than nitrates in the water to be reinjected. If reinjection wells could be placed in the most hydraulically advantageous locations, Option 4 would be slightly superior to Option 3 in this regard.

When the interim remedial action is complete, EPA projects that contamination will remain in the groundwater under each of the four options. The final remedial action will determine how to address this remaining contamination.

Based on current data, Options 2 and 3 appear superior in terms of this criterion, but all options fulfill the goal of the ROD to partially control the movement and spread of groundwater contaminants in the Burbank OU area, while contributing to aquifer restoration.

6. Technical and administrative feasibility of implementation

The technical differences between the four options are as follows:

Option 1 would require no additional construction. (Option 1 has already been implemented as Phase 1 of the interim remedy; therefore, it has been proven feasible.)

Option 2 would require construction of 3,000 gpm of additional extraction wellfield capacity.

Option 3 would require construction of 6,000 gpm of additional extraction wellfield capacity, plus a 3,000 gpm upgrade to treatment facility capacity.

Option 4 would require construction of 6,000 gpm of additional extraction wellfield capacity, plus a 3,000 gpm upgrade to treatment facility capacity, plus construction of a 8,500 gpm reinjection wellfield.

In general, technical implementability increases in complexity as construction tasks are added to a project. Some construction tasks are more complex than others; for example, construction of a reinjection wellfield is more complicated than construction of an extraction wellfield due to more complex well specifications

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intended to reduce clogging of the well screens. Using this rationale, Option 4 is more complex than Option 3, which is more complex than Option 2, which is more complex than Option 1. As stated above, Option 1 has already been implemented technically (as well as administratively).

Ease of operation also factors into implementability. Application of proven technology generally reduces uncertainty of implementability, while application of a new technology increases uncertainty. Options 1, 2, and 3 all use common technology, while Option 4, by adding reinjection, uses a technology that has not been implemented widely in the geographic region of the Burbank OU.

Administratively, Options 1, 2, and 3, would be relatively simple because they would follow the framework developed during start-up of Phase 1 of the Burbank OU interim remedy. As part of Phase 1 start-up, EPA, the City of Burbank, Lockheed Martin Corporation, and DHS reached agreement on operational plans for the facility. Once again, Option 1, since it has been constructed and placed in operation, is not expected to present any administrative difficulties.

Construction of additional facilities, which would be necessary under Options 2, 3, and 4, would require amending the City of Burbank's public water supply operating permit, issued by DHS. Although this would be an additional administrative task, EPA is confident that additional permit conditions required by virtue of the addition of such facilities, would be achievable.

Option 3 would have the administrative complication of committing additional purveyors to accept water the City of Burbank could not accept. It is not likely that these additional purveyors would be willing to sign a consent decree, the chosen implementation document for the interim remedy. Lockheed Martin Corporation and the City of Burbank have both attempted, without success as of the date of this ESD2, to obtain the commitment of other local purveyors to accept Burbank OU water. Without this commitment, there is a good deal of uncertainty whether 12,000 gpm of groundwater could be purveyed on a routine basis, during periods when the City of Burbank could not accept the entire production of the Burbank OU facilities.

Option 4 would be more complicated to implement administratively due to the likely increased involvement of a regulatory agency, RWQCB, in the process. RWQCB has previously expressed reservations about reinjection based on water quality degradation concerns. However, EPA believes this additional administrative step would not present a barrier to implementation.

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Based on technical and administrative considerations, Options 1 and 2 are considered superior. Options 3 and 4 have administrative complications, which would need to be resolved prior to implementation. Option 3 may present a barrier to implementation while Option 4 probably does not.

7. Capital and operation and maintenance costs

The following discussion compares the costs of Options 1-4 on a net present value basis. Costs include construction and 20 years of operation and maintenance. These costs are not based on the original estimates set forth in the ROD and in ESD1, but are based on more recent estimates prepared by a consultant to Lockheed Martin Corporation, the entity which has undertaken design and construction of the interim remedy under EPA oversight. (See the Administrative Record: document entitled Burbank_Operable_Unit_Costs_Comparison_Summary, dated March 20, 1995, prepared by Parks, Palmer, Turner & Yemenidjian.) These estimates were independently reviewed by CH2M Hill, EPA's ARCS contractor. Therefore, the actual cost of the Phase 1 Burbank OU treatment facilities constructed by Lockheed Martin, the City of Burbank, and six other businesses, has been incorporated into these estimates. CH2M Hill's analysis is presented in a memorandum entitled Review_of_Burbank_Operable_Unit_Costs Comparison_Summary, dated November 11, 1996. EPA has concluded that the cost estimates prepared by Lockheed Martin used appropriate assumptions and are therefore appropriate for purposes of comparison of alternatives.

Option 1 is the least expensive of the four options. The capital cost for this option is estimated at $31 million in 1996 dollars. The present value of the 20 years of operation and maintenance is estimated at $88 million. Therefore, the total net present value of Option 1 is estimated at $119 million. Economic assumptions used by Lockheed Martin's consultant in this analysis are as follows: a discount rate of 8% was used; an inflation rate of 3% was used; calculations are in 1995 dollars.

Option 2 is more expensive than Option 1 but less expensive than Option 3. The capital cost for this option is estimated at $38 million in 1996 dollars. The present value of 20 years of operation and maintenance is estimated at $93 million. Therefore, the total net present value for Option 2 is estimated at $131 million.

Option 3 is more expensive than option 2 but less expensive than Option 4. The capital cost for this option is estimated at $49 million in 1996 dollars. The present value of 20 years of operation and maintenance is estimated at $97 million. Therefore, the total net present value for Option 3 is estimated at $146 million.

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Option 4 is the most expensive of the four options. The capital cost for this option is estimated at $70 million in 1996 dollars. The present value of 20 years of operation and maintenance is estimated at $110 million. Therefore, the total net present value for Option 4 is estimated at $180 million.

For purposes of comparison, this information is set out in the following table:

Table 3 - Cost Comparison

Option	Capital	O&M	Total
1[9]	$31 million	$ 88 million	$119 million
2[10]	$38 million	$ 93 million	$131 million
3[11]	$49 million	$ 97 million	$146 million
4[12]	$70 million	$110 million	$180 million

8. State acceptance

EPA has coordinated with state agencies throughout this project, specifically RWQCB, the California Department of Toxic Substances Control (DTSC), and DHS. These agencies either accepted, or did not object to, the interim remedy originally designated by the ROD and ESD1. The Administrative Record details the communications between EPA and these State agencies throughout the interim remedy selection process.

Regarding the remedy discussed in the ROD and ESD1, the record reflects that the RWQCB supports the use of the treated water as drinking water, provided that all requirements for the serving of public drinking water are met. RWQCB agrees that reinjection may be implemented as long as compliance is achieved with respect to the "Statement of Policy With Respect to Maintaining High Quality Waters in California." (See the Administrative Record: letter dated June 8, 1990, from Hank Yacoub, RWQCB, to Alisa Greene, EPA; letter dated June 20, 1990, from Robert Ghirelli, RWQCB, to Alisa Greene, EPA.)

The record reflects that neither DTSC nor DHS stated a preference or rejection of any of the options presented in the ROD and ESD1. (See the Administrative Record: letter dated May 15, 1990, from

[9] 6,000 gpm pumping rate, no reinjection

[10] 9,000 gpm pumping rate, no reinjection

[11] 12,000 gpm pumping rate, no reinjection

[12] 12,000 gpm pumping rate, with reinjection

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Hamid Saebfar, DTSC, to Alisa Greene, EPA, and letter dated June 11, 1990, from Gary Yamamoto, DHS, to Alisa Greene, EPA.)

In addition to reviewing the Administrative Record through the ROD and ESD1, EPA notified the state agencies regarding the proposed changes which would be made by ESD2. Neither RWQCB nor DTSC provided written comments on the options presented in ESD2. However, as stated above, EPA also has presented EPA's position on the ESD2 options to the state and other agencies at quarterly Management Committee meetings. EPA's understanding based on exchanges with representatives from these agencies is that neither RWQCB nor DTSC objects to EPA's approach.

DHS did provide written comments on the changes proposed by ESD2, but did not state a preference for any of the options presented herein. (See the Administrative Record: letter dated September 6, 1996, from Gary Yamamoto, DHS, to David Seter, EPA.) DHS raised the issue that "limiting the pumping rate to a maximum of 9,000 gpm and the elimination of the re-injection option may limit U.S. EPA's future success in containing the contaminant plume." In response to this comment, EPA believes the analysis presented in this ESD2, in terms of the nine NCP criteria, thoroughly considers the impact of the various options including the impact on plume containment.

Specifically, the nitrate levels currently projected in the aquifer do not accommodate reinjection in hydraulically advantageous locations. The City of Burbank has already agreed to maximize its use of treated groundwater, which will be an average of 9,000 gpm. An extraction rate of 9,000 gpm without reinjection thus accomplishes better hydraulic control than an extraction rate of 12,000 gpm with reinjection.

9. Community acceptance

The basic groundwater extraction and treatment concepts being evaluated in ESD2 do not differ greatly from the concepts evaluated in the ROD and in ESD1. The same degree of treatment will be applied to water made available as a public water supply. During the thirty day comment period provided for by EPA during the development of ESD1, there were no comments submitted by the public.

In addition, EPA will publish notice of availability of this ESD2 in a local newspaper of general circulation, and will consider any comments submitted by the public as required by 40 C.F.R. Section 300.825(c).

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D. Decision on options

Based on the above analysis of Options 1-4, EPA has chosen Option 2, which consists of groundwater extraction at an average rate of 9,000 gpm, treatment by air stripping and granular activated carbon to remove VOCs, nitrate reduction by blending with a low nitrate water source, and use of the treated and blended water by the City of Burbank as a public water supply.

Option 2 was chosen because:

1) it performs equally as well as Options 3 and 4 and better than Option 1 at removing contaminant mass over a 20 year period of time;
2) it performs substantially as well as Option 3 and better than Options 1 and 4 at retarding migration of the groundwater contamination plume;
3) its total implementation cost is
   $15 million less than Option 3
   $49 million less than Option 4;
4) it avoids the potential administrative difficulties of Options 3 (identifying additional water purveyors) and 4 (resolving reinjection regulatory issues);
5) it complies with ARARs;
6) it is protective of human health and the environment.

This is an interim remedy. In the future, after the Burbank OU facilities have been operational for a substantial period of time, the optimal extraction rate may be better determined. This information will eventually factor into a decision on the final remedy. But for the purposes of ESD2, the data suggest that a groundwater extraction rate of 6,000 gpm may be too low to meet the groundwater containment objective. However, the data do not justify the added expense of raising pumping to a rate of 12,000 gpm. EPA has concluded that the Option 2 rate of 9,000 gpm is a reasonable, efficient, and cost-effective solution.

Although under ideal conditions pumping 12,000 gpm would provide greater containment than pumping 9,000 gpm, the reality of the ground water system as it exists in Burbank presents certain limitations. Under ideal conditions, nitrate levels would be low enough to meet ARARS reinjection requirements in areas determined to be hydraulically advantageous to reinjection. This is not the case, and is not likely to be the case throughout the time frame for implementation of the interim remedy. Because reinjection must take place in hydraulically disadvantageous locations, the effectiveness of Option 4 is lessened.

The Option 2 pumping rate is 9,000 gpm, which represents a 25% reduction in pumping versus Options 3 and 4. Yet, according to analyses performed by Lockheed Martin with which EPA concurs,

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Option 2 is superior in containment to Option 4 and provides only slightly less containment than Option 3.[13] Furthermore, cost savings for Option 2 are significant (a savings of 27% versus Option 4).

Although additional cost savings are projected from further reducing the pumping rate to 6,000 gpm (Option 1), EPA believes that, should water levels increase in the aquifer system, capture could fall below acceptable levels under this option. As long as 9,000 gpm can be extracted and used without being wasted or reinjected, EPA concludes that Option 2 presents the best balance of reducing mobility of contaminants and cost-effectiveness.

As described above, EPA has also concluded that, for the purposes of long-term containment, groundwater extraction need not equal 9,000 gallons per minute each day. This is why EPA has set a goal of 9,000 gallons per minute as an annual average instead of an instantaneous average. EPA also believes its approach of allowing reduced groundwater extraction during periods of high nitrate concentration increases protectiveness to public health without adversely affecting long-term containment.

V. Support Agency Comments

The State of California agencies discussed in Section IV.C.8. above are the support agencies for this action. Their comments are addressed in that section.

VI. Summary of Selected Remedy

The interim remedy for the Burbank Operable Unit, as selected in the ROD and as modified by ESD1 and ESD2, consists of groundwater extraction at an average rate of 9,000 gpm, treatment by air stripping and granular activated carbon to remove VOCs, nitrate reduction by blending with a low nitrate water source, and use of the treated and blended water by the City of Burbank as a public water supply.

VII. Statutory Determinations

Considering the new information that has been developed, the EPA believes that the interim remedy as modified by ESD2 remains

[13]This comparison was made based upon the degree of hydraulic control exerted by the various options on the TCE/PCE groundwater plume.

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protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to this interim remedial action, and is cost effective. In addition, this remedy satisfies the statutory preference for remedies that employ treatment which permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances as a principal element. It also complies with the statutory preference for remedies that utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The changes and clarifications contained in ESD2 are significant but do not fundamentally change the remedy. They do not change the decision to conduct an interim pump and treat action to inhibit the spreading of the contaminated groundwater plume and to begin aquifer restoration. They also do not alter the technologies used in the interim remedy.

VIII. Public Participation Activities

EPA has presented these changes to the remedy in the form of an Explanation of Significant Differences because the changes are of a significant, but not fundamental, nature. The basic groundwater extraction and treatment concepts being evaluated in ESD2 do not differ greatly from the concepts evaluated in the ROD and in ESD1. ESD2 and underlying information have been added to the Burbank OU Administrative Record. Additional provisions for public comment are not required for an ESD (see 40 C.F.R. Section 300.435(c)(2)(i)), and EPA is not providing a formal public comment period for ESD2. However, EPA has published notice of the availability of ESD2 in a local newspaper as required by 40 C.F.R. Section 300.435(c)(2)(i)(B), and per 40 C.F.R. Section 300.825, will consider any significant comments submitted in a timely manner.

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APPENDIX V

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Appendix 5

Statement of Work

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BURBANK OPERABLE UNIT
SECOND STAGE STATEMENT OF WORK
(LONG TERM O&M)

I. General Provisions

A. Definitions: All words, as defined in the Consent Decree, have the same meaning when used herein.

B. Warranty: EPA has exercised its best efforts to include in this Statement of Work all activities necessary to fulfill Operation and Maintenance requirements for the Burbank Operable Unit. However, the settling parties acknowledge and agree that nothing in this Statement of Work or any deliverable approved by EPA pursuant hereto constitutes a warranty or representation, either express or implied, by the United States that compliance with this document and/or deliverables approved pursuant to this document will result in the achievement of the Performance Standards that the Settling Work Defendant is required to meet under the Consent Decree. Nothing in this Statement of Work or in deliverables approved pursuant hereto shall be deemed to limit EPA's rights pursuant to Subpart D (General Reservation of Rights) of Section XXII of the Consent Decree.

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C. EPA Approval: EPA approval of any submittal by a Settling Defendant within the context of this Consent Decree, including but not limited to plans, specifications, and reports, is administrative in nature and designed to permit the Settling Defendants to proceed with the deliverables. The Settling Defendants acknowledge and agree that EPA's approval of deliverables does not constitute a warranty or representation, as discussed in Paragraph B above.

II. Schedule

A. Dates: The schedule of deliverables for this Statement of Work is presented in Attachment 1 and shall be referred to as the Work Schedule. In the Work Schedule, EPA has provided an approximation of its review time; however, failure to review a deliverable within the estimated time shall not constitute a violation of the Consent Decree by the United States. Settling Defendants are required to submit deliverables within the time periods stated, and failure to do so constitutes a violation of the Consent Decree. See Consent Decree, Section XII (Submissions Requiring Agency Approval).

B. Items Triggered by Date of Entry of Consent Decree:

1. Designation of Project Coordinator: Pursuant to Section XIII (Project Coordinators) of the Consent Decree, within

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30 days of the date of entry of the Consent Decree, the Settling Work Defendant (City of Burbank), Lockheed Martin, the UAO Parties, and EPA shall submit to one another, in writing, the name, title, and qualifications of their proposed respective Project Coordinators and Alternate Project Coordinators. The coordinators for the Settling Defendants may be members of the Settling Defendants' staff or an independent contractor.

2. Designation and Review of Supervising Contractor: Pursuant to Section VI (Performance of the Work) of the Consent Decree, within 180 days of the date of entry of the Consent Decree, the Settling Work Defendant shall notify EPA and the State in writing of the name, title, and qualifications of its proposed Supervising Contractor. Prior to this date, the Settling Work Defendant may submit to EPA and the State a list of contractors for pre-qualification. It is the Settling Work Defendant's responsibility to provide any pre-qualification information to EPA and the State in a time frame that allows for timely designation of the Supervising Contractor. The Supervising Contractor may come from within the ranks of the Settling Work Defendant's staff. The factors to be considered in approving or disapproving the Supervising Contractor shall include: professional and ethical reputation; professional

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registration; demonstrated project management experience; experience and qualifications in the field of water treatment and supply; sufficient capacity (professional, technical and support staff) to accomplish the project tasks according to the Work Schedule; and sufficient business background and financial resources to provide uninterrupted services throughout the life of the project. Upon its approval of the Supervising Contractor, EPA will issue an authorization to proceed.

3. Progress Reports: These reports shall be prepared by the Settling Work Defendant pursuant to Section XI (Reporting Requirements) of the Consent Decree. The schedule for submittal of progress reports is summarized in Attachment 2 and shall be referred to as the Reporting Schedule. Progress Reports shall include at a minimum:

a. A brief narrative describing any noteworthy accomplishments or problems encountered at the Plant Facilities during the reporting period (including but not limited to: the implementation of process improvements; non-routine maintenance; and a summary of any violations of the Consent Decree, the cause of such violations, and the steps being taken to avoid future violations);

b. Status of expenditures in comparison to the

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Annual Budget;

c. The quantity of water pumped by each Burbank OU extraction well, and each GAC Wellfield extraction well;

d. A daily summary of water production broken down into categories of: Burbank OU Treatment Plant; GAC Wellfield; Blending Water; and Total Production;

e. A compliance calculation of the project's water budget showing whether the 9,000 gpm average groundwater extraction rate is being met; and specifically, the status of the Cumulative Pumping Credit for the reporting period, including designation of any days on which the Cumulative Pumping Credit fell below zero gallons;

f. Copies or summaries of compliance data submitted by the Settling Work Defendant to the California Department of Health Services;

g. Status of Maintenance Credits; and

h. Report of nitrate levels in: the extracted groundwater; the blending water; and the product water.

4. Second Stage O&M Work Plan: Pursuant to Section VI (Performance of the Work) of the Consent Decree, the Settling Work Defendant shall submit, within one year of the date of entry of the Consent Decree, the Second Stage O&M Work Plan. The

Second Stage O&M Work Plan shall incorporate Operation and Maintenance activities to be performed on all portions of the Plant Facilities to ensure that the facilities continue to run according to specification. The Second Stage O&M Work Plan shall include: a detailed description, including drawings, of the Plant Facilities; manufacturer specifications for the Plant Facilities and equipment; easily understood, stepwise standard operating procedures for the Plant Facilities at all foreseeable flow rates; startup and shutdown procedures for all facilities, including emergency shutdown procedures; a detailed description of manual and electronic control systems; and any other elements pertaining to efficient and safe operation of the Plant Facilities. The Second Stage O&M Work Plan shall describe in detail: the routine maintenance activities to be performed on each element of the Plant Facilities; a schedule for these routine maintenance activities; a schedule of visual inspection of the Plant Facilities; a schedule of equipment overhauling per manufacturers specifications; a description and schedule of cleaning and backflushing; detailed chemical handling procedures; and any other elements pertaining to efficient and safe maintenance of the Plant Facilities. The Second Stage O&M Work Plan shall incorporate by reference the Staffing Plan, Health and

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Safety Plan, Operational Sampling Plan, and Contingency Plan. The Second Stage O&M Work Plan in conjunction with the Staffing Plan shall delineate clear lines of responsibility for performing the activities referenced within the plan, designating which activities are the responsibility of the O&M Contractor, especially with respect to emergency shutdown and implementation of the Contingency Plan if it becomes necessary.

5. Staffing Plan: Pursuant to Section VI (Performance of the Work) of the Consent Decree, the Settling Work Defendant shall submit, within one year of the date of entry of the Consent Decree, the Staffing Plan. The Staffing Plan shall identify the supervisory chain of command for the project; shall provide an organizational chart identifying specific individuals in the chain of command where possible; and shall define the roles of the Settling Work Defendant, the Supervising Contractor, and the O&M Contractor. The position of the Settling Work Defendant's Project Coordinator in the chain of command shall be made clear. The plan shall also estimate staffing levels required to implement the O&M activities, including the levels of expertise required.

6. Time Line and Schedule: Pursuant to Section VI (Performance of the Work) of the Consent Decree, the Settling

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Work Defendant shall submit, within one year of the date of entry of the Consent Decree, the Time Line and Schedule. The Time Line and Schedule shall list the major milestones to be accomplished in order for the Settling Work Defendant to efficiently assume long term Operation and Maintenance of the Plant Facilities. It shall include the items listed in the Work Schedule, and also intermediate milestone activities such as: the Settling Work Defendant's projected bidding schedule for hiring the O&M Contractor; the schedule for transition of O&M Activities as agreed upon by Lockheed Martin and the Settling Work Defendant; and any other items relevant to orderly implementation of O&M Activities. The identification of intermediate milestones, which are defined as those milestones not specified in the Work Schedule, is solely for planning purposes. Any failure by the Settling Work Defendant to meet the Time Line's intermediate milestones shall not be deemed a violation of the Consent Decree.

7. Quality Assurance Project Plan: Pursuant to Section IX (Quality Assurance, Sampling, and Data Analysis), the Settling Work Defendant shall prepare and submit a Quality Assurance Project Plan addressing analytical and data quality methods and objectives to be applied in support of Operation and Maintenance Activities. The Quality Assurance Project Plan shall

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be submitted to EPA and the State for review within eighteen months of the date of entry of the Consent Decree. Addenda to the Quality Assurance Project Plan shall be prepared by the Settling Work Defendant on an as-needed basis to reflect major changes in analytical methods.

8. Operational Sampling Plan: In conjunction with the Quality Assurance Project Plan, the Settling Work Defendant shall submit, within eighteen months of the date of entry of the Consent Decree, an Operational Sampling Plan which defines the data gathering methods and schedules to be used in performing the sampling and analytical portion of the Operation and Maintenance activities. At a minimum, the Operational Sampling Plan shall address sampling of water treatment system influent and effluent, airborne discharges, and any hazardous materials generated at the Plant Facilities. The monitoring requirements of the domestic water supply permit as issued and amended by the California Department of Health Services shall be incorporated into the Operational Sampling Plan.

9. Health and Safety Plan: The Settling Work Defendant shall submit, within eighteen months of the date of entry of the Consent Decree, a Health and Safety Plan which describes the minimum health, safety, and emergency response

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requirements for the Operation and Maintenance activities to be undertaken by the Settling Work Defendant, the Supervising Contractor, and/or the O&M Contractor. The plan shall be prepared in accordance with U.S. Occupational Health and Safety Administration ("OSHA") requirements and any other applicable requirements.

10. Contingency Plan: The Settling Work Defendant shall submit, within eighteen months of the date of entry of the Consent Decree, a Contingency Plan which is written for the local affected population in the event of an accident or emergency at the Site. It shall incorporate an Air Monitoring Plan and a Spill Control and Countermeasures Plan. The following is a suggested list of items that shall be included in the Contingency Plan:

a. Name of the person responsible for responding in the event of an emergency incident;

b. List of key contacts in the local community with phone numbers and addresses and the State and Federal agencies to be involved in the cleanup, as well as local emergency squads and hospitals;

c. First aid and medical information, including names of personnel trained in first aid, a clearly marked map

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with the location of medical facilities and all necessary emergency phone numbers for fire, rescue, and local hazardous material teams;

d. An air monitoring plan to assure that the VOC treatment system is meeting the requirements of the South Coast Air Quality Management District. Air monitoring may include personnel monitoring, on-site and/or off-site area monitoring. Trigger concentrations to implement the Contingency Plan shall be specified; and

e. A Spill Control and Countermeasures Plan which shall specify actions to be taken in the event of spills from material handling and/or transportation. The plan shall describe methods, means and facilities required to prevent contamination of soil; water; atmosphere; uncontaminated structures, equipment, or material. It shall specify provisions for equipment and personnel to perform emergency measures required to contain any spillage; to remove and properly dispose of any material that becomes contaminated due to spills; and to decontaminate structure, equipment, or material.

C. Items Triggered by Phase 2 System Operation Date:

1. Designation of O&M Contractor: Pursuant to Section VI (Performance of the Work) of the Consent Decree,

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within six months after the Phase 2 System Operation Date, the Setting Work Defendant shall submit to EPA and the State in writing the name, title, and qualifications of its proposed O&M Contractor. Prior to this date, the Settling Work Defendant may submit to EPA and the State a list of contractors for pre-qualification. It is the Settling Work Defendant's responsibility to provide any pre-qualification information to EPA and the State in a time frame that allows for timely designation of the O&M Contractor. The factors to be considered in approving or disapproving the O&M Contractor shall include: professional and ethical reputation; professional certification and/or registration; demonstrated experience in the field of water treatment; ability to meet the requirements of the Staffing Plan to accomplish the O&M tasks in accordance with the Second Stage O&M Work Plan; sufficient business background and financial resources to provide uninterrupted services throughout the life of the project; and ability to provide insurance. Upon its approval of the O&M Contractor, EPA will issue an authorization to proceed.

2. Transition Activities: Commencing no later than one year after the Phase 2 System Operation Date, the Settling Work Defendant and Lockheed Martin shall jointly plan a series of

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transition activities under which the Settling Work Defendant shall assume Operation and Maintenance of all Plant Facilities. The Settling Work Defendant shall assume Operation and Maintenance of all Plant Facilities on the Date of Commencement, which will occur approximately two years after the Phase 2 System Operation Date.[1]

D. Other Items:

1. Selection of Cost Consultant: Pursuant to Section XIV (Funding of Response Activities) of the Consent Decree, by January 1, 1999, Lockheed Martin and the Settling Work Defendant shall jointly notify EPA in writing of the name, title, and qualifications of the proposed Cost Consultant. Prior to this date, Lockheed Martin and the Settling Work Defendant may submit to EPA a list of consultants for pre-qualification. It is the joint responsibility of Lockheed Martin and the Settling Work Defendant to provide any pre-qualification information to EPA in a time frame that allows for timely designation of the Cost Consultant. The factors to be considered in approving or disapproving the Cost Consultant shall be based on: professional and ethical reputation; professional certification; experience in

[1]See Consent Decree for further detail.

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the type of cost estimating and budgeting activities to be performed; sufficient capacity (professional, technical and support staff) to accomplish the project tasks according to the Work Schedule; and sufficient business background and financial resources to provide uninterrupted services.

2. Deliverables: The Settling Work Defendant shall submit three copies of each deliverable identified in the Work Schedule to the EPA Project Coordinator.

3. Final Inspection: At the end of the time period for which the Settling Work Defendant is required to perform O&M Activities pursuant to the Consent Decree, EPA shall conduct a final review of records and inspection of the Plant Facilities. The inspection shall be a necessary part of approving or disapproving the Certificate of Completion pursuant to Section XV (Certificate of Completion) of the Consent Decree.

4. Determination of Decommissioning/Dismantling of Plant Facilities: In conjunction with the process of reviewing the Certificate of Completion for the Burbank OU Interim Remedial Action, EPA will make a determination as to whether all or a portion of the Plant Facilities shall be decommissioned/ dismantled. At least ninety days prior to the date that the Settling Work Defendant anticipates that the Work will have been

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fully performed, the Settling Work Defendant and the Settling Defendants may voice their respective opinions to EPA on whether all or a portion of the Plant Facilities shall be decommissioned/ dismantled. In order to facilitate this process, the Settling Work Defendant shall notify the Project Coordinators for the Settling Defendants at least ninety days prior to the date that the Settling Work Defendant anticipates that the Work will have been fully performed, that a written request for Certification of Completion has been submitted to EPA.

III. Operational Compliance Determinations

A. Period of Operation and Maintenance: The Settling Work Defendant shall perform Operation and Maintenance Activities on the Plant Facilities as required under Section VI (Performance of the Work) of the Consent Decree, for a period of eighteen years. This period of Operation and Maintenance shall commence on the Date of Commencement, which will occur approximately two years after the Phase 2 System Operation Date.[2]

B. Cumulative Pumping Credit: If the quantity of groundwater extracted as part of the Burbank OU Interim Remedy exceeds the requirements of the First and Second Consent Decrees,

[2]See Consent Decree for further detail.

then the excess quantity shall accumulate as a credit. This credit will be measured in units of gallons and will be known as the Cumulative Pumping Credit. The credit will accumulate and "carry over" from day to day and from year to year, and will be used for compliance determination purposes, as described below.

1. Status on the Date of Commencement: On the Date of Commencement, the Cumulative Pumping Credit that has been accumulated throughout Phase 1 and Phase 2 up to the Date of Commencement shall be credited in full to the Settling Work Defendant. Should the Cumulative Pumping Credit be a negative number upon assumption of O&M Activities by the Settling Work Defendant, the credit will be reset to zero on the Date of Commencement.

2. Additions to and Subtractions from the Cumulative Pumping Credit: On each non-Maintenance Day, beginning on the Date of Commencement, the sum of the amount of groundwater, in gallons, pumped from the Burbank OU Extraction Wellfield and the City of Burbank GAC Wellfield shall be compared with the amount, in gallons, required under Section VI (Performance of the Work) of the Consent Decree. For the purposes of making this comparison, the amount of pumpage, in gallons, required under the Consent Decree shall be the same each day and shall be calculated

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as follows:

(9,000 gallons/minute) x (60 minutes/hour) x (24 hours/day) = 12,960,000 gallons/day

a. On each day when in excess of 12,960,000 gallons is pumped from a combination of the Burbank OU Extraction Wellfield and the City of Burbank GAC Wellfield, that excess amount will be added to the Cumulative Pumping Credit as follows:

PC' = PC + (GPBOU + GPGAC - 12,960,000)

where

PC' = new Cumulative Pumping Credit (gallons)

PC = old Cumulative Pumping Credit (gallons)

GPBOU = number of gallons pumped for the day from the Burbank Operable Unit wellfield

GPGAC = number of gallons pumped for the day from the City of Burbank GAC Wellfield

b. On days when less than a total of 12,960,000 gallons is pumped from a combination of the Burbank OU Extraction Wellfield and the City of Burbank GAC Wellfield, except on high nitrate days (see Section III.B.4. below), the difference between 12,960,000 gallons and the amount actually pumped will be

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deducted from the Cumulative Pumping Credit as follows:

PC' = PC - (12,960,000 - GPBOU - GPGAC)

Where

PC' = new Cumulative Pumping Credit (gallons)

PC = old Cumulative Pumping Credit (gallons)

GPBOU = number of gallons pumped for the day from the Burbank Operable Unit wellfield

GPGAC = number of gallons pumped for the day from the City of Burbank GAC Wellfield

3. Effect of Maintenance Days on the Cumulative Pumping Credit: On each day which the Settling Work Defendant designates as a Maintenance Day (which need not be a full day, but may be a portion of a day), if the amount of groundwater pumped for the day exceeds 12,960,000 gallons, the amount in excess of 12,960,000 gallons shall be added to the Cumulative Pumping Credit according to Section III.B.2.a., but the Cumulative Maintenance Credit (see Section III.C. below) shall not change.

If the amount of groundwater pumped by the Settling Work Defendant on the designated Maintenance Day is less than

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12,960,000 gallons, the Cumulative Pumping Credit shall not change, but the Cumulative Maintenance Credit will decrease as follows:

MC' = MC - (12,960,000 - GPBOU - GPGAC)

where

MC' = new Cumulative Maintenance Credit

MC = old Cumulative Maintenance Credit

GPBOU = number of gallons pumped for the day from the Burbank Operable Unit extraction wellfield

GPGAC = number of gallons pumped for the day from the City of Burbank GAC Wellfield

4. Effect of High Nitrate Days on the Cumulative Pumping Credit: A High Nitrate Day is defined as a day on which nitrate levels in groundwater pumped from the Burbank OU Extraction Wellfield (as measured at or near the Point of Delivery) are equal to or greater than 50 milligrams per liter as nitrate. On each High Nitrate Day when the quantity of groundwater pumped from a combination of the Burbank OU Extraction Wellfield and the City of Burbank GAC Wellfield exceeds 12,960,000 gallons, that excess amount shall be added to

the Cumulative Pumping Credit according to Section III.B.2.a.

On each High Nitrate Day when the quantity of groundwater pumped from a combination of the Burbank OU Extraction Wellfield and the City of Burbank GAC Wellfield falls below 12,960,000 gallons (due to high nitrate concentrations and not for other reasons, e.g. maintenance), the Cumulative Pumping Credit shall increase according to the following formula:

PC' = PC + I

where

PC' = new Cumulative Pumping Credit

PC = old Cumulative Pumping Credit

I = increase to the pumping credit (I will be set to zero should the following calculation yield a negative number)

and

I = CWD - 12,960,000

where

CWD = actual metered City Water Demand on the High Nitrate Day

5. Determining Compliance using the Cumulative

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Pumping Credit: The Cumulative Pumping Credit shall be used to determine whether the Settling Work Defendant is meeting the groundwater extraction requirements under Section VI (Performance of the Work) of the Consent Decree. On a date one year following the Date of Commencement, the initial pumping compliance determination shall be made.

If the Cumulative Pumping Credit is zero or greater, the Settling Work Defendant shall be deemed to be in compliance with the groundwater extraction requirements. If on that date the Cumulative Pumping Credit is less than zero, the Settling Work Defendant shall be deemed to be out of compliance with the groundwater extraction requirements.

6. Calculation of Days Out of Compliance: If the Cumulative Pumping Credit one year after the Date of Commencement is less than zero, the Settling Work Defendant shall be deemed to be out of compliance for the number of days calculated as follows:

$$DOC = \frac{-PC \text{ (gallons)}}{12{,}960{,}000 \text{ (gallons/day)}}$$

where

DOC = number of Days Out of Compliance

PC = Cumulative Pumping Credit

Days Out of Compliance shall be rounded down to the nearest whole number of days, and shall be the number of days the Settling Work Defendant will be deemed out of compliance for the year. The Settling Work Defendant shall be subject to stipulated penalties for days out of compliance (see Consent Decree).

This compliance calculation will be performed annually on the anniversary date of the Date of Commencement, except in the event of a High Precipitation Year (see Section III.B.7. below).

7. Effect of a High Precipitation Year on Determining Compliance Using the Cumulative Pumping Credit: The time frame for performing the compliance calculation described in Sections III.B.5. and III.B.6. above will change as follows in the event of a High Precipitation Year. If the one year period of time over which a compliance determination is being made is a year during which the precipitation amount, as measured at a local weather station, is greater than 125% of the mean annual rainfall locally, that year shall be designated a High Precipitation Year. This precipitation determination shall be made on the anniversary date of the Date of Commencement. In the event a High Precipitation Year is designated, the compliance calculation shall be suspended until a year-long compliance period occurs during which precipitation is less than 125% of the mean annual

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rainfall, in which case the compliance determination for that year performed on the anniversary date of the Date of Commencement will be performed as in Section III.B.5. above.

C. Annual Maintenance Credit: The Annual Maintenance Credit shall be measured in units of gallons and shall be used as a means for the Settling Work Defendant to perform a certain amount of routine maintenance on the Plant Facilities without being penalized under the Consent Decree. The Annual Maintenance Credit will also be used as a means of measuring compliance with the limits set on suspension of operations (see below).

1. Status on the Date of Commencement: On the Date of Commencement, the Maintenance Credit that has been accumulated throughout Phase 1 and Phase 2 up to the Date of Commencement shall be credited to the Settling Work Defendant in an amount up to 648,000,000 gallons.[3] If this carryover amount does not exceed 648,000,000 gallons, the Annual Maintenance Allowance, described below, shall be added to the Maintenance Credit, except that the total Annual Maintenance Credit shall not exceed 648,000,000 gallons.

2. Annual Maintenance Allowance: On the Date of Commencement, and at one year anniversaries from the Date of Commencement, the Settling Work Defendant will be credited with an Annual Maintenance Allowance of 648,000,000 gallons. There shall be no carryover of unused Maintenance Credits.

3. Subtractions from the Maintenance Credit: During the year following the Date of Commencement, on each day which the Settling Work Defendant designates as a Maintenance Day, the Maintenance Credit will decrease by the amount of gallons by which actual groundwater pumpage falls short of the daily goal of 12,960,000 gallons. The same procedure will hold for subsequent operating years, with the maximum possible Maintenance Credit at the beginning of the year being 648,000,000 gallons, with that number being reduced during the operating year as Maintenance Days are designated.

D. Maintenance Credit for Non-Routine Maintenance: "Non-routine maintenance," as used in this paragraph, shall include unplanned maintenance events which could not reasonably be anticipated by the Settling Work Defendant, or the timing of which could not reasonably be anticipated by the Settling Work Defendant in the ordinary course of operations.

1. At the outset of an event which requires non-routine maintenance, the Settling Work Defendant shall notify EPA

[3] 50 days x 12,960,000 gallons/day

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of the event, the projected maintenance requirements, and the projected timing for completion of such requirements.

2. EPA shall determine a reasonable time period for the maintenance to be completed based on, but not limited to, information provided by vendors and submitted to EPA by the Settling Work Defendant. EPA shall notify the Settling Work Defendant of the deadline for completion of the non-routine maintenance.

3. The deadline for completion of the non-routine maintenance established by EPA shall be binding upon the Settling Work Defendant unless extended by EPA or the Settling Work Defendant invokes the Dispute Resolution process of Section XX of the Consent Decree.

4. Invocation of the Dispute Resolution process, by itself, will not postpone any maintenance activities.

E. Suspension of Operations: The Settling Work Defendant may suspend operations by designating a maintenance day. Maintenance outages during the operating year shall not exceed the Annual Maintenance Credit, or the Settling Work Defendant shall be considered in violation of the Consent Decree. Maintenance days may not be designated for reasons other than maintenance. The Settling Work Defendant shall notify the EPA

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Project Coordinator in advance of a planned Maintenance Day and as soon as practicable when a Non-Routine Maintenance Day has occurred. Maintenance Days shall be specifically accounted for in the required Progress Reports.

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PRELIMINARY PROJECTION OF KEY DATES

y	- Entry of Consent Decree
y + 30 days	- Designation of Project Coordinators
y + 180 days	- Designation of Supervising Contractor
y + 365 days	- Second Stage O&M Work Plan
	Staffing Plan
	Time Line and Schedule
y + 18 months	- Quality Assurance Project Plan
	Operational Sampling Plan
	Health and Safety Plan
	Contingency Plan

****

x	- Phase 2 System Operation Date
x + 180 days	- Designation of O&M Contractor
x + 365 days	- Lockheed Martin/City of Burbank transition commences
x + 730 days	- City of Burbank assumes O&M

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current estimates

Phase 2 System Operation Date (x)...03/06/98 (say 3/98)

Entry of Second CD (y).....approx 2/97-3/97 (say 3/97)

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1/96	- Phase 1 System Operation Date
3/97	- Entry of Consent Decree
4/97	- Designation of Project Coordinators
9/97	- Designation of Supervising Contractor
3/98	- O&M Second Stage Work Plan
	Staffing Plan
	Time Line and Schedule
3/98	- Phase 2 System Operation Date
9/98	- Designation of O&M Contractor
	Quality Assurance Project Plan
	Operational Sampling Plan
	Health and Safety Plan

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Contingency Plan

1/99	- Cost Consultant Selection
3/99	- Lockheed Martin/City of Burbank transition commences
3/00	- City of Burbank assumes O&M
1/01	- First CERCLA Five-Year Review

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APPENDIX VI

Appendix 6
Settling Defendants and
recipients of notices and submissions

ACCRATRONICS SEALS CORPORATION
WILLIAM H. FISCH TRUST, DATED OCTOBER 29, 1993
JONES FAMILY TRUST, DATED MAY 14, 1993
c/o AccraTronics Seals Corporation
Attn: William Fisch
2211 Kenmere Avenue
Burbank, CA 91504
-and-
Baker & McKenzie
Attn: Todd O. Maiden, Esq.
One Prudential Plaza
130 East Randolph Drive
Chicago, IL 60601

ADLER SCREW PRODUCTS, INC.
EIRIK LIRHUS
BERGLJOT LIRHUS
LIRHUS FAMILY TRUST
c/o Adler Screw Products, Inc.
Attn: Eirik Lirhus
480 Enterprise Street
San Marcos, CA 92069

AEROQUIP CORPORATION
TRIVOVA CORPORATION
c/o Trinova Corporation
Attn: Madonna F. McGrath, Esq.
3000 Strayer Road
Maumee, OH 43537
-and-
Rodi, Pollock, Pettker, Galbraith & Phillips
Attn: John F. Cermak, Jr., Esq.
801 South Grand Avenue
Suite 400
Los Angeles, CA 90017

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Settling Defendants and
recipients of notices and submissions

A-H PLATING, INC.
THE WASCHAK FAMILY TRUST
JOHN P. WASCHAK, TRUSTEE
MELBA R. WASCHAK, TRUSTEE
c/o Christensen, White, Miller, Fink, Jacobs, Glaser & Shapiro
Attn: Clare Bronowski, Esq.
2121 Avenue of the Stars
18th Floor
Los Angeles, CA 90067

ANTONINI FAMILY TRUST
MARIO E. ANTONINI AND
MARISI A. ANTONINI
Antonini Family Trust
11374 Tuxford Street
Sun Valley, CA 91352

AVIALL SERVICES, INC.
Attn: Senior Vice President & General Counsel
2055 Diplomat Drive
Dallas, TX 75234-8989

AVICA, INC.
(FORMERLY GENERAL CONNECTORS, INC.)
c/o McCutchen Doyle Brown & Enersen
Attn: Patricia L. Shanks, Esq.
355 South Grand Avenue
Los Angeles, CA 90071

MCENTEE FAMILY PARTNERSHIP
c/o Gall & Gall
Attn: John U. Gall, Esq.
333 South Grand Avenue
37th Floor
Los Angeles, CA 90071-1599

B.J. GRINDING, INC.
ROBERT J. HOISETH AND GLENDA HOISETH
HOISETH FAMILY TRUST
c/o B.J. Grinding, Inc.
Attn: Robert J. Hoiseth
2632 North Ontario Street
Burbank, CA 91504

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Settling Defendants and
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JOSEPH F. BANGS DBA BANGS MANUFACTURING COMPANY
BANGS TRUST
c/o Bangs Manufacturing Company
Attn: Monte Anderson
1601 West Burbank Boulevard
Burbank, CA 91506

LAURIE S. BERNIE AND MELVYN J. BERNIE, AS INDIVIDUALS AND AS
TRUSTEES OF THE BERNIE TRUST
MEL BERNIE & CO., INC. DBA ACCESSORY PLATING AND 1928 JEWELRY LTD.
THE BERNIE TRUST
c/o 1928 Jewelry Ltd.
Attn: Edward K. Thomas
3000 Empire Avenue
Burbank, CA 91505

BURMAR METAL FINISHING CORP.
DBA BARRON ANODIZING AND PAINT
c/o Baker, Manock & Jensen
Attn: Randall J. Krause, Esq.
5260 North Palm Avenue
Fourth Floor
Fresno, CA 93704

CRANE CO./HYDRO-AIRE DIVISION
Attn: Corporate Secretary
100 First Stamford Place
Stamford, CT 06902
-and-
Hydro-Aire, a Division of Crane Co.
Attn: President
3000 Winona Avenue
Burbank, CA 91504
-and-
Paul, Hastings, Janofsky & Walker
Attn: W. Toliver Besson, Esq.
1299 Ocean Avenue
Fifth Floor
Santa Monica, CA 90401

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DELTRON ENGINEERING, INC.
FILIJAN AND KUEBLER PROPERTIES
MICHAEL FILIJAN
TONY KUEBLER
Deltron Engineering, Inc.
Attn: Tony Kuebler
2800 San Fernando Boulevard
Burbank, CA 91504

HYDRA-ELECTRIC COMPANY
Attn: Henry P. Acuff
3151 Kenwood Street
Burbank, CA 91505

DAVIS INDUSTRIES, INC.
c/o: Robert L. Powell
Secretary Treasurer
P.O. Box 4495
Chatsworth, CA 91313

JANCO CORPORATION
Attn: Richard M. Barrett
3111 Winona Avenue
Burbank, CA 91508
-and-
Pircher, Nichols & Meeks
Attn: David E. Cranston, Esq.
1999 Avenue of the Stars
26th Floor
Los Angeles, CA 90067

BKT ENTERPRISES, INC.
Attn: Kay Giove-Skeeters
10901 Creek Road
Ojai, CA 93023
-and-
Pircher, Nichols & Meeks
Attn: David E. Cranston, Esq.
1999 Avenue of the Stars
26th Floor
Los Angeles, CA 90067

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Settling Defendants and
recipients of notices and submissions

JOSLYN COMPANY, LLC FKA JOSLYN CORPORATION; JOSLYN SUNBANK COMPANY, LLC FKA JOSLYN SUNBANK CORPORATION
c/o Joslyn Company/Joslyn Sunbank Company
Attn: Carl S. Grabinski
1740 Commerce Way
Paso Robles, CA 93446
-and-
Thomas A. Coz, Esquire
Post Office Box 5013
Cincinnati, OH 45205-0013

OCEAN TECHNOLOGY, INC.
Attn: Harry E. Bruns
One Allied Drive
Little Rock, AR 72203

TEXTRON INC.
Attn: Jamison M. Schiff
40 Westminster Street
Providence, RI 02903

HR TEXTRON INC.
Attn: John W. Hedges
25200 West Rye Canyon Road
Valencia, CA 91355

PACIFIC PARTNERSHIP
Attn: Martin May
9363 Wilshire Boulevard
Beverly Hills, CA 90210
-and-
Baker, Manock & Jensen
Attn: Randall J. Krause, Esq.
5260 North Palm Avenue
Fourth Floor
Fresno, CA 93704

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SARGENT INDUSTRIES, INC./
KAHR BEARING DIVISION
c/o Dover Diversified, Inc.
Attn: Thomas E. Bell
2607 North Grandview Boulevard
Suite 105
Waukesha, WI 53188
-and-
Munger, Tolles & Olson
Attn: Stephen M. Kristovich, Esq./Ronald C. Hausmann, Esq.
355 South Grand Avenue
Los Angeles, CA 90071-1560

SIERRACIN CORPORATION
Attn: Gary Roberts
12780 San Fernando Road
Sylmar, CA 91342
-and-
Anderson, McPharlin & Conners LLP
Attn: David F. Wood, Esq.
624 South Grand Avenue
19th Floor
Los Angeles, CA 90017

INDUSTRIAL BOWLING CORPORATION
Attn: Bradley D. Howard
1819 West Olive Avenue
Burbank, CA 91506
-and-
Lawler, Bonham & Walsh
Attn: Carol A. Woo, Esq.
300 Esplanade Drive
Suite 300
Oxnard, CA 93031

R&G SLOANE MANUFACTURING CO., INC.
Attn: Bill Smith
7777 Sloane Drive
Little Rock, AR 72206

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Settling Defendants and
recipients of notices and submissions

SPACE-LOK, INC.
Attn: Jeffrey W. Wade
2526 North Ontario Street
Burbank, CA 91504
-and-
Hedges & Caldwell
Attn: Michael R. Leslie, Esq.
606 South Olive Street
Suite 500
Los Angeles, CA 90014-1507

THE ESTATE OF ALBINA BREBBIA
CHRISTINA COGAR INDIVIDUALLY AND
AS EXECUTRIX FOR THE ESTATE
OF ALBINA BREBBIA
c/o Loeb and Loeb
Attn: Malissa Hathaway McKeith
1000 Wilshire Boulevard
Los Angeles, CA 90017

STAINLESS STEEL PRODUCTS, INC.
ZIMMERMAN HOLDINGS, INC.
c/o Zimmerman Holdings, Inc.
Attn: President
2600 Mission Street
Suite 100
San Marino, CA 91108-1676
-and-
Rodi, Pollock, Pettker, Galbraith & Phillips
Attn: Robert A. Yahiro, Esq.
801 South Grand Avenue
Suite 400
Los Angeles, CA 90017

THE UHLMANN OFFICES, A CALIFORNIA CORPORATION./
SUNHILL PARTNERS, A CALIFORNIA PARTNERSHIP
13245 Riverside Drive
Suite 500
Sherman Oaks, CA 91423
-and-
Proskauer Rose Goetz & Mendelsohn LLP
Attn.: Barry Groveman, Esq.
2121 Avenue of the Stars, Suite 2700
Los Angeles, CA 90067

Submission 4483 (Kimberly Bick, Lockheed Martin Corporation, December 2, 2022) - Continued

4483-9099

Appendix 6
Settling Defendants and
recipients of notices and submissions

STEVE'S PLATING CORPORATION
UNIFACTOR, INC.
TERRY S. KNEZEVICH
c/o Timothy V.P. Gallagher Law Offices
Attn: Timothy V.P. Gallagher, Esq.
3915 Stone Canyon Avenue
Sherman Oaks, CA 91403

WALTON R. EMMICK
DENISE E. MCLAUGHLAN
SHARYN E. SCHRICK
SANDRA E. BOWMAN
CLELTA SPELMAN
c/o Barger & Wolen LLP
Attn: Edwin A. Oster, Esq./Robert K. Renner, Esq.
19800 MacArthur Boulevard
Suite 800
Irvine, CA 92612-2427

ELAINE S. BARR
HOMER R. BARR AND ELAINE S. BARR FAMILY TRUST
c/o The O'Toole Law Firm
Attn: Patricia M. O'Toole, Esq.
601 South Figueroa Street
Suite 4100
Los Angeles, CA 90017

DIANE BARR
c/o Edwards, Edwards & Ashton
Attn: Wilbur Gin
420 North Brand Boulevard
Suite 500
Glendale, CA 91203

L.A. GAUGE CO., INC.
Attn: James Hunt, President
7440 San Fernando Road
Sun Valley, CA 91352-4398
-and-
Landels Ripley & Diamond, LLP
Attn: Robert L. Hines, Esq.
350 The Embarcadero
San Francisco, CA 94105-1250

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Appendix 6
Settling Defendants and
recipients of notices and submissions

TWISS HEAT TREATING CO., INC.
DBA TWISS HEAT TREATING CO.
THE WILLIAM E. AND EVELYN TWISS FAMILY TRUST
WILLIAM E. TWISS AND EVELYN TWISS
W AND E TWISS TRUST
c/o Twiss Heat Treating Co., Inc.
Attn: William E. Twiss
2503 North Ontario Street
Burbank, CA 91504
-and-
Roper & Folino
Attn: John B. Larson, Esq.
3255 Wilshire Boulevard
Suite 1700
Los Angeles, CA 90010-1420

VALLEY ENAMELLING CORP.
2509 North Ontario Street
Burbank, CA 91504

WALTON R. EMMICK
DENISE E. MCLAUGHLAN
SHARYN E. SCHRICK
SANDRA E. BOWMAN
CLELTA SPELMAN
c/o Barger & Wolen
Attn: Edwin A. Oster or Robert K. Renner
19800 MacArthur Boulevard
Suite 800
Irvine, CA 92715

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Submission 4483 (Kimberly Bick, Lockheed Martin Corporation, December 2, 2022) - Continued

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Appendix 6
Settling Defendants and
recipients of notices and submissions

HM HOLDINGS, INC.
PH BURBANK HOLDINGS, INC.
Attn: Samuel J. Friedman, Vice President, General Counsel & Secretary
SCM Chemicals
200 International Circle
Suite 5000
Hunt Valley, MD 21030
-and-
Stringfellow & Associates, A Law Corporation
Attn: Walter A. Stringfellow
444 South Flower Street
31st Floor
Los Angeles, CA 90071

WEBER AIRCRAFT, INC.
Attn: Michel LaBarre
1300 East Valencia Drive
Fullerton, CA 92631
-and-
Stringfellow & Associates, A Law Corporation
Attn: Walter A. Stringfellow
444 South Flower Street
31st Floor
Los Angeles, CA 90071

LOCKHEED MARTIN CORPORATION
Attn: Dominic J. Hanket
2550 North Hollywood Boulevard
Suite 301
Burbank, CA 91505

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APPENDIX VII

Submission 4483 (Kimberly Bick, Lockheed Martin Corporation, December 2, 2022) - Continued

4483-9099

4-28-1997 5:05PM FROM FREILICH, KAUFMAN 3104447

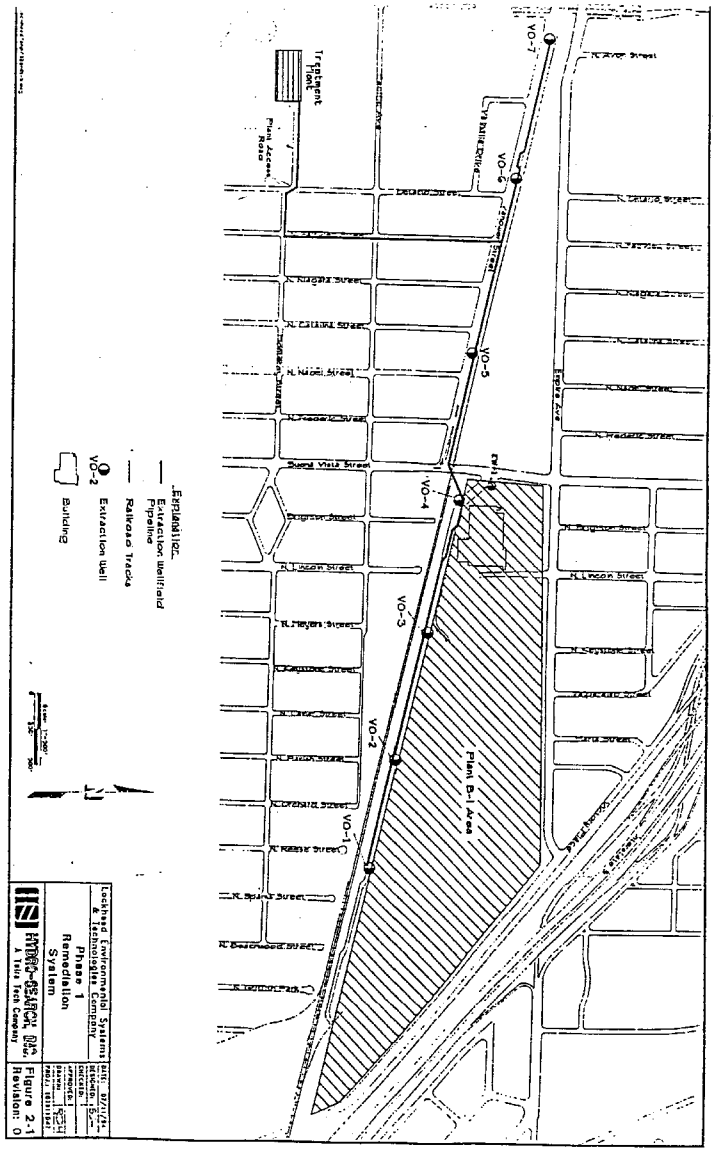
APPENDIX 7
Consent Decree II

Liquid Phase Granular Activated Carbon
320 N. Lake St.
Public Service Department
City of Burbank

Capacity 2,000 gpm
Pumphouse
Chlorine Feed Bldg.
Forebay
(84,000 gals.)
GAC System (20,000 lbs./contractor)
Well No. 7
Well No. 15
Note: Piping below grade ties wells to LPGAC.

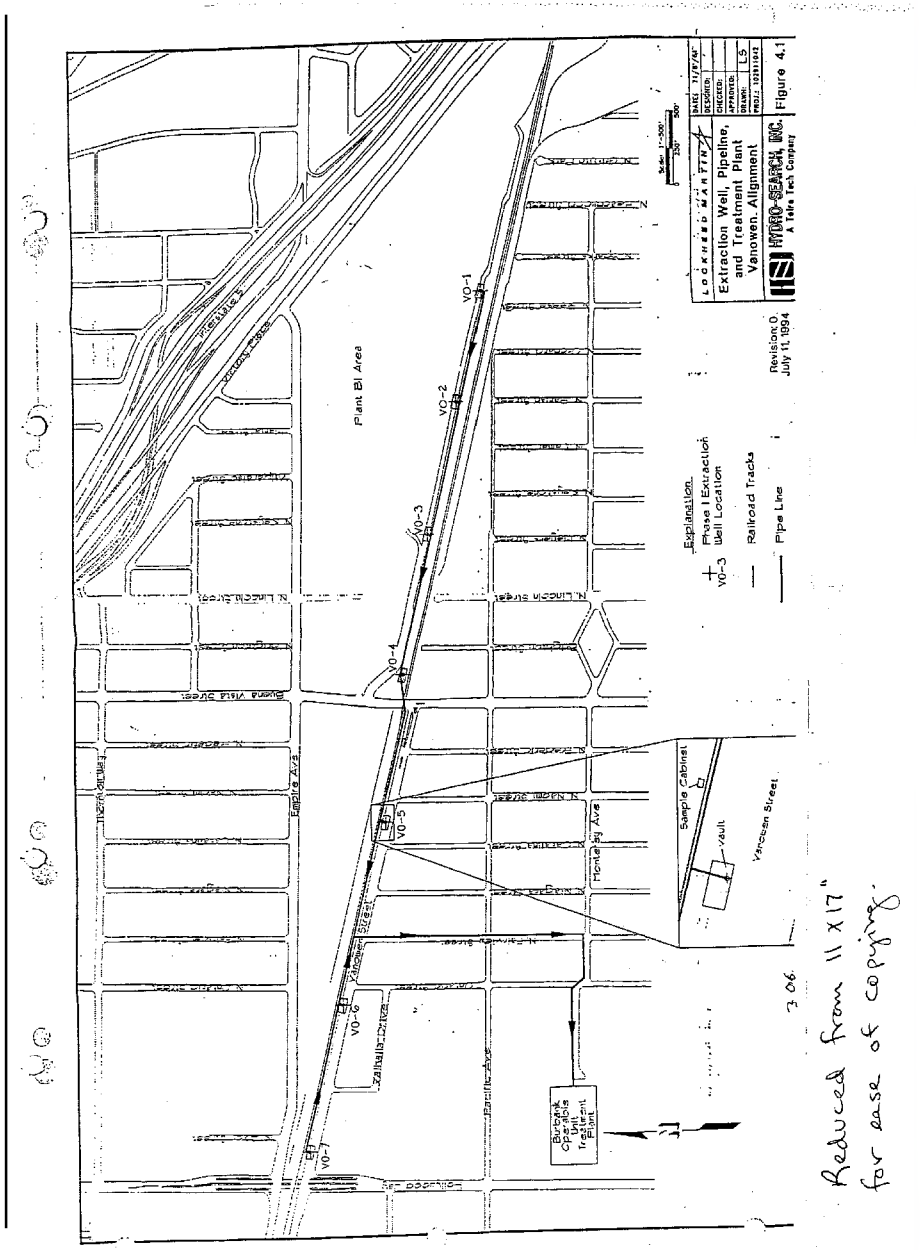
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4483-9099



Submission 4483 (Kimberly Bick, Lockheed Martin Corporation, December 2, 2022) - Continued

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Response to Submission 4483 (Kimberly Bick, Lockheed Martin Corporation, December 2, 2022)

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This Submission is a Duplicate of PB-4473. Responses to comments can be found in the responses to PB-4473.

Submission 4487 (Mary-Lynne Fisher, Crescenta Highlands Neighborhood Association, December 1, 2022)

Palmdale - Burbank - RECORD #4487 DETAIL

Status :	Ready for Delimiting
Record Date :	12/2/2022
Interest As :	Business and/or Organization
First Name :	Mary-Lynne
Last Name :	Fisher
Attachments :	CHNA Letter to CAHSRA 11-30-22 FINAL.pdf (187 kb)

Stakeholder Comments/Issues :

To CAHSRA,
Please find attached comments for Palmdale to Burbank Project Section Draft EIR/EIS.
Mary-Lynne Fisher, PresidentCrescenta Highlands Neighborhood Association

CRESCENTA HIGHLANDS



NEIGHBORHOOD ASSOCIATION

November 30, 2022

California High-Speed Rail Authority
ATTN: Palmdale to Burbank Draft EIR/EIS Comment
355 S Grand Avenue, Suite 2050
Los Angeles, CA 90071

4487-8239

The Crescenta Highlands Neighborhood Association (CHNA) is a grassroots volunteer organization representing residents that live in the City of Glendale portion of La Crescenta in the Crescenta Valley. The goals of the association are to provide a forum for the discussion of issues and events within the neighborhood and community; to encourage members and other residents to come together for common purposes; and to promote and preserve the benefits of the neighborhood by all appropriate means including but not limited to advocating for neighborhood interests in various governmental and non-governmental forums.

As one of the Member Associations of the Glendale Homeowners Coordinating Council, CHNA wholeheartedly supports the comment letter submitted in response to the draft EIR/EIS for the Palmdale to Burbank section of the CAHSR. We are very concerned about the topics outlined in the letter – segmentation; air quality and noise mitigation; Hollywood-Burbank airport safety and operations; and community outreach. Thank you for the opportunity to comment now on other concerns that specifically relate to the foothill communities that live south of the Angeles National Forest.

CHNA has a unique interest in the California High-Speed Rail project not only because the neighborhood association resides within the boundary of the City of Glendale but our homes are adjacent to the part of the City of Los Angeles most affected by the E2 route proposal -- Lake View Terrace, Sunland-Tujunga, and Shadow Hills. Even though we are composed of many different jurisdictions, we are a close-knit group of suburban communities that share the same vision for limited development. It is clear from the environmental report that any one of the six Build Alternatives will have an immediate negative impact to the entire region but the E2/E2A route would be particularly destructive to our neighborhoods. The Crescenta Highlands Neighborhood Association stands in solidarity with our neighbors to the west currently living directly in the path of trains, if the E2/E2A route is ultimately chosen.

4487-8240

Established Communities Will Be Divided in Lake View Terrace and Shadow Hills
In reviewing the environmental report, the draft EIR/EIS summary states, "Construction of the Build Alternative would physically and visually divide established communities." There is no better example of this than the proposed E2/E2A route. The southern most end of the

Submission 4487 (Mary-Lynne Fisher, Crescenta Highlands Neighborhood Association, December 1, 2022) - Continued

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bored/mined tunnel will emerge right in the middle of the 1950s housing tract in Lake View Terrace. The portal and surface route will take out an expanse of parcels then the elevated viaduct will traverse the wash that is used for hiking and equestrian trails. On the opposite side of the wash, the reverse will happen as the train dives back into the portal among the houses in Shadow Hills and continues underground to the Burbank station. In one fell swoop, two rural communities will be divided in half and quiet open space will be lost forever. Perhaps the most shocking element of the proposal other than the route not being eliminated during the CEQA process, is the recommended mitigation measure for destroying neighborhoods. The report summary chart says, "The Authority will engage in special outreach to affected homeowners, residents, landowners, business owners, community organizations, and local officials." Yep, that should fix it.

4487-8241

Communities Will Experience Poor Level of Service During Construction

The communities lining the foothills of the San Gabriel Mountains and the Verdugo Hills are known for their beauty and ease of access to the natural environment. Many of our association members enjoy getting outside and hiking the trails near their homes. The configuration of the local terrain is such that most of the towns in the corridor have only one or two paved arterials around or through the canyon passes into Sylmar, Sun Valley or Burbank. If a street is blocked, traffic can be backed up for miles or even hours. When there is an emergency evacuation such as occurred during the La Tuna Canyon fire in 2017, this limited access can create a dangerous situation for area residents who may be trapped.

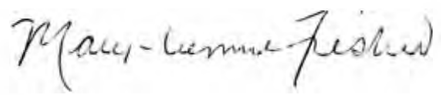
During construction, the E2/E2A route will significantly affect and reduce the Level of Service on Foothill Blvd,, Wentworth Streeet, Sunland Blvd., La Tuna Canyon Road, and other connector streets. These are main arterials used by Lake View Terrace and Shadow Hills residents but also by drivers in Sunland-Tujunga, La Crescenta, Montrose and the surrounding communities. It will be the Authority's responsibility to ensure that secondary roads are kept clear to every extent possible, and that closures and construction detours allow for safe and expedient evacuation in the unfortunate event of an emergency.

4487-8242

Based on the severe impact of the Authority's proposal to build the high-speed route through established neighborhoods without ability for appropriate mitigation, and because of the inherent high risk during emergencies due to roadway closures, the E2/E2A Build Alternative should be removed from consideration prior to the final determination. Of course, the No Project option would be the most preferred alternative for area residents.

Thank you for considering these comments of the Crescenta Highlands Neighborhood Association as part of the draft environmental review process for the California High-Speed Rail, Palmdale to Burbank section. Please include them in the final document and provide response to our concerns.

Sincerely,



Mary-Lynne Fisher, President
Crescenta Highlands Neighborhood Association
crescentahighlands@gmail.com

Response to Submission 4487 (Mary-Lynne Fisher, Crescenta Highlands Neighborhood Association, December 1, 2022)

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Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, PB-Response-AQ-2: Health Risks and Impacts, PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS, PB-Response-N&V-2: Noise Mitigation and selection of Proposed Sounds Barriers.

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, PB-Response-AQ-2: Health Risks and Impacts, PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS, PB-Response-N&V-2: Noise Mitigation and selection of Proposed Sounds Barriers. The commenter supports the comment letter submitted separately by the Glendale Homeowners Coordinating Council expressing concerns about project impacts related to segmentation, air quality, noise, Hollywood-Burbank airport safety and operations, and community outreach and involvement. Responses to that comment letter are set forth separately. The specific concerns delineated in this comment letter focus on the E2 and E2A Build Alternatives because those are the alignments located closest to the Foothills, south of the ANF. The Authority has identified the SR14A Build Alternative as the Preferred Alternative for the Palmdale to Burbank Project Section, with the Burbank Airport Station. The Authority identified the Preferred Alternative by balancing the adverse and beneficial impacts of the project on the human and natural environment. The Authority weighed a variety of issues, including natural resource and community impacts, the input of the communities along the route, the views of federal and state resource agencies, project costs, constructability, and other differentiators to identify what the Authority believes is the best Build Alternative to achieve the project's Purpose and Need. Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, PB-Response-AQ-2: Health Risks and Impacts, PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS, and PB-Response-N&V-2: Noise Mitigation and selection of Proposed Sounds Barriers. Neither the E2 nor E2A alternatives are the Authority's preferred alternative. The Preferred Alternative, SR14A, would avoid many of the impacts and issues identified by the commenter because this Alternative would avoid impacts to the Crescenta Highlands Neighborhood area. The commenter's concern is acknowledged. Responses are provided for each comment recorded in the noted attachment.

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The commenter raises a number of concerns and their opposition to the E2/E2A Alternatives. The E2 and E2A Alternatives are not the Authority's preferred alternative. The Preferred Alternative, SR14A, would avoid many of the impacts and issues identified in by the commenter. For more information regarding identification of the SR14A as the preferred alternative, please refer to Chapter 8 of the Draft EIR/EIS.

As required by CEQA and NEPA, the Authority has analyzed the potential impacts related to the division of established communities and disclosed those impacts in Section 3.12, Socioeconomics and Communities in the Draft EIR/EIS. The commenter is particularly concerned about division of existing communities. Section 3.12 specifically addresses both Lake View Terrace and Shadow Hills in its discussion of Impact SOCIO#2, explaining that where new physical and visual barriers would occur within existing communities, access between properties and the local road networks may be adjusted but would be maintained. The project would provide adequate roadway overcrossings and undercrossings to facilitate pedestrian, bicycle, and vehicular circulation. As summarized in Table 3.12-43 of the Draft EIR/EIS, the Authority concluded that impacts related to the division of established communities would be no adverse effect post mitigation for all Build Alternatives. As summarized in Table 3.12-44 of the Draft EIR/EIS, the Authority concluded that impacts related to the division of established communities would be less than significant with mitigation for all Build Alternatives.

Response to Submission 4487 (Mary-Lynne Fisher, Crescenta Highlands Neighborhood Association, December 1, 2022) - Continued

4487-8241

Refer to Standard Response PB-Response-S&S-3: Effects on Local and Regional Evacuation Plans.

The commenter expresses concerns about the effect of construction activities on access and circulation of the communities in the foothills of the San Gabriel Mountains and the Verdugo Hills, including the resulting operation of streets and intersections during the construction as it relates to evacuation in emergencies. Refer to Standard Response PB-Response-S&S-3: Effects on Local and Regional Evacuation Plans for a discussion of how the Authority will address evacuation and safety needs during construction.

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Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, PB-Response-GEN-4: General Opinions, Opposition or Support, PB-Response-S&S-3: Effects on Local and Regional Evacuation Plans, PB-Response-TRA-1: Temporary Traffic Associated with Construction.

The commenter expressed concern that project impacts to established neighborhoods are not appropriately mitigated. Based on preceding comments by the commenter (Comments #8239 and 8240), the commenter is concerned about division of the communities of Lake View Terrace and Shadow Hills. The commenter also expressed concern that construction-related roadway closures would result in safety concerns during emergencies. Additionally, the commenter expressed opposition to the E2 and E2A Build Alternatives and their preference for the No Project Alternative.

Section 3.12, Socioeconomics and Communities, of the Draft EIR/EIS, states that the southern portion of the Central Subsection for the E2 and E2A Build Alternatives would traverse the city of Los Angeles neighborhoods of Lake View Terrace and Shadow Hills. As discussed in Impact SOCIO#1: Temporary Disruption to Community Cohesion or Division of Existing Communities from Construction, under the E2 and E2A Build Alternatives, residences adjacent to the construction alignment in Lake View Terrace and Shadow Hills would be subject to temporary construction impacts. However, although construction activities could temporarily disturb nearby residents, they would not physically divide established communities. Additionally, although the E2 and E2A Build Alternatives would not result in a temporary impact related to dividing established communities, these two alternatives would implement six IAMFs and one mitigation measure to minimize temporary construction impacts such that existing land-use patterns and community cohesion would be preserved. A detailed construction management plan would be developed prior to construction as part of SOCIO-IAMF#1, and would include actions pertaining to communications, visual protection, air quality, safety controls, noise controls, and traffic controls to minimize impacts on residents. The plan would also verify that property access is maintained for local businesses, residences, and emergency services. NV-IAMF#1 would ensure minimization of noise-related disruptions near sensitive receptors, including residential neighborhoods, pursuant to federal noise guidelines. AQ-IAMF#1 would require the preparation and implementation of a fugitive dust control plan. Temporary impacts related to air quality

Response to Submission 4487 (Mary-Lynne Fisher, Crescenta Highlands Neighborhood Association, December 1, 2022) - Continued

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would also be minimized by low-volatile organic paint during construction (AQ-IAMF#2) and concrete batch plant siting and control measures (AQ-IAMF#6). Construction-related traffic disruptions would be minimized by the preparation and implementation of a construction traffic plan (TR-IAMF#2). AVR-MM#2 would require shielding of lighting for nighttime construction and directing it downward in such a manner that the light source is not visible off-site, and so that the light does not fall outside the boundaries of the project site to avoid light spillage off-site.

As discussed in Impact SOCIO#2: Permanent Disruption to Community Cohesion or Division of Established Communities from Construction, in Section 3.12, Socioeconomics and Communities, of the Draft EIR/EIS, construction of the E2 and E2A Build Alternatives within the Central Subsection would present new physical and visual barriers with the potential to divide the Lake View Terrace neighborhood. Specifically, the E2 and E2A Build Alternatives would be constructed at-grade and on viaduct within the Los Angeles community of Lake View Terrace, which would require the displacement of residential properties and would therefore divide the neighborhood between Jimenez Street and Wheatland Avenue. Connectivity between the divided neighborhood would be maintained via Arnwood Road and Foothill Boulevard, both of which would pass underneath the elevated HSR right-of-way. Foothill Boulevard would continue to provide the neighborhood with access to the regional road network. Therefore, where new physical and visual barriers would occur within Lake View Terrace, access between properties and the local road networks would be maintained.

Regardless, new physical and visual barriers created by the project within existing communities represents a significant impact pursuant to CEQA. Mitigation Measure SO-MM#2: Implement measures to reduce impacts associated with the division of communities, will require the Authority to conduct special outreach to affected residential neighborhood and community residents, community organizations, and local officials, as well as require the Authority's evaluation of the community's modified access, to enable the Authority to maintain community cohesion and avoid physical deterioration. The Authority will work with community organizations and community leaders within affected neighborhoods to maximize attendance and generate awareness of community workshops. Upon gathering feedback from the community, the Authority would use the input and develop enhancements to ameliorate effects associated with community

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cohesion and community division. The Authority would be responsible for implementing the measures to reduce impacts through project design and through the long-term management of the measures, which would involve documenting the desired design concepts, incorporating them into the final design, and facilitating ongoing maintenance. Therefore, the impact of physically dividing existing communities would be less than significant for all Build Alternatives.

With regard to safety concerns during emergencies due to construction-related roadway closures, please refer to Standard Responses PB-Response-TRA-1: Temporary Traffic Associated with Construction and PB-Response-S&S-3: Effects on Local and Regional Evacuation Plans. As discussed in Standard Response PB-Response-S&S-3, the Authority will develop and implement a construction safety transportation management plan (SS-IAMF#1) that will incorporate emergency vehicle access procedures. These procedures would avoid impacts on the accessibility of emergency service providers, response times, or other emergency service performance objectives through coordination with local jurisdictions to maintain emergency vehicle access and by establishing detour provisions for temporary road closures and routes for construction traffic. Additionally, as stated previously in this response, under SOCIO-IAMF#1, the detailed construction management plan for the project would verify that property access is maintained for emergency services, as well as for businesses and residences.

Regarding the commenter's opposition to the E2 and E2A Build Alternatives and their preference for the No Project Alternative, please refer to Standard Responses PB-Response-GEN-4: General Opinions, Opposition or Support and PB-Response-ALT-1: Alternatives Selection and Evaluation Process.

Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022)

Palmdale - Burbank - RECORD #4488 DETAIL

Status :	Ready for Delimiting
Record Date :	12/2/2022
Interest As :	Business and/or Organization
First Name :	Stephanie
Last Name :	Gad
Attachments :	HSR Comment letter_Palmdale to Burbank DEIR_20221201.pdf (10 mb)

Stakeholder Comments/Issues :

Good morning,

Thank you very much for the opportunity to provide comments on the California High-Speed Rail Authority Palmdale to Burbank Project Section Draft EIR/EIS. Please find attached a comment letter provided on behalf of our client Land Veritas Corp.

Thank you,
[image: https://wra-ca.com/] <https://wra-ca.com>
Stephanie Gad
Conservation Analyst
Gad@wra-ca.com
Direct 858.386.4054 | Cell 714.606.5204
Make a positive lasting impression™

4488-10241

Land Veritas Corp.
1001 Bridgeway, Suite 246
Sausalito, CA 94969

December 1, 2022

California High Speed Rail Authority
770 L Street, Suite 620 MS-1
Sacramento, CA 95814

Subject: Draft EIR/EIS for the Palmdale to Burbank Project Section (SCH #2014071074)

Dear High-Speed Rail Authority:

Thank you for the opportunity to provide comments on the joint Draft Environmental Impact Report (EIR) and Environmental Impact Statement (EIS) published for the California High Speed Rail (HSR) Palmdale to Burbank section.

Land Veritas Corp. is the Bank Sponsor of both the Petersen Ranch Mitigation Bank (PRMB), located in Los Angeles County, and the Soquel Canyon Mitigation Bank (SCMB), located in San Bernardino and Orange Counties.

The PRMB was approved in 2016 by the Lahontan Regional Water Quality Control Board (RWQCB), United States Army Corps of Engineers (USACE), the United States Environmental Protection Agency (EPA), and the California Department of Fish and Wildlife (CDFW) and sells credits that can be used to offset impacts regulated by Sections 401 and 404 of the Clean Water Act, Section 1602 of the California Fish and Game Code, the Porter Cologne Water Quality Act, the California Endangered Species Act (CESA) and the California Environmental Quality Act (CEQA). The PRMB's credits include aquatic resources such as seasonal wetlands, ephemeral streams, alluvial floodplains, and riparian habitats, Swainson's hawk foraging credits, and covered habitats such as riparian forests, valley and foothill grasslands, mixed chaparral communities, and great basin scrub. Nearly all 4,100 acres of the PRMB Property are credited for Swainson's hawk foraging habitat, and actively foraging Swainson's hawks have been observed onsite.

The SCMB was approved in 2014 by the USACE, EPA, CDFW, and the Santa Ana RWQCB and sells credits that can be used to offset impacts regulated by Sections 401 and 404 of the Clean Water Act, Section 1602 of the California Fish and Game Code, and the California Environmental Quality Act (CEQA). The SCMB's credits include aquatic resources such as ephemeral, intermittent, and perennial stream system credits, and riparian habitats, and covered habitats such as chaparral, coastal sage scrub, mulefat scrub, native grassland, and oak and walnut woodlands.

Land Veritas Corp 1001 Bridgeway, Suite 246, Sausalito CA 94965 p 415.729.3733

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The PRMB includes over 4,100 acres of natural habitats and the SCMB includes over 300 acres, the regular management and maintenance of which are funded through each Bank's respective non-wasting endowment. Importantly, both the PRMB and the SCMB Service Areas, defining the area in which the Bank can sell credits, overlap with portions of the HSR Palmdale to Burbank section. The PRMB and SCMB service area with the approximate location of the Palmdale to Burbank project section is illustrated in Appendix A. The PRMB is located within important wildlife migratory corridors, and while it has already been credited for the aforementioned resources, there is also suitable habitat for other special status plant and animal species at PRMB that the HSR Palmdale to Burbank section could potentially impact. Examples of special status species with potential impacts and observed at the PRMB include burrowing owl, tricolored blackbird, vernal pool fairy shrimp, monarch butterfly, mountain lion, and rare plant species including western Joshua tree which were translocated onto the property in 2022 as part of a pilot program.

Approximately 2,500 acres of the PRMB Property are not yet under conservation easement. Mitigation projects can therefore be planned and implemented on unencumbered portions of the PRMB Property to match specific project impacts for the Palmdale to Burbank project section, including the possible translocation of impacted special-status plant species.

Land Veritas has reviewed the HSR Palmdale to Burbank Section DEIR/DEIS and presents the following comments on specific Biology Mitigation Measures (BIO-MM) included therein:

Prepare and Implement Plan for Salvage and Relocation of Special-Status Plant Species (BIO-MM#2) and Compensate for Impacts to Listed Plant Species (BIO-MM#38): Land Veritas agrees with HSR's determination to collect seeds and plant materials, stockpile and segregate topsoil, and salvage and relocate species listed as threatened or endangered under FESA and/or CESA. Petersen Ranch Mitigation Bank contains potentially suitable areas to receive salvaged and relocated special-status plants and develop seed banks for federal and/or state-listed species.

Similarly, Land Veritas supports proper compensatory mitigation for impacts to federal- and state-listed plant species through assigning appropriate mitigation ratios based on mitigation type and likelihood of ongoing success. The large size and diverse list of native habitats at PRMB coupled with the fact that only a portion of the site is currently under conservation easement provides for an ideal scenario for mitigating the impacts of the HSR Palmdale to Burbank section.

Land Veritas Corp 1001 Bridgeway, Suite 246, Sausalito CA 94965 p 415.729.3733

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Provide Compensatory Mitigation for Loss of Swainson's Hawk Nesting Trees and Habitat (BIO-MM#43): Land Veritas suggests referencing the document; Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California (California Energy Commission [CEC] and California Department of Fish and Game [CDFG], 2010) to inform survey protocols, minimization practices and compensatory mitigation requirements for the project, as this document was developed specifically for the study and conservation of the genetically-distinct Antelope Valley Swainson's hawk population. Notably, the Antelope Valley guidance calls for a minimum 2:1 mitigation ratio for impacts to Swainson's hawk foraging habitat impacted within a five-mile radius of an active nest. These measures were assessed scientifically and deemed critical by two state agencies for the recovery of the species, and we urge the HSR Authority to incorporate its recommendations into this mitigation measure.

BIO-MM#43 requires the Authority provide mitigation lands, but does not reference BIO-MM#53 (Compensatory Mitigation Plan) nor does it include the option to purchase credits from a CDFW approved mitigation bank. The purchase of credits from a CDFW approved mitigation bank within the Antelope Valley, such as PRMB, to mitigate for unavoidable impacts to Swainson's hawk foraging habitat guarantees that (i) the impacted population of Swainson's hawk is protected; (ii) the mitigation is permanently conserved with a restrictive easement; and (iii) an endowment is fully funded to provide land management and protection in perpetuity. We recommend the option to purchase credits to satisfy compensatory mitigation requirements for impacts to Swainson's hawk be included in this mitigation measure.

Loss of Active Burrowing Owl Burrows and Habitat (BIO-MM#44), Impacts on Tricolored Blackbird Habitat (BIO-MM#70): For tricolored blackbird and burrowing owl, compensatory mitigation is typically required to be located within areas of documented use by the species, such as the PRMB. For BIO-MM#44 and BIO-MM#70 Land Veritas suggests specifying this requirement for burrowing owl and tricolored blackbird, respectively. Given both species are experiencing a reduced range and higher level of threat from development throughout Southern California, this measure should be required to adequately contribute to the recovery of both species. Additionally, the purchase of mitigation credits that meet the above criteria should be prioritized over other forms of mitigation as outlined below in our comment on BIO-MM#53.

BIO-MM#46: Provide Compensatory Mitigation for Permanent Impacts on Riparian Habitat: Both the joint USACE and EPA 2008 Mitigation Rule (33 C.F.R. 325 and 332, 40 C.F.R. 230) and the state wetland policy for California (California State Water Resource Control Board, 2019) specify a preference for purchasing riparian habitat credits from approved mitigation banks over other forms of compensatory mitigation. This preference was established because mitigation banks avoid temporal loss of function to impacted resources, must be managed and funded in perpetuity, are protected via permanent conservation easement, and are subject to a high degree of regulatory oversight relative to other options. Land Veritas recommends including a preference for the purchase of mitigation credits over other forms of compensatory mitigation in BIO-MM#46 to be consistent with state and federal guidance.

Land Veritas Corp 1001 Bridgeway, Suite 246, Sausalito CA 94965 p 415.729.3733

Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022) - Continued

4488-10241

Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat (BIO-MM#53) and Aquatic Resources (BIO-MM#47): The CMPs defined in BIO-MM#53 and BIO-MM#47 identify several methods to provide mitigation for impacts to protected species, habitats, and aquatic resources, including purchasing mitigation credits from an agency-approved mitigation bank. As identified in the prior comment regarding BIO-MM#46, both state and federal mitigation policies specify a preference for purchasing credits from approved mitigation banks over other forms of compensatory mitigation. Land Veritas recommends including this regulatory preference for mitigation credit purchase at an approved bank in BIO-MM#53 and BIO-MM#47. The purchase of mitigation credits from an approved mitigation bank can support achieving construction timelines for the Palmdale to Burbank section. To this end, mitigation credits from PRMB are available to mitigate Palmdale to Burbank section impacts within the same Section 404, Porter-Cologne, Section 1602, CEQA, and CESA (Swainson's hawk foraging) service areas. Additionally, mitigation credits From Soquel Canyon Mitigation Bank are available to mitigate Palmdale to Burbank section impacts within the Section 404 and 401, and CEQA service areas.

Lastly, the portions of the PRMB not yet under conservation easement may contain habitat for burrowing owl (BIO-MM#44), tricolored blackbird (BIO-MM#70), mountain lion (BIO-MM#97), and other special-status species, which have been observed at the implemented portions of the PRMB. Mitigation projects can therefore be planned and implemented on the unencumbered portions of the PRMB Property to match specific project impacts for the Palmdale to Burbank section, including the possible translocation of impacted special-status species.

We thank you for the opportunity to provide comments on this project and hope you consider the PRMB and SCMB as future partners, as we can supply compensatory mitigation that achieves compliance while providing superior environmental outcomes. For more information on PRMB and SCMB, please see the attached brochures (Appendix A). These brochures include figures illustrating the PRMB and SCMB service area overlap with an approximate location of the Palmdale to Burbank project section. These figures are for illustrative purposes only to demonstrate that the approximate location of the Palmdale to Burbank project section overlaps with a portion of the PRMB or SCMB service areas.

Sincerely,

H. Tracey Brownfield
President, Land Veritas Corp.

tracey@landveritas.com
P: 415.729.3733

Land Veritas Corp 1001 Bridgeway, Suite 246, Sausalito CA 94965 p 415.729.3733

References

California Energy Commission and California Department of Fish and Game. 2010. Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California. Sacramento, CA.

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Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022) - Continued

4488-10242

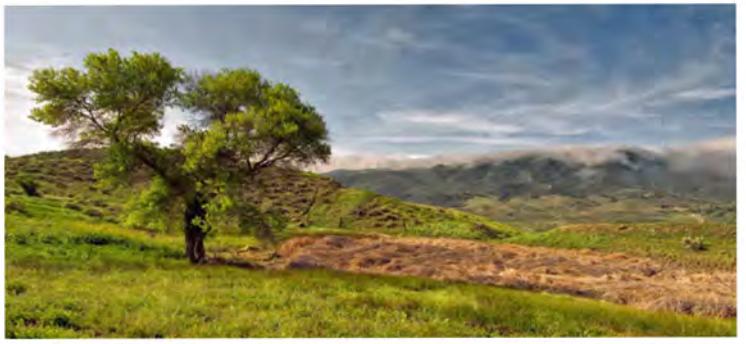
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Appendix A

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4488-10242

PETERSEN RANCH MITIGATION BANK





Bank Sponsor:
Land Veritas Corp
Contact: Tracey Brownfield
tracey@landveritas.com

Permitting & Marketing Consultant:
WRA, Inc.
Contact: Nate Bello
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Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022) - Continued

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PETERSEN RANCH MITIGATION BANK

Summary

Land Veritas (LV), a Women-Owned Business Entity, is the sponsor of The Petersen Ranch Mitigation Bank (Bank). The Bank was approved and received its first credit release in June 2016. The United States Army Corps of Engineers (Corps), Environmental Protection Agency (USEPA), Lahontan Regional Water Quality Control Board (Lahontan RWQCB) and California Department of Fish and Wildlife (CDFW) are signatory participants in the Interagency Review Team (IRT) that reviewed and approved the Bank over a 5+ year entitlement process.

Located in unincorporated Leona Valley, Los Angeles County, California, the Bank contains approximately 4,103 acres and consists of two properties: The Petersen Ranch Bank Property (approximately 3,789 acres) and the Elizabeth Lake Bank Property (approximately 314 acres), as shown in Exhibit A.

Implementing the Bank's Development Plan established/re-established, rehabilitated, enhanced, and/or preserved of hundreds of acres of aquatic features, including streams, wetlands, alluvial floodplains, and non-wetland riparian areas. These actions generated credits that can be used to mitigate for impacts authorized through Section 404 of the Clean Water Act (404 Credits), the Porter-Cologne Water Quality Control Act (PC Credits), Section 1600 of the California Fish and Game Code (1600 Credits), the California Environmental Quality Act (CEQA Credits) and the California Endangered Species Act (CESA Credits). The Bank Property contains habitat for Swainson's hawk (state threatened species) as well as other special-status species including, but not limited to, western pond turtle, tricolored blackbird and coast horned lizard, as well as several sensitive vegetation communities.

The Bank Properties are being established in multiple phases across six geographic areas (Areas A – F). Restoration of Area A of the Petersen Ranch Property and Area E of the Elizabeth Lake Property were completed in 2016Phase 1 included Area A on the Petersen Ranch Property and Area E of the Elizabeth Lake Property. Subsequent phases will be constructed and incorporated into the Bank over time. The Bank Properties will be managed in perpetuity with funding provided by a non-wasting endowment. The Southwest Resource Management Association is a CDFW-approved non-profit land trust and holds both the conservation easement and endowment.

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REGULATIONS COVERED

The Bank has five credits categories that can mitigate for impacts associated with the following regulations:

404 Credits:

- Section 10 of the Rivers and Harbors Act,
- Section 404 of the Clean Water Act,
- Section 401 of the Clean Water Act,

Porter Cologne Credits:

- the Porter Cologne Water Quality Control Act,

1600 Credits:

- Section 1600 et seq. of the California Fish and Game Code,

Swainson's Hawk Credits:

- the California Endangered Species Act,

CEQA Credits:

- the California Environmental Quality Act

Though not a signatory to the Bank, the Los Angeles Regional Water Quality Control Board has authorized permittees to purchase credits from the Bank to satisfy 401 certification requirements.

SERVICE AREA

Attached are service areas for each category of credits that are available. Service areas are the areas in which Mitigation and Conservation Banks can sell credits; however, impacts outside of the service areas can use Bank credits on a case-by-case basis upon regulatory approval.

The Elizabeth Lake property is an inholding within the Angeles National Forest and therefore suitable for mitigation on federal lands (see attached maps). While the Elizabeth Lake property is located within the Santa Clara River watershed, the Petersen Ranch property is located at the headwaters of two major watersheds, as the divide between the Santa Clara River and Antelope Valley-Fremont Valley watersheds bisects the Ranch. This results in a large service area in which the Bank's credits can be sold.

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PRICING

Each of the Bank's credit categories overlap to form a bundled credit that can be used to mitigate for resources under multiple jurisdictions simultaneously. As a result, each credit is assigned a "Price Tier" based on the highest valued component within the bundle. For example; a Chaparral CEQA credit that overlaps with a 404 credit is assigned a higher Price Tier than a Chaparral CEQA credit that cannot be used for 404 mitigation. There are twelve different credit price tiers, ranging from the highest for 404 re-establishment credits to the lowest for Swainson's hawk credits. Credit prices vary across a wide range, and can be provided through a direct consultation with the Bank Sponsor.

404 CREDITS AND PORTER COLOGNE CREDITS

404 Credits and PC Credits can mitigate for impacts associated with waters and wetlands of the United States and waters and wetlands of the State. All 404 Credits are either classified as re-establishment or preservation, including riparian and upland buffer preservation credits. These credits cover numerous habitats including:

- **Alluvial Floodplains**: Diverse alluvial fan habitats containing complexes of braided ephemeral streams and riparian habitats.
- **Ephemeral Streams**: Single thread seasonal streams and associated riparian habitats.
- **Freshwater Marsh**: Seasonal to Perennial wetlands containing cattails and rushes and supporting special status species including western pond turtle and tri-colored blackbird.
- **Open Water**: Mostly perennial deeply ponded areas providing important food and water sources for wildlife and supporting aquatic habitat for western pond turtle and amphibians.
- **Seasonal Wetland**: Seasonally flooded depressions and large meadow complexes dominated with wetland grasses, rushes and sedges.
- **Wetland Riparian**: Wetland habitats with understory similar to seasonal wetlands and a diverse shrub and tree canopy of mulefat, willows, elderberry, cottonwoods and other riparian species.

1600 CREDITS

1600 credits can be used to offset impacts to CDFW regulated resources authorized under a Lake and Streambed Alteration Agreement. These credits include the following habitats which are the same as those described under the 404 Credits and PC Credits, except where noted:

- Alluvial Floodplain
- Ephemeral Stream
- Freshwater Marsh
- Open Water
- Seasonal Wetland
- Wetland Riparian

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Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022) - Continued

4488-10242

- **Non-wetland Riparian**: A diverse mixture of riparian habitats ranging from xeric desert riparian scrub to upland Fremont cottonwood forests.

For each of the above habitats the Bank has the following 1600 credit types:

- **Re-established:** Restoration of an upland habitat into an aquatic habitat in a location that was historically aquatic but had been converted to uplands through past human disturbance. This credit type comes from restoration activities that increase the amount of aquatic habitats within the Bank.
- **Rehabilitated:** Restoration of an existing, but degraded, aquatic habitat into a high quality habitat. This credit type comes from multiple restoration activities that work together to repair a previously impacted habitat to its natural condition.
- **Enhanced**: Improvement of an existing aquatic habitat through vegetation management or planting.
- **Preserved**: Protection of a high quality existing habitat.

SWAINSON'S HAWK CREDITS

Nearly the entire Bank generates foraging credits for Swainson's hawk. Potential nesting habitat has also been identified within the Bank, but nesting Swainson's hawks have not been observed.

CEQA CREDITS

CEQA credits can be used to offset impacts to natural vegetation communities. These credits cover multiple habitat types including the following:

- Bare Ground
- Chaparral
- Cismontane woodland, pinyon-juniper woodland
- Great Basin scrub
- Non-native woodland
- Open water
- Riparian forest
- Riparian scrub
- Seeps, meadows, marshes
- Valley and foothill grassland

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Attachment 1: Figures

Attachment 1: Figures

Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022) - Continued

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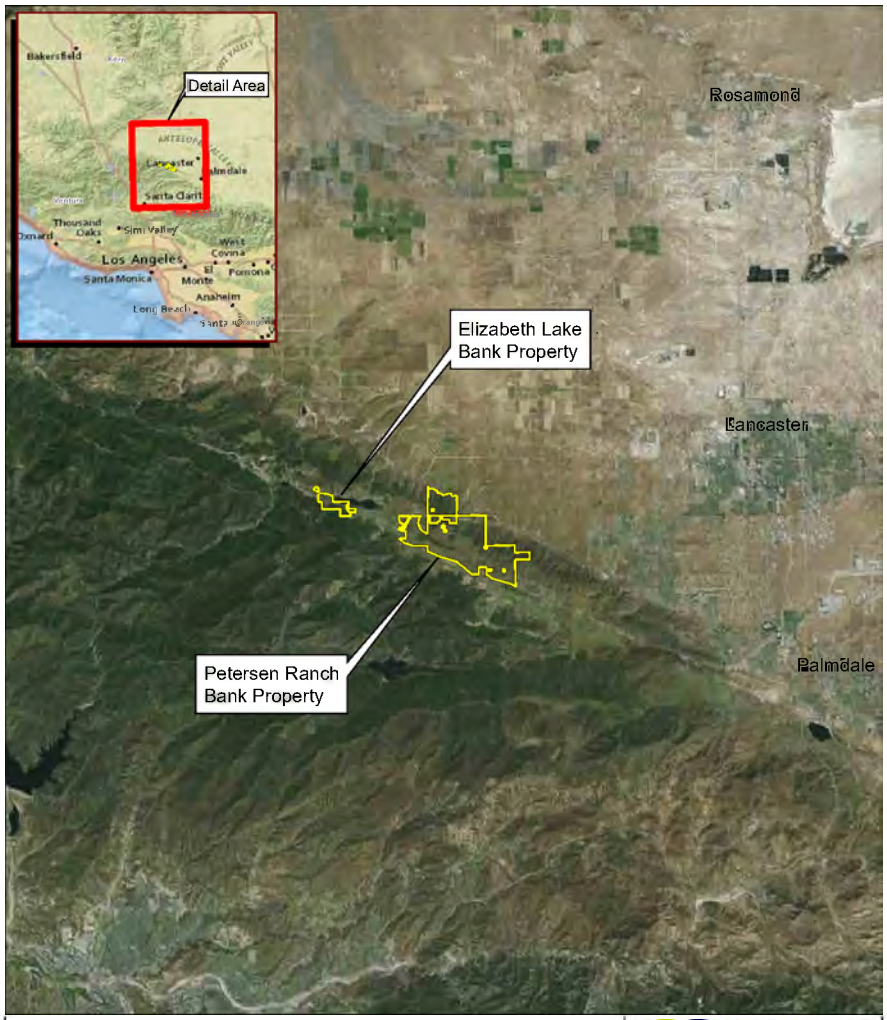


Figure 1: Location Map

Petersen Ranch Mitigation Bank
Los Angeles County, California

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ENVIRONMENTAL CONSULTANTS

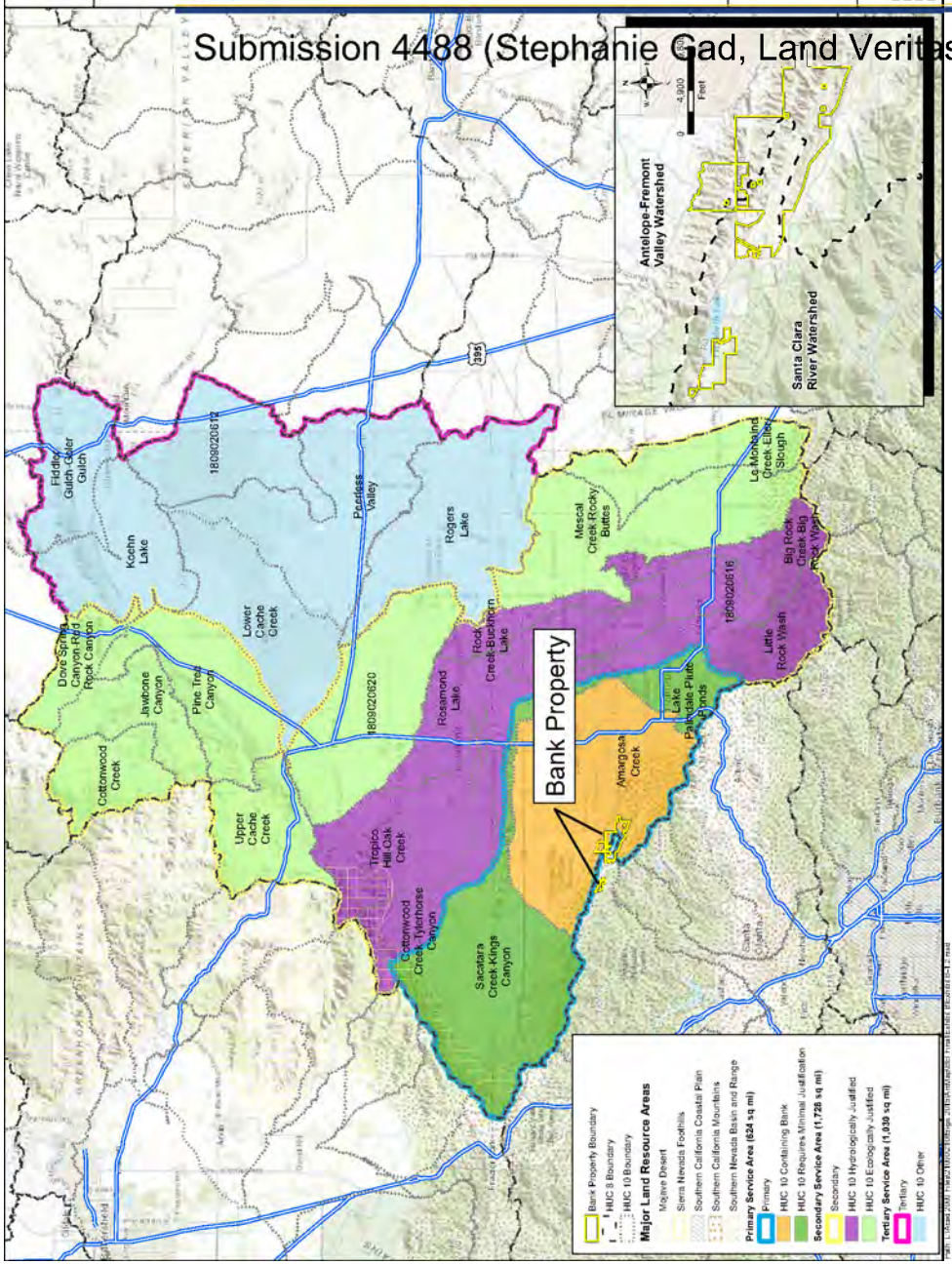
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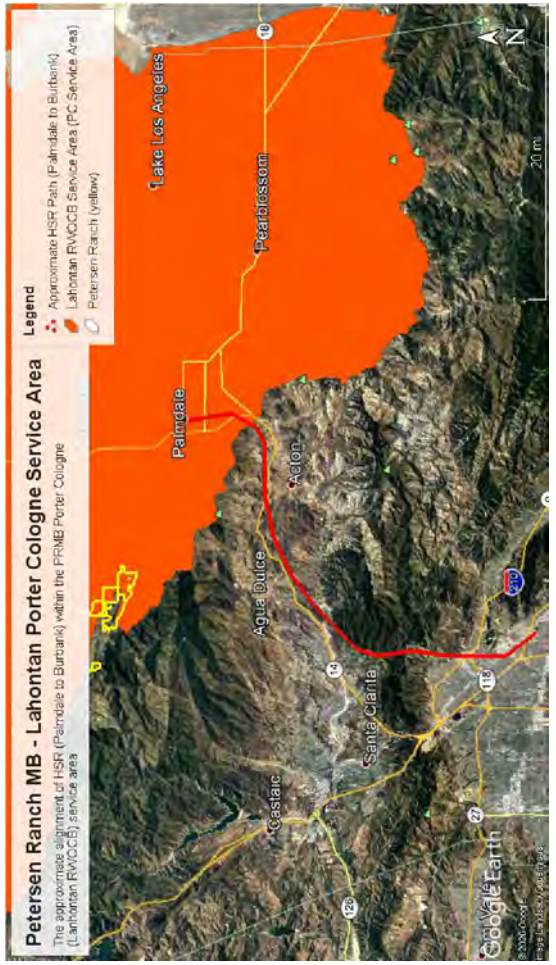
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Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022) - Continued

Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022) - Continued

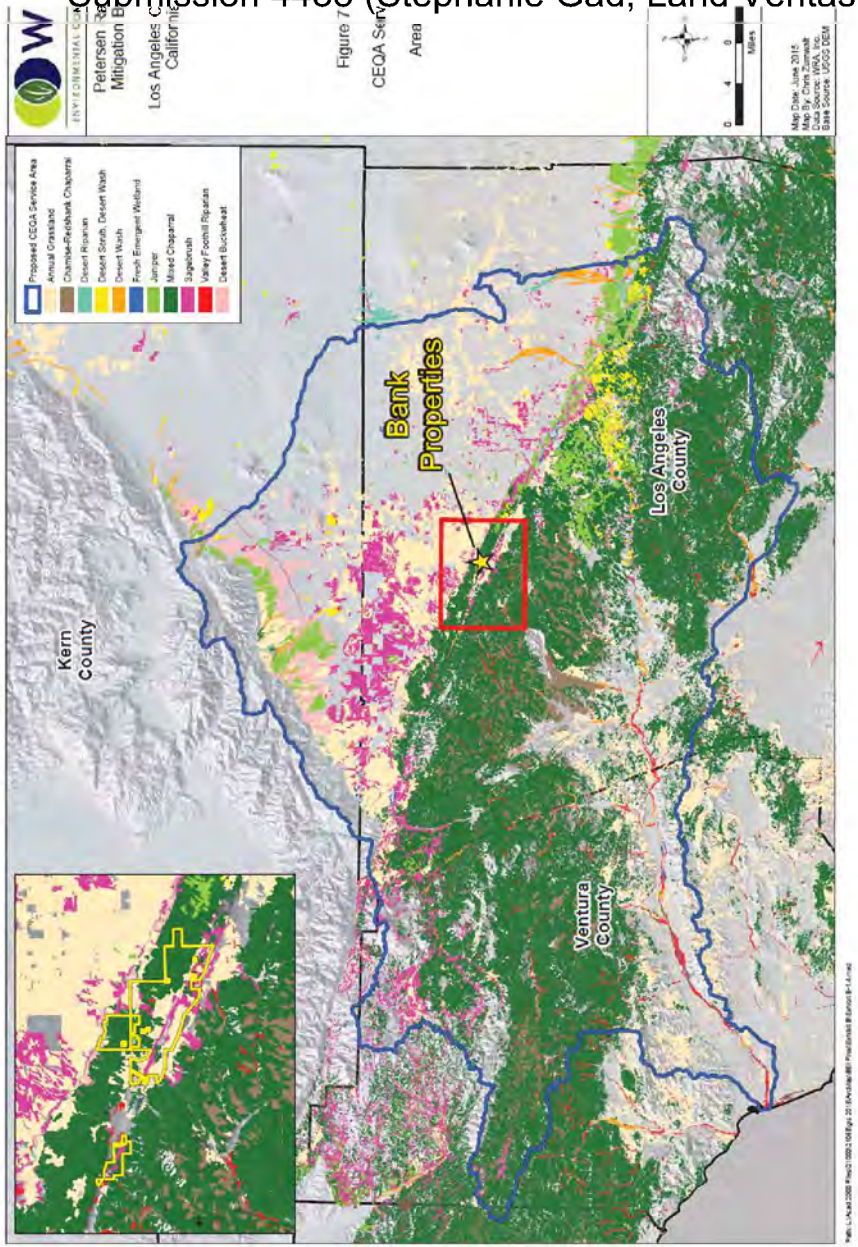
Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022) - Continued





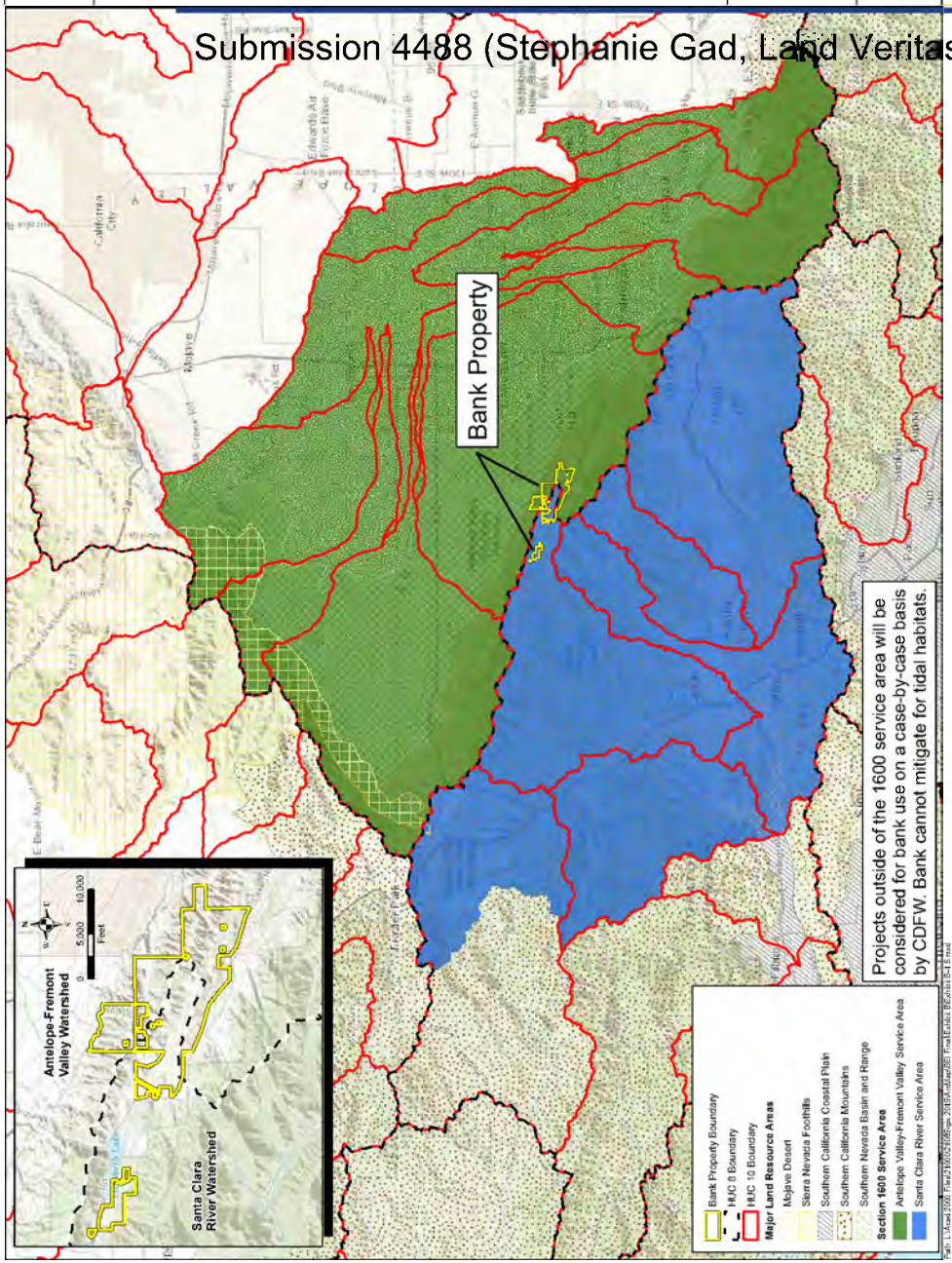
Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022) - Continued

Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022) - Continued





Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022) - Continued





Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022) - Continued

4488-10242

LAND VERITAS

4488-10242

SOQUEL CANYON MITIGATION BANK





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Permitting & Marketing Consultant:
WRA, Inc.
Contact: Nate Bello
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LAND VERITAS

SOQUEL CANYON MITIGATION BANK

Summary

Land Veritas Corp (LV), a Women-Owned Business Entity, is the sponsor of the Soquel Canyon Mitigation Bank (Bank). In December 2014, LV garnered final regulatory agency approvals and released the first round of credits at Soquel Canyon Mitigation Bank (Bank). Located primarily in Chino Hills (with a small portion in Orange County), the Bank's southern boundary is the Chino Hills State Park, a premier natural open space in the hills of the Santa Ana Canyon near the junction of San Bernardino, Orange, Riverside, and Los Angeles Counties (Bank Property). The State Park serves as a critical link in the Puente-Chino Hills biological corridor, encompassing over 14,000 acres of oaks, sycamores, and rolling grassy hills stretching nearly 31 miles from the Santa Ana Mountains to the Whittier Hills.

The Bank offers a great diversity of vegetation and thus provides mitigation for a range of habitat types found in the region. Its canyons support riparian areas which protect water quality and provide suitable habitat for numerous wildlife species including least Bell's vireo and California coastal gnatcatcher. The black walnut trees in low-lying riparian areas join coast live oaks to form mixed walnut woodlands in and adjacent to the creeks, while a variety of coastal sage scrub and chaparral communities are found on slopes. There are almost 80,000 linear feet of streams located throughout the Bank property, including perennial, intermittent, and ephemeral streams and their associated riparian habitats.

Credits are phased over six releases, which is dependent on the Bank meeting certain agency-mandated performance standards and submitting payments and reports.

Service Area

Attached are service areas for each category of credits that are available. Service areas are the areas in which Mitigation and Conservation Banks are allowed to sell credits, however, impacts outside of the service areas may be mitigated on a case-by-case basis upon regulatory approval.

Pricing

Each of the Bank's credit categories overlap to form "stacked" credits, which can mitigate simultaneous impacts to resources under multiple jurisdictions. The three credit categories (Waters of the U.S., Waters of the State, and Covered Habitat) overlap with each other such that a debit from one credit table will often require a corresponding debit in one or more of the other credit tables. For example, every creditable acre has a CEQA associated with it, therefore, every debit of Waters of the U.S. or Waters of the State credit will also include the overlapping Covered Habitat Credit type. The price of each credit sold is determined by the highest value credit that it overlaps with. Credit pricing varies based on the type of credit and amount of overlap, and begin at $100,000/credit. More accurate pricing information can be provided through a direct consultation.

CREDITS OFFERED

The Bank has been approved to sell credits by the U.S. Army Corps of Engineers (USACE), U.S. Environmental Protection Agency (EPA), California Department of Fish and Wildlife (CDFW), and the

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Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022) - Continued

4488-10242

Santa Ana Regional Water Quality Control Board (RWQCB). These credits can be used to mitigate for impacts to Waters of the United States (404 credits), Waters of the State (1600 Credits), and Sensitive Habitats (CEQA credits).

404 Credits

Soquel Canyon's 404 credits can be used to mitigate for impacts to Waters of the United States regulated under Sections 404 and 401 of the Clean Water Act. The Bank provides three types of 404 Credits, including:

- Ephemeral Stream Enhancement Credits
- Intermittent Stream Enhancement Credits
- Perennial Stream Enhancement Credits

All 404 Credits are combination credits include three components: Waters of the U.S. streambank, Riparian buffers, and Upland Buffers. In 2008, USACE acknowledged the importance of buffers for maintaining the ecological viability and aquatic resource function of the Waters of the U.S.

The Bank generates Waters of the U.S. Enhancement Credits by converting non-native vegetative communities to native types, reducing/eliminating invasive seed sources and, enhancing habitats for protected species. These activities repair habitat for sensitive species, including least Bell's vireo and California coastal gnatcatcher. Enhancement is also achieved by excluding cattle and managing invasive species in existing natural communities.

1600 Credits

The Credits available as mitigation for impacts to Waters of the State regulated under Section 1602 of the California Fish and Game Code include Stream Restoration Credits, Riparian Restoration Credits, Stream Enhancement Credits, and Riparian Enhancement Credits.

Invasive plant species management and cattle exclusion activities generate enhancement credits. Areas that were also planted with native plant species generate restoration credits, as planting activities increase the area, functioning, and resiliency of these communities.

Waters of the State Credits include:

Ephemeral	Intermittent	Perennial
• Riparian Enhancement	• Riparian Enhancement	• Riparian Enhancement
• Riparian Restoration	• Riparian Restoration	• Riparian Restoration
• Waters Enhancement	• Waters Enhancement	• Waters Enhancement
• Waters Restoration	• Waters Restoration	• Waters Restoration

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4488-10242

CEQA Credits (Covered Habitat)

Covered Habitat credits can be used to offset impacts to natural vegetation communities. These enhancement and restoration credits cover multiple habitat types including the following:

- Chaparral
- Coastal Sage Scrub
- Mulefat Scrub
- Native Grassland
- Oak Woodland
- Perennial Streambed
- Walnut Woodland

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Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022) - Continued

LAND VERITAS

4488-10242

Attachment 1: Figures

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Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022) - Continued



Figure 1: General Vicinity Map

Soquel Canyon
Mitigation/Conservation Bank
San Bernardino and Orange Counties, CA

ENVIRONMENTAL CONSULTANTS

Date: August 2011
Map By: Sundaran Gillespie
Basemap: ESRI World Topo Layer

Path: L:\Acad 2000 Files\20000\20114\gis\ArcMap\Prospectus\Fig1_LocationMap.mxd

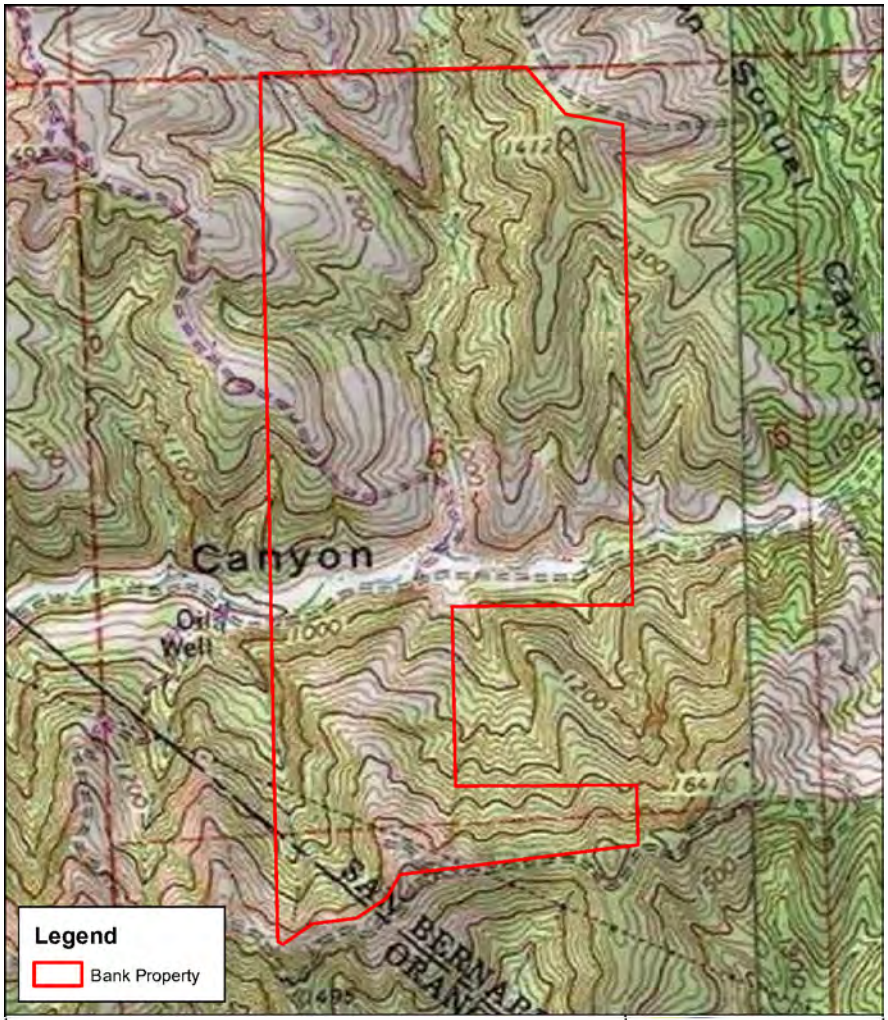


Figure 2: Map of Bank Property

Soquel Canyon
Mitigation/Conservation Bank
San Bernardino and Orange Counties, CA

ENVIRONMENTAL CONSULTANTS

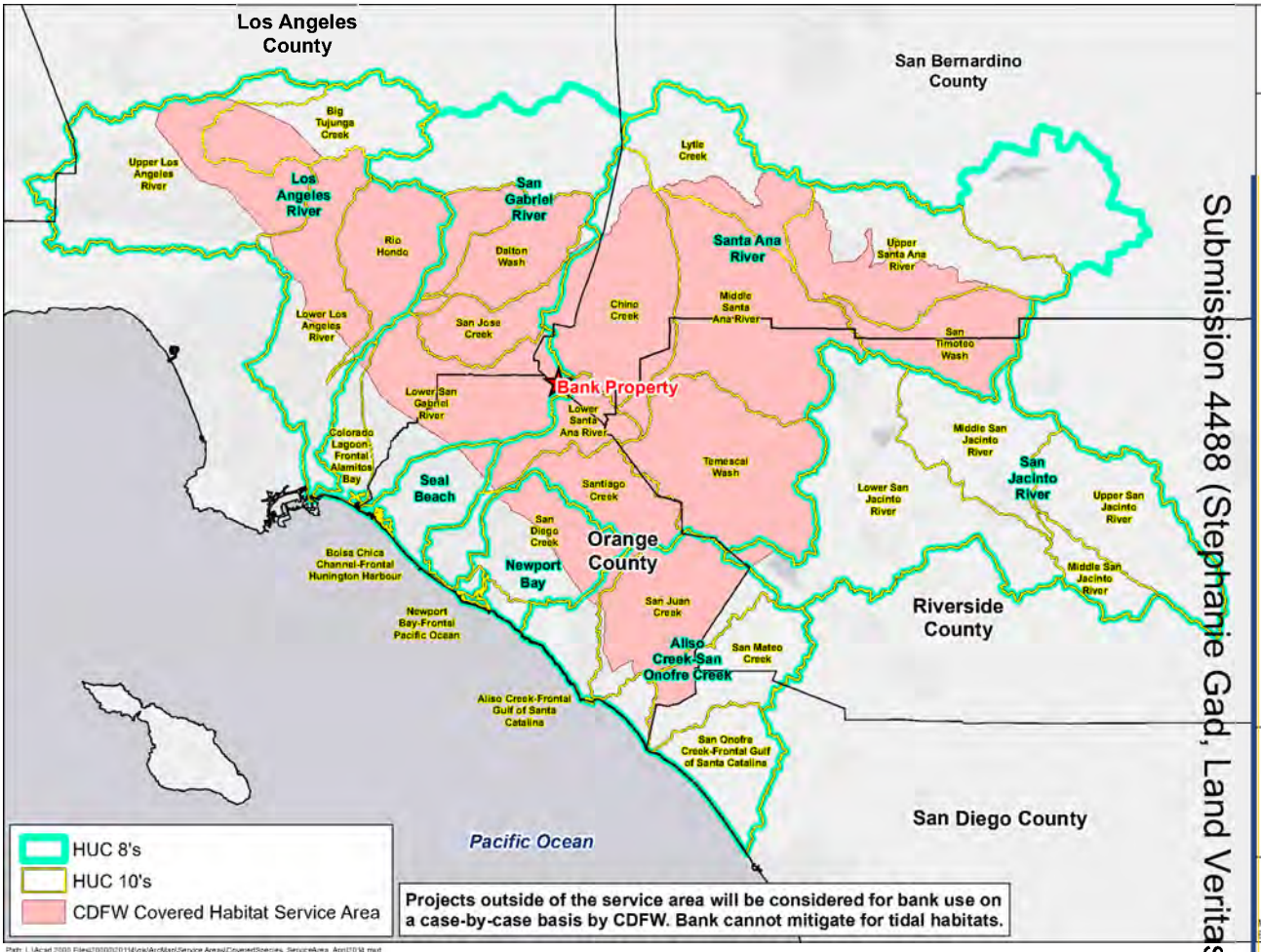
Date: August 2011
Map By: Sundaran Gillespie
Basemap: USGS 7.5' Topo

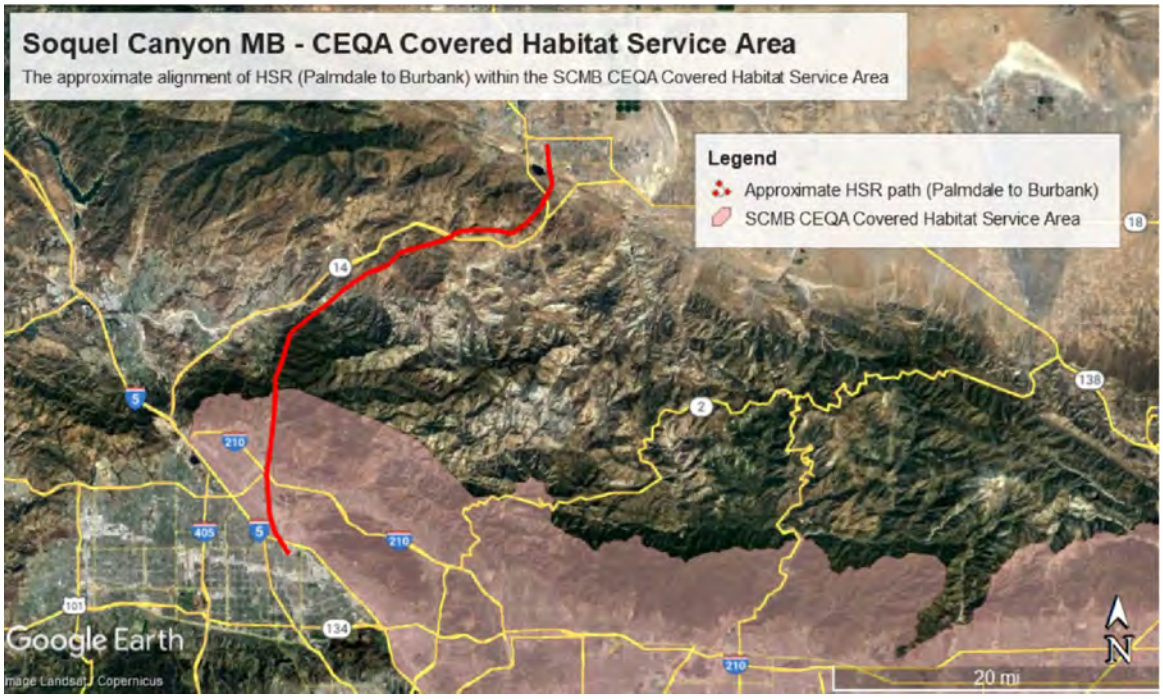
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Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022) - Continued

Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022) - Continued

Chapter 22 Business Organizations





Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022) - Continued

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Response to Submission 4488 (Stephanie Gad, Land Veritas Corp., December 1, 2022)

4488-10241

The commenter offers information and opportunities for mitigation banking at Petersen Ranch Mitigation Bank (PRMB) and Soquel Canyon Mitigation Bank (SCMB). The Authority thanks the commenter for their comment and appreciates the information on mitigation bank availability and the offer to work with the Authority on mitigation banking.

4488-10242

Attachment A, Peterson Ranch Mitigation Bank Brochure Soquel Canyon Mitigation Bank Brochure, is noted and has been considered comprehensively with Submission PB-4488.

Submission 4490 (William R. Slocum, Kagel Canyon Civic Association, December 1, 2022)

Palmdale - Burbank - RECORD #4490 DETAIL

Status : Unread
Record Date : 12/2/2022
Interest As : Business and/or Organization
First Name : William R.
Last Name : Slocum
Attachments : 2022.11.29 DEIR Response to HSR.pdf (343 kb)

Stakeholder Comments/Issues :

To Whom it may concern:

4490-8982 Attached is the response from the Kagel Canyon Civic Association of the Palmdale to Burbank Project Section Draft EIR/EIS. Please not the our organization representing Kagel Canyon in the Northeast San Fernando Valley supports the NO PROJECT ALTERNATIVE.

Sincerely,

William R. Slocum
President

4490-8983

4490-8984

Kagel Canyon Civic Association

KCCA BOARD

William Slocum *President*
Marlene Rader *Vice President*
Open *Recording Secretary*
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Natasha Aasadore *Treasurer*

DIRECTORS

Chris Cookson
Kurt Krueger
Sara Olsen
Ralf Quint
Gloria Sharpsteen
David Von Stowver

November 29, 2022

Southern Regional Office
355 S. Grand Avenue, Suite 2050
Los Angeles, California 90071

Via email to Palmdale_Burbank@hsr.ca.gov

RE: Palmdale to Burbank Project Section Draft EIR/EIS Comment

To Whom It May Concern:

The Kagel Canyon Civic Association unequivocally supports the NO PROJECT ALTERNATIVE as the only feasible alternative presented in the Draft Environmental Impact Report (DEIR) as produced by the California High-Speed Rail Authority (CHSRA).

We have concerns and comments on a myriad of topics in the report:

The first concern and primary concern is WATER. Proposed tunneling through the Angeles National Forest (ANF) and the San Gabriel Mountains National Monument jeopardizes critical groundwater sources in the mountains that provide drinking water to the Los Angeles basin. Our Upper Kagel Canyon residents are all on well water, and yet in CHSRA's maps, only three wells in our area are documented. On what scientific basis has CHSRA made the determination that our wells are outside of the area of impact of tunneling?

The document does nothing to ensure that underground water sources won't be altered, causing these wells to go dry. It also doesn't guarantee that these water sources won't be contaminated.

If this happens, how will residents be remedied in case of both or either of these two serious catastrophic situations? If our wells are not documented in advance by CHSRA, how will our residents receive mediation for damage to our only source of water? One of your proposed mitigation measures is to truck in water for residents whose wells have been damaged or destroyed by CHSRA's tunneling. How will not having a water source impact our property values, and will CHSRA compensate our residents for any financial loss sustained in resale?

We all know that California is currently in another epic drought and CHSRA will use hundreds of millions of gallons of water to constantly spray their construction areas to mitigate fugitive dust, operate the tunnel boring machine, and build miles of concrete tunnels. You even have a plan to truck in tens of millions of gallons of water for the oak trees in the ANF if tunneling causes dewatering. Where will this water come from? How will it affect the ground water?

P.O. Box 922191 Sylmar, CA 91392-2191
www.kagelcanyon.com

Submission 4490 (William R. Slocum, Kagel Canyon Civic Association, December 1, 2022) - Continued

4490-8985

Secondly, San Fernando and Santa Clarita Valley residents will be living through construction for at least 7 years, probably more than 10 years. Heavily traveled intersections and freeways will be impacted by construction staging areas nearby the proposed area of the 118 and 210 interchanges as well as the Paxton and Foothill Boulevard intersections. Another construction staging area is proposed for Little Tujunga Canyon Road by Gold Creek which is in the ANF. In all, these sites will produce noise, vibration, dust, and exhaust as millions of truck trips are needed to haul spoils out of bored tunnels. Overall, traffic will increase for these millions of truck trips on our local roads and on the 5, 118 and 210 freeways.

4490-8986

The third and next point we want to address is our concerns for the surface impacts to the ANF. Just because HSR will be tunneling beneath the ANF does not mean there will not be impacts to the forest above. Tunneling inherently means there will be manmade encroachments in the ANF where none currently exist.

CHSRA will be adding buildings in the forest which will be used to access the tunnels, provide ventilation, access roads and power lines, and CHSRA plans to construct portals in multiple locations at the borders of the ANF. Proposed alignments and construction staging areas will cross and interrupt the Pacific Crest Trail and the Rim of the Valley Trail, and wilderness areas will be disrupted, impacting wildlife with years of construction invading their habitat. This infrastructure and manmade construction activity will introduce new fire hazards in the ANF, causing additional threats to residents of the Northeast San Fernando Valley, specifically to our community which is in the urban-wildland interface.

4490-8987

Our fourth area of concern is SEISMICITY. Each and all of the routes proposed cross the San Andreas, San Gabriel, Sierra Madre, and Verdugo Fault Zones. We have great concern this work will trigger one of these fault zones. Why is the CHSRA not conducting the necessary studies and technical evaluations on seismicity NOW, prior to selecting an alignment and moving forward with the project? Shouldn't this critical issue be addressed ahead of time to determine if tunneled routes through these fault zones are even feasible?

4490-8988

The fifth concern is for Air Quality. The construction will generate more greenhouse gases than it will recoup in 70 years of operation. CHSRA is a beneficiary of Cap & Trade funds as it claims to be a "green project," but the irony is that CHSRA will have to PURCHASE offset credits during construction as its pollution levels exceed AQMD standards.

4490-8989

The sixth concern is for Area Aesthetics. Our designated scenic corridors will be blighted with multi-acre construction staging areas to house construction equipment, concrete batch plants, and more. The Portals aren't just tunnel openings; they have huge infrastructure with them, including 65' three-story buildings. Two proposed routes still include a viaduct to carry the train out of the mountain and over the Big Tujunga Wash.

4490-8990

Moreover, additional concerns we have include the fact that instead of fully studying important topics (e.g., seismicity) prior to approving the project, CHSRA is placing the brunt of the study work and planning to be left to contractors being hired AFTER the

4490-8990

project is approved. CHSRA employs a 15/85 design plan, which means that only 15% of the project needs to be designed before the project is approved. The total budget has ballooned to $105 Billion in 2022, and not a single inch of track has yet been laid. Lastly, over 150 local businesses nearby will be displaced without alternate locations available locally.

Thus, the KCCA has no confidence in CHSRA to mitigate any of the issues we've addressed.

Sincerely,

William R. Slocum
President

Response to Submission 4490 (William R. Slocum, Kagel Canyon Civic Association, December 1, 2022)

4490-8982

The commenter indicates a preference for the No Build Alternative and refers to an attached letter. Responses to the commenter's concerns are addressed in Response to Comment #8983 through Comment #8990.

4490-8983

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, PB-Response-GEN-4: General Opinions, Opposition or Support.

The commenter indicates a preference for the No Build Alternative. This comment presents an opinion on the HSR Palmdale to Burbank Project Section. The No Build Alternative would not meet the HSR purpose, need, or objectives outlined in Chapter 1, Project Purpose, Need, and Objectives of the EIR/EIS. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

4490-8984

Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the ANF, PB-Response-PUE-3: Water Demand and Usage, PB-Response-SOCIO-2: Property Values.

The commenter expressed concerns regarding groundwater and Upper Kagel Canyon wells. Additionally, the commenter inquired about how the wells were documented, if there are mitigation measures proposed for damaged or destroyed wells, if there is budget for mitigation for those whose water sources have been damaged and if there is well monitoring. The commenter also inquired about the timeline for producing mapping of Kagel Canyon wells, and if the unmapped wells would be damaged or depleted, or if compensatory mitigations would be applied. Additionally, the commenter expressed concerns related to property values. The commenter also expressed concern about water usage necessary to support the project in the face of recent drought conditions.

The resource study area (RSA) for tunnel construction is the area within 1 mile of the centerline of each of the six Build Alternatives, which includes a portion of Kagel Canyon. Portions of Kagel Canyon within 1 mile of the alignment were therefore considered in the impact analysis in Section 3.8, Hydrology and Water Resources, of the Draft EIR/EIS. Pursuant to the Authority's 2019 Preliminary Geotechnical Data Report for Tunnel Feasibility, Angeles National Forest and 2019 Geotechnical Tunnel Feasibility Evaluation for High-Speed Rail Tunnels Beneath the Angeles National Forest (referenced in Section 3.8 of the EIR/EIS), based on observed impacts on groundwater from past tunnel projects, no impacts to wells are expected to occur outside the tunnel construction RSA (more than 1 mile from the centerline of each Build Alternative). Section 3.8, Hydrology and Water Resources, of Final EIR/EIS has been revised to expressly clarify concerns related to private water supply wells. As stated in the Final EIR/EIS, because only limited information is available regarding the location of private wells, there is the potential that tunnel construction could result in the destruction of private water supply wells, including wells that have not been identified, if any wells are located directly in the path of the tunnels. HYD-IAMF#8: Private Well Monitoring and Minimizing Access Disruptions for Private Water Supply Wells Outside of the ANF has been added to the Final EIR/EIS to describe in detail how the Authority would address impacts to private water supply wells outside the ANF. For wells within the ANF

Response to Submission 4490 (William R. Slocum, Kagel Canyon Civic Association, December 1, 2022) - Continued

4490-8984

(including in Kagel Canyon) that are determined through modeling and monitoring to be adversely affected by groundwater reductions caused by the HSR, the Adaptive Management and Monitoring Plan (AMMP) included in Mitigation Measure HWR-MM#4 requires modifications to the affected wells or by providing supplemental water. Supplemental water would only be provided if monitoring indicates that the HSR construction caused groundwater impacts. However, the Authority has identified several IAMFs to avoid and minimize the potential for impacts to water supply wells and the need for supplemental water. HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 require design features and construction methods to address potential groundwater intrusion, including the installation of a tunnel liner(s) capable of effectively controlling inflows into the tunnels. As such, groundwater inflow during construction would likely be minimal and temporary. Please refer to both Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest and Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the Angeles National Forest for additional information regarding impacts to wells and correlating mitigation measures and IAMFs.

Regarding potential loss of property values, please refer to Standard Response PB-Response-SOCIO-2: Property Values.

Regarding the water demand from construction of the project, please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

4490-8985

The commenter notes that construction activities will result in potential effects to local and regional roads due to truck trips. Section 3.3, Air Quality and Global Climate Change and Section 3.4, Noise and Vibration provide details assessments of air quality, noise and vibration effects of construction activities. Depending upon the Build Alternative, different construction staging areas would be used; as such, construction-related impacts would not occur at all of these locations, only those for the selected Build Alternative. Impact TRA#4, in Section 3.2.6.3, presents the spoils hauling effects on freeway segments. To address the effects of spoils hauling, TR-IAMF#2, TR-IAMF#6, and TR-IAMF#7 would be implemented. In addition, the mitigation program, especially TR-MM#12, would reduce impacts associated with haul route traffic, including the scheduling of a majority of travel during off-peak hours, stationing traffic control officers, developing alternative routes to reduce trucks on sensitive facilities, and developing and implementing an outreach program. More information on the IAMFs and Mitigation Measures can be found at in Appendix 2-E, Section 3.2.4.2 and Section 3.2.7 of the Final EIR/EIS.

Response to Submission 4490 (William R. Slocum, Kagel Canyon Civic Association, December 1, 2022) - Continued

4490-8986

Refer to Standard Response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife, PB-Response-BIO-3: Wildlife Movement Corridors, PB-Response-S&S-1: Wildfire.

The commenter expresses concern regarding the surface impacts within the Angeles National Forest (ANF) from adding buildings, roads, and power lines, as well as tunnel portals. The commenter also expresses concern regarding impacts on the Pacific Crest Trail, Rim of the Valley Trail, and wilderness areas, as well as impacts on wildlife during construction. Additionally, the commenter expresses concern regarding new fire risks.

As discussed in Section 3.15, Parks, Recreation, and Open Space, of the Final EIR/EIS, 28 acres of the ANF and the SGMNM would temporarily be used as a construction staging area the Refined SR14 and SR14A Build Alternatives. It is noted that land around the Vulcan Mine, which is not a recreation or open space resource, would be used for disposal of construction spoils for the Refined SR14 and SR14A Build Alternatives; the Authority is conducting ongoing coordination with USFS regarding acquisition of land and spoils disposal within Vulcan Mine. Approximately 38 acres of the ANF, including the SGMNM, would be used under the E1 and E1A Build Alternatives for construction near Aliso Canyon Road; this area of the resource is available for recreational uses as open space but does not have developed recreational facilities such as campgrounds, trails, or picnic areas. Under the E2 and E2A Build Alternatives, approximately 38 acres of the ANF, including the SGMNM, would be used for construction near Aliso Canyon Road and/or BP and L Road; no recreation resources would be affected by this construction. The total use of land under all six Build Alternatives would represent less than 0.01 percent of the ANF. Although the project would be built beneath the ANF, including the SGMNM, in tunnels, some construction activities would take place at the surface within the ANF, including the SGMNM. Refer to Section 2.5.4 for a full description of construction activities within the ANF, including the SGMNM, for each of the Build Alternatives.

Construction of the Build Alternatives could result in temporary access, noise, vibration, air quality, and visual changes within the ANF. During construction, access to the temporary construction area within the ANF, including the SGMNM, would be restricted. However, the temporary impact areas would be located entirely within private in-

4490-8986

holdings and the Vulcan Mine, which is not open to the public and does not serve a recreational purpose. Within the ANF, including the SGMNM, tunnel construction would not result in noise or vibration impacts at the surface due to the depths of the proposed tunnels beneath the surface of the ANF. Some portions of the Build Alternative alignments would entail surface construction activities (e.g., portals and construction of adits) within and immediately adjacent to the ANF, including the SGMNM. Surface construction activities within and adjacent to the ANF, including the SGMNM, would result in perceptible noise and vibration effects during construction activities. However, no noise- and vibration-sensitive receivers would be affected, as no designated recreational areas (e.g., trails and campgrounds) occur in or near the construction activities. Visitors to the ANF, including the SGMNM, would have unobstructed views of the construction activities taking place at the adits within the ANF. Construction staging areas would introduce major visual changes to the immediate surroundings. However, these impacts would be temporary and disturbed areas would be restored after completion of construction.

Regarding the effects of the Build Alternatives on the Pacific Crest Trail, Rim of the Valley Trail, wilderness areas, and wildlife, please see response to comment #8973. Also refer to Standard Responses PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife and PB-Response-BIO-3: Wildlife Movement Corridors regarding wildlife impacts.

Regarding how the new infrastructure and construction activity will introduce new fire hazards in the ANF, Impact S&S#16: Temporary and Permanent Exposure to Wildfire Hazards discussed in Chapter 3.11, Safety and Security, discusses where the Build Alternatives would traverse Fire Hazard Severity Zones (FHSZs) throughout urban and rural portions of the RSA. The following above-ground HSR facilities would encounter FHSZs (mapped on Figure 3.11-4 in the FEIR/EIS):(1) Refined SR14, SR14A, E1, E1A, E2, and E2A surface trackway and ancillary facilities south of Palmdale; (2) Refined SR14 surface trackway and ancillary facilities between Acton and Agua Dulce and in the Soledad Canyon/Vulcan Mine area of the ANF, including SGMNM; (3) SR14A surface trackway and ancillary facilities between 0.75 mile east of Agua Dulce Canyon Road and the Soledad/Canyon/Vulcan Mine area of the ANF, including SGMNM; (4) E1, E1A, E2, and E2A tunnel portal and ancillary facilities near Angeles Forest Highway and in Aliso

Response to Submission 4490 (William R. Slocum, Kagel Canyon Civic Association, December 1, 2022) - Continued

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Canyon; (5) Refined SR14/SR14A, E1/E1A, and E2/E2A optional adit facilities within the ANF along Little Tujunga Canyon Road (described further in Section 3.11.10); (6) Refined SR14/SR14A adit options SR14-A2 and SR14-A3, located south of Pacoima Dam; (7) Refined SR14, SR14A, E1, and E1A Build Alternative intermediate window options near the State Route 118/Interstate 210 interchange; and (8) The E2 and E2A tunnel portal and alignment near Pacoima and Lake View Terrace. Table 3.11-16 in the FEIR/EIS summarizes the permanent surface footprint of the Build Alternatives in Very High FHSZs for state responsibility areas within the ANF. Some permanent facilities would be located within the ANF in Very High FHSZs. Most notably, a portion of the Refined SR14 Build Alternative improvements located near the Vulcan Mine would be in a Very High FHSZs. Other above-ground facilities for each of the Build Alternatives (including utility lines, roadway modifications, and adit buildings associated with optional adits near Little Tujunga Canyon Road) would also be in Very High FHSZs within the ANF. Within the ANF, project construction could increase fire risks due to the storage and use of flammable and combustible materials, operation of vehicles and heavy machinery, or other factors resulting from human activity. During project operations, HSR trains would not create fire hazards; trains would be electric and would not carry flammable fuel or freight, and trainsets would reduce fire risks from sparks caused by the friction of wheels against the wheels since they would be contained within the right-of-way as a basic design feature of the California HSR System. Permanent HSR infrastructure within FHSZs would include traction power substations, adit structures, water utility corridors, access roads, switching and paralleling stations, and electrical interconnections. The presence of adit structures and water utility corridors would not pose a fire risk because they would not contain flammable materials. Additionally, HSR infrastructure would be co-located with existing infrastructure of a similar nature and located in disturbed areas where possible, in order to reduce wildfire risks. However, cars and trucks driving on new access roads and the presence of electrical facilities could increase fire risks. For example, if damaged, electrical facilities could create sparking or arcing. The project design includes fire warning systems, as well as emergency exits and notification systems, consistent with the requirements of the NFPA Safety Code including NFPA Standard 130: Standard for Fixed Guideway Transit and Passenger Rail Systems, the California Building Standards Code, and the International Building Code. Fire risks would be minimized or avoided through the application of SS-IAMF#1 and SS-IAMF#2, which will require the development and incorporation of a fire

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and life safety program into the design and construction of the Palmdale to Burbank Project Section. The fire and life safety program is coordinated with local emergency response organizations to provide them with an understanding of the rail system, facilities, and operations, and to obtain their input for modifications to emergency response operations and facilities, such as evacuation routes. Fire risks would also be reduced by the Authority's formation of a statewide Fire and Life Safety and Security Committee (FLSSC) through implementation of SS-IAMF#2, which will be composed of representatives from fire, police, and local building code agencies. The purpose of the FLSSC will be to review issues that are critical to fire and life safety and security, to acquire input and concurrence from the state and local authorities having jurisdiction over the proposed designs to meet code requirements, and to comply with state and local fire code standards or fire and life safety hazard programs during the design phase of the project. The fire and life safety program will include regional FLSSCs who will focus on the fire and life safety characteristics specific to the Palmdale to Burbank Project Section and provide input on local building codes or requirements that align with the emergency response characteristics and capabilities of the local agencies for the Palmdale to Burbank Project Section. Representation and operations of the statewide FLSSC and regional FLSSCs will be coordinated with local emergency response organizations to provide an understanding of the California HSR System and its facilities and operations, and to obtain their input for modifications to emergency response operations and facilities. These programs and coordination activities would allow for a rapid response by local emergency responders in the case of an accident, reducing the potential for uncontrolled wildfire events.

Response to Submission 4490 (William R. Slocum, Kagel Canyon Civic Association, December 1, 2022) - Continued

4490-8987

Refer to Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events.

The commenter expresses concerns that the HSR Palmdale to Burbank Section would trigger a fault zone and asks about technical evaluations that have been conducted. Although excavation and tunneling activities associated with HSR construction of the SR14A and E1 alternatives would occur in the seismically active Kagel Canyon, these construction activities would not be capable of triggering tectonic displacement that would result in an earthquake. Earthquakes in California originate through the release of stress deep in the earth (approximately 6 to 15 kilometers below ground). Stress release displacement radiates out from that origin (i.e., hypocenter) along an active fault plane. Tunnel construction activities are far too shallow (less than 1 kilometer) and take place in too small of an area to influence or trigger tectonic displacement as deep as typical hypocenters in California.

The Authority has conducted a preliminary geotechnical assessment in support of the project design and EIR/EIS process to assess tunnel feasibility and potential impacts related to seismicity (Preliminary Geotechnical Data Report for Tunnel Feasibility, Angeles National Forest, 2017). In addition, the Authority has identified several Impact Avoidance and Minimization Features (IAMFs) as part of the project design that would ensure there would be no significant impacts related to seismicity. For additional information about the technical evaluation that the Authority conducted and the IAMFs that will be implemented, please refer to Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events.

4490-8988

The commenter projects that the project will generate more greenhouse gases than the project will save "in 70 years of operation." The Authority has calculated the payback of Greenhouse Gas (GHG) Emissions for the six Build Alternatives at 4 to 6 months of project operation (Draft EIR/EIS Table 3.3-44). In other words, the Authority predicts it would take between 4 to 6 months of operation of the Palmdale to Burbank Project Section to offset construction-related GHG emissions, not 70 years. After that, the project will produce net benefits by reducing greenhouse gas emissions (Draft EIR/EIS, page 3.3-126). As discussed in Section 3.3.7, mitigation measures are included to offset and significantly lessen impacts associated with construction air emissions, via agreements with the applicable air districts (see AQ-MM#1 to AQ-MM#3). The purchase of offsets is an established and acceptable method to mitigate project impacts. See CEQA Guidelines section 15126.4(c)(3). As applied here, these offsets meet all the requirements for feasible mitigation included in CEQA Guidelines Section 15126.4. It is anticipated that agreements will be in place with each applicable air district to ensure that offset credits or other mechanisms account for the project's construction emissions.

4490-8989

Refer to Standard Response PB-Response-AVQ-1: Impacts to Scenic Vistas and Scenic Drives, PB-Response-AVQ-2: Visual Effects on Big Tujunga Wash, PB-Response-AVQ-3: Effects on Visual Quality during Construction.

The commentor is concerned about the visual effects of the Project staging areas and portals on Scenic corridors and the Big Tujunga Wash area. These topics are discussed in PB-Response-AVQ-1, PB-Response-AVQ-2, and PB-Response-AVQ-3.

Response to Submission 4490 (William R. Slocum, Kagel Canyon Civic Association, December 1, 2022) - Continued

4490-8990

Refer to Standard Response PB-Response-GEN-2: Project Costs and Funding, PB-Response-GEN-4: General Opinions, Opposition or Support, PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events, PB-Response-SOCIO-1: Parcel Acquisitions and Relocations.

The commenter expressed concerns related to the finalization of the project design that will occur after the project is approved since additional seismic investigation would be required post-approval. THe commenter is also concerned with the cost of the HSR Palmdale to Burbank Project Section and the displacement of local businesses.

General opposition to the HSR Palmdale to Burbank Project Section is addressed in Standard Response PB-Response-GEN-4: General Opinions, Opposition or Support. While the commenter cites cost, unknown seismic information, and local displacement as the reasons for their opposition to the project, there would be many offsetting benefits within the communities within the HSR Palmdale to Burbank Project Section footprint. These include regional and statewide improvements in LOS and VMT metrics, improvements in regional air quality and health risks, reductions in vehicular, cycling and pedestrian accidents, economic revitalization, and the generation of 80,000 to 85,000 construction jobs and 5,400 permanent jobs. Regarding the cost and funding of the HSR Palmdale to Burbank Project Section, refer to Standard Response PB-Response-GEN-2: Project Costs and Funding. Please also refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations for the Authority's response to concerns about displacement of businesses, which discusses SOCIO-IAMF#2 (Compliance with Uniform Relocation Assistance and Real Property Acquisition Policies Act) that will provide relocation assistance to persons and the owners/occupants of said properties displaced by the Build Alternative in compliance with the Uniform Act. Regarding the current design level and future seismic investigations, CEQA and NEPA both allow for design of the project to be conducted concurrent with environmental review. For instance, CEQA Guidelines section 15004(b) states that “Choosing the precise time for CEQA compliance involves a balancing of competing factors. EIRs and negative declarations should be prepared as early as feasible in the planning process to enable environmental considerations to influence project program and design and yet late enough to provide meaningful information for environmental assessment.” The level of design and information about the seismic conditions in the project area are sufficient for

4490-8990

understanding the impacts of the project (see CEQA Guidelines section 15124, CEQA Guidelines section 15125(a), 40 CFR section 1502.15). The EIR/EIS adequately evaluates seismicity-related impacts, as discussed in Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events, and the information known about the project design and seismic conditions are sufficient.

Submission 4492 (Kat Selm, The Nature Conservancy, December 1, 2022)

Palmdale - Burbank - RECORD #4492 DETAIL

Status :	Ready for Delimiting
Record Date :	12/2/2022
Interest As :	Business and/or Organization
First Name :	Kat
Last Name :	Selm
Attachments :	PalmdaleBurbankArrastre_TNC_Comments.pdf (1 mb)

Stakeholder Comments/Issues :

To whom it may concern,

Please find attached comments from The Nature Conservancy regarding the Draft EIR for the Palmdale to Burbank Section of the CA High-Speed Rail project. We appreciate this opportunity to comment, and do not hesitate to reach out for any clarification or further discussion.

Thank you for your consideration,

Kat Selm
Stewardship Associate
Santa Clara River and Coast
1094 E Main St., Ventura, CA 93001
c: (828) 430-0758
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[signature_3705459364]<https://www.facebook.com/natureconservancycalifornia>[signature_2786482819]<https://www.instagram.com/ca_conserve/> [signature_434761446] <https://twitter.com/Conserve_CA> [signature_3537792777] <https://www.youtube.com/c/ConservecaOrg/featured> [signature_473756412] <https://www.linkedin.com/company/the-nature-conservancy> [Icon Description automatically generated] <http://www.nature.org/california>
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The Nature Conservancy
Protecting nature. Preserving life.

Santa Clara River and Coast
1094 E. Main St.
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tel (805) 258-7202
web nature.org/california

Attn: Palmdale to Burbank Project Section Draft EIR/EIS Comment
Southern California Regional Office
355 S. Grand Avenue, Suite 2050
Los Angeles, CA 90071

Date:
Re: Comments on Draft Environmental Impact Review for Palmdale to Burbank Segment

The Nature Conservancy (TNC) is a science-based organization that works throughout the world to identify conservation solutions that protect both people and nature. In California, we have worked together with multiple agencies and partners to protect over 1.5 million acres of land and 3.8 million acres of sea floor. In the Santa Clara River valley, which is the focus of this environmental review document and our comments, TNC has worked with partners for over 20 years including the Wildlife Conservation Board, California State Coastal Conservancy, California Department of Fish and Wildlife and other State and Federal Agencies to protect over 4,000 acres and 21 river miles of vital habitat and we continue to focus on this location to protect multiple plant and animal species as well as their movement pathways, in perpetuity. High Speed Rail implementation in this location has the potential to impact wildlife connectivity and the headwaters of the Santa Clara River at Arrastre Canyon in Acton and, therefore, the valued biodiversity of this region, our shared water resources, as well as the public's access and enjoyment to this great resource.

TNC thanks the California High-Speed Rail Authority (CHSRA) for providing a platform for us to comment on the Draft Environmental Impact Review (DEIR), and thanks the authorities' engineers for meeting with TNC staff and stakeholders to discuss this segment's potential impacts to TNC's Arrastre Canyon property and the area's natural resources. We value this opportunity to provide feedback on key sections of the DEIR. Please find below an overview on the significance of the Santa Clara River headwaters importance to multiple species, as well as our comments on the Draft EIR and our recommendations and preferences for the Palmdale to Burbank section of the HSR.

Overview of Santa Clara River and Headwaters Regional Significance related to Alternatives E1, E1A, E2 and E2A:

The Santa Clara River has been identified as a critically important conservation landscape based on a multitude of factors. These include the region's high levels of biodiversity and habitat integrity, its intact connection between two major mountain systems, its potential to support rapid climate change adaptation, its status as the largest river system in southern California that remains in a relatively natural state, and its provision of drinking and irrigation water to hundreds of thousands of users in LA and Ventura Counties[1,2,3]. From the estuary to the upper watershed, the Santa Clara River provides a

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4492-9897

diversity of habitats supporting 18 threatened or endangered species including riparian dependent bird species, terrestrial wildlife, anadromous fish and rare plants[4].

4492-9898

Impacts of Alternative E1, E1A, E2 and E2A on TNC's Arrastre Canyon Property

Alternatives E1, E1A, E2 and E2A will result in permanent impacts to TNC's Arrastre Canyon property through the construction and long-term operation of the Acton Window and associated paved access roads. These impacts are summarized below.

4492-9899

Biological Resources:

TNC's Arrastre Canyon property lies at the headwaters of the Santa Clara River. It supports good quality habitat for species listed under the federal Endangered Species Act (ESA), such as California red-legged frog (*Rana draytonii),* least Bell's vireo (*Vireo bellii pusillus),* arroyo toad (*Anaxyrus californicus).* Additionally, an extant population of unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni)* occurs less than 1,000 yards downstream. The following species are present on TNC's Arrastre Canyon property, southwestern willow flycatcher (*Empidonax traillii extimus;* federally endangered), California androsace *(Androsace elongate* subsp. *Acuta),* and Lemmon's syntrichopappus (*Syntrichopappus lemmonii*).

Additionally, Arrastre Canyon contains a large, intact, and healthy riparian forest with perennially flowing surface water and a shallow surface to groundwater connection. Freshwater streams are some of the most threatened in the world[5] and headwater streams contribute largely to the overall health of river system by regulating sediment export, retaining nutrients, processing organic matter, and can act as refugia for species during specific life-history stages[6]. Avoidance of this vital resource should be a priority.

4492-9900

Parks and Recreation:

In the time since CHSRA adopted the alternatives in the Palmdale to Burbank section, TNC has been negotiating and has nearly finalized a land use agreement with the County of Los Angeles Department of Parks and Recreation (LADPR) for the maintenance and management of a public access trail through TNC property at Arrastre Canyon and connecting to the Angeles National Forest. Public access for equestrians and hikers through TNC Arrastre Canyon ownership will begin in early 2023 and will be managed by LADPR. The trail has local significance as it is included in the Los Angeles County Antelope Valley Area Plan, as shown in attachment A.

According to Section 4(f) of the United States Department of Transportation Act (23 United States Code [U.S.C.] 138 and 49 U.S.C. 303) Section 4(f) of the U.S. Department of Transportation Act, "It is the policy of the United States government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." It further specifies that the Secretary may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if (1) there is no prudent and feasible

4492-9900

alternative to using that land and (2) the program or project includes all possible planning to minimize harm to the Section 4(f) property resulting from the use.

Although the land itself is not in the public trust, a public entity has interest in this property and the public's access to it, additionally this property was purchased with public funding from the federal government (United States Fish and Wildlife Service (USFWS) Section 6 Program) and the State of California (Wildlife Conservation Board). The Section 6 funding has specific land use restrictions tied to that funding.

4492-9901

Noise and Vibration:

The following is taken from section 3.4.5.5. "The Authority reviewed trails, parks, wildlife refuges, and other public recreation areas where wild animals and domestic animals such as horses are likely to be present within 50 feet of the alignment centerline. This review screened for public recreation areas and trails that permit equestrian activities and/or have equestrian facilities, such as riding stables. The following public recreation areas were identified within 50 feet of the alignment centerline where rapid onset of HSR noise...would have the potential to startle domestic animals (horses) or wildlife:

- Pacific Crest Trail (Refined SR14 Build Alternative only)
- Vasquez Rocks Natural Area Park (Refined SR14 and SR14A Build Alternatives only)
- Hansen Dam Recreation area (E2 and E2A Build Alternatives only)
- Stonehurst Park and Recreation Center (E2 and E2A Build Alternatives only)"

As described above in the Parks, Recreation, and Open Space section, TNC and LADPR will be managing public access for equestrians and hikers through TNC's Arrastre Canyon property, and therefore it's preclusion in the above list of public access locations in the *Noise Environment for Domestic Animals and Wildlife* section is an oversight. Although the authority had no way of knowing at the time of drafting this EIR, we are informing the authority now for the correction.

4492-9902

Utilities:

Sheets UT-C4031- E2, UT-C4032-E2, and UT-C4543-E2 through UT-C4547-ET establish that CHSRA plans to install two 16-inch water mains along Arrastre Canyon Road in Acton to supply water for the tunnel boring machines (TBMs) operating at the window that will be constructed for Routes E1, E1A, E2 and E2A; however, according to local experts, these water lines do not connect to Antelope Valley-East Kern Water Agency (AVEK) (pers. comm.). Instead, they originate at the intersection of Crown Valley Road and Arrastre Canyon Road adjacent to the Santa Clara River 10 floodplain, which may suggest the use of groundwater for these purposes. Should this be the case, the draft fails to consider the adverse environmental impacts to local residential well yields, riparian habitat, and vernal pools that will result from extracting from the Santa Clara River. CHSRA is advised that many domestic well yields in Acton have been reduced because of persistent drought conditions, thus extracting even more groundwater from the river will further exacerbate these problems. This constitutes a significant environmental impact.

Submission 4492 (Kat Selm, The Nature Conservancy, December 1, 2022) - Continued

4492-9903

Page 3.6-77 presents conclusions regarding water supply impacts created by the Project, and it suggests that CHSRA appears to understand that AVEK does not reliably receive water allocations from the State Water Project and may not have water resources sufficient to serve CHSRA's construction needs (particularly during "dry years") because it states "the impact from construction water demand is conservatively assumed to result in a significant impact under CEQA" (page 3.6-77). However, the primary mitigation measure that is identified to address this impact is to simply secure additional water allocations for AVEK that will come from the State Water Project and will be paid for by CHSRA. This mitigation measure (referred to as PUE MM#1) is infeasible as State Water Project allocations are restricted by State Law and are based on extant environmental circumstances in the Sacramento Delta; thus, it is impossible for CHSRA to unilaterally obtain "allocations for additional water supply" from the State Water Project.

4492-9904

TNC would like to see a more realistic approach to utilities that addresses the correct connections to AVEK, and fully explores the feasibility of increased allocations from the State Water Project, and if groundwater is required for supplement, the full environmental impact of this use should be addressed. In addition, for the portion of the Palmdale to Burbank section that goes through TNC's ownership at Arrastre Canyon for Routes E1, E1A, E2 and E2A, TNC would like to impress upon CHSRA the importance of undergrounding any utility lines required, such as those shown in Utility Relocation Plan DRAWING NO. UT-C4031-E1, which shows new utilities required for the Arrastre Canyon section as overhead. This is a very high fire hazard severity zone according to Cal Fire[6] and any new utilities should be undergrounded to protect the area from wildfire risk.

4492-9905

Cultural Resources:

Cultural resources have been found in the Arrastre Canyon area by previous owners of the parcel, see figure 1 below. According to Figure 3.17-4 Cultural Resources within the Area of Potential Effects (APE) (Map 4 of 7), the project footprint on TNC property does include an archaeological APE. These resources should therefore be avoided and protected in place.



Figure 1. Photo from Kent Strumpell, previous owner of TNC's parcels at Arrastre Canyon.

4492-9906

Tunnel Construction and Long-Term Operation:

To avoid impacts to intact protected natural lands, TNC requests that all tunneling should be completed using the boring machine rather than digging from the surface as currently proposed under Alternatives E1, E1A, E2 and E2A on TNC's Arrastre Canyon property and adjacent US Forest Service lands (Acton Window). In addition to impacts associated with habitat loss from window construction and operation, the construction and operation of permanent paved access roads through the TNC property to the window facility are anticipated to bring long term un-mitigatable impacts, including runoff, erosion, small wildlife mortality, and disruption of planned recreational uses.

Because of the importance of TNC's Arrastre Canyon property to the functioning of the Santa Clara River and its value as planned recreational open space, we strongly recommend that Alternatives E1, E1A, E2 and E2A be abandoned and that the authority move ahead with Alternative SR14A.

4492-9907

Comments for All Alternatives

Mitigation

TNC is concerned that determinations on mitigation will be made after the DEIR is finalized. The timing of such actions removes an important component of both NEPA and CEQA, the requirement for public participation in the process. TNC believes that the mitigation determinations should be made with input and feedback from conservation organizations and local stakeholders with detailed knowledge of the challenges and opportunities present in the project area. As proposed in the DEIR, all of the specific mitigation requirements will be determined by regulatory agencies after the public-facing environmental review process has concluded. Similarly, all compensatory mitigation plans will be developed with a lack of transparency that potentially misses out on information that local organizations can provide and does not seem appropriate for such a large public project in an extremely sensitive area.

For example, the two rare plant species at TNC's Arrastre Canyon property California androsace *(Androsace elongate* subsp. *Acuta)*, and Lemmon's syntrichopappus (*Syntrichopappus lemmonii*) are both annual species that rely on specific habitat conditions and large seed banks. According to experts at the California Botanic Garden, transplanting and seeding of annuals such as these two species is usually not successful. Their recommendation would be to collect and store seeds separately from each mother plant to produce more seed in the nursery from each (pers. comm.) BIO-MM#6 would benefit from local experts such as this in developing the restoration and revegetation plan for species with such specific niches, in distinct soil types, with short growing seasons, and that are dependent on large seed banks.

This type of expert guidance is critical in making appropriate mitigation decisions. TNC suggests that all mitigation requirements and plans should be subject to a public comment period and that all comments should be addressed. TNC suggests that independent committees of local experts in restoration, plant ecology, and native plant propagation with relevant experience should be created to review and approve all mitigation requirements (ratios, locations, and success criteria) and compensatory mitigation plans to ensure impacts are adequately offset to support the DEIR findings that impacts are less than significant.

Submission 4492 (Kat Selm, The Nature Conservancy, December 1, 2022) - Continued

4492-9908

Wildlife Connectivity Mitigation

TNC supports Santa Monica Mountains Conservancy's (SMMC) wildlife connectivity mitigation recommendations put forth in their comment letter to the authority dated October 17, 2022. Specifically, TNC agrees that the SR14A Build Alternative should incorporate wildlife connectivity mitigation to offset associated impacts of at grade segments of HSR in the Santa Clara River valley. HSR presents yet another barrier to connectivity in addition to the existing SR 14 and rail line between the San Gabriel and Sierra Pelona Mountain Ranges in the San Gabriel-Castaic Connection. HSR must not preclude wildlife crossing recommendations put forth in A Linkage Design for the San Gabriel-Castaic Connection prepared by SC Wildlands in 2004. Thus, TNC supports SMMC recommended mitigation to secure land and construct new wildlife undercrossings for both SR 14 and the closely associated Soledad Canyon Road between Spring and Bee Canyons. In addition, TNC recommends that the all at-grade and elevated portions of the HSR within the San Gabriel-Castaic Connection incorporate noise and light barriers to reduce impacts to wildlife and wildlife movement. TNC strongly recommend that the authority work closely with SMMC and Mountains Recreation and Conservation Authority to develop the recommended mitigation measures put forth in the SMMC comment letter to ensure that habitat connectivity is protected and restored in the San Gabriel-Castaic Connection.

4492-9909

Conclusion

It is our hope that CHSRA will incorporate our recommendations for public input on mitigation, adopts the recommendations put forth by SMMC, and moves ahead with alternative SR14A, avoiding Arrastre Canyon and its sensitive natural and cultural resources and importance to nearby recreationists.

We thank you for giving us this opportunity to comment on the Draft EIR for the Palmdale to Burbank section of the High-Speed Rail.

Sincerely,

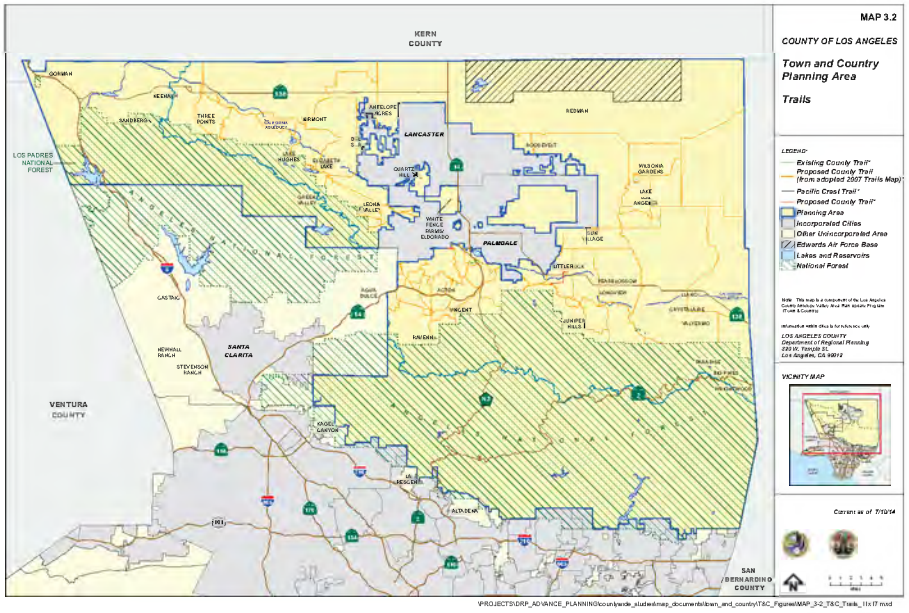
Kat Selm

Kat Selm
The Nature Conservancy
Stewardship Associate
Santa Clara River and Coast

Citations

1. Birosik, S. (2006). (rep.). *STATE OF THE WATERSHED – Report on Surface Water Quality The Santa Clara River Watershed*. Los Angeles, CA: California Regional Water Quality Control Board – Los Angeles Region.
2. Parker, S. S., Remson, E. J., & Verdone, L. N. (2014). Restoring conservation nodes to enhance biodiversity and ecosystem function along the Santa Clara River. *Ecological Restoration*, *32*(1), 6-8.
3. Stillwater Sciences. (2011). Santa Clara River Parkway: Strategic Plan for Arundo Treatment and Post-Treatment Revegetation. Prepared for the California Coastal Conservancy. 38 pgs.
4. The Nature Conservancy (2008). Conservation Plan for the Lower Santa Clara River Watershed and Surrounding Areas.
5. Saunders, D. L., Meeuwig, J. J., & Vincent, A. C. (2002). Freshwater protected areas: strategies for conservation. *Conservation Biology*, *16*(1), 30-41.
5. Lowe, W. H., & Likens, G. E. (2005). Moving headwater streams to the head of the class. *BioScience*, *55*(3), 196-197. FHSZ viewer. (n.d.). Retrieved November 21, 2022, from
6. FHSZ viewer. (n.d.). Retrieved November 21, 2022, from https://egis.fire.ca.gov/FHSZ/

Submission 4492 (Kat Selm, The Nature Conservancy, December 1, 2022) - Continued



Response to Submission 4492 (Kat Selm, The Nature Conservancy, December 1, 2022)

4492-9896

The commenter, The Nature Conservancy, refers to a comment letter that provides an overview of the significance of the Santa Clara River headwaters' importance to multiple species, comments on the Draft EIR, and recommendations and preferences for the HSR project. Comment noted. Thank you for your comment.

4492-9897

Refer to Standard Response PB-Response-GEN-6: Impacts on the Santa Clara River.

The commenter notes the importance of the Santa Clara River as a conservation landscape and source of drinking and irrigation water for LA and Ventura. Please see PB-Response-GEN-6: Impacts on the Santa Clara River.

4492-9898

The commenter states that Alternatives E1, E1A, and E2A will result in permanent impacts to The Nature Conservancy's property within Arrastre Canyon, which they summarize in their following comments. Responses to these comments are provided below in Response to Comment #s 9899-9908. Please note that project-related construction and permanent facilities in Arrastre Canyon would be associated with the E1/E1A, E2/E2A Build Alternatives. The Authority's Preferred Alternative (SR14A Build Alternative) does not include any project construction or permanent facilities in Arrastre Canyon, and therefore, would avoid the impacts that are the concern of the commenter.

4492-9899

The commenter explains that their property in Arrastre Canyon contains habitat for several endangered species which is correct. And that this property contains healthy riparian forested areas and the importance of these habitats in supporting refugia for various species during specific life-history stages, which is also correct. Build Alternatives E1, E1A, E2, and E2A would include above-ground construction footprint in this area which would result in some impacts to the resources cited by the commenter. The Final EIR/EIS does include various IAMFs and MMs to reduce and off-set such impacts. However, the Authority's Preferred Alternative, SR14A, avoids the need for surface construction footprint in Arrastre Canyon altogether, thereby avoiding impacts to the specific habitat and resources cited by the commenter as present on their property in Arrastre Canyon.

Response to Submission 4492 (Kat Selm, The Nature Conservancy, December 1, 2022) - Continued

4492-9900

The comment pertains to potential impacts to an area in Arrastre Canyon that is being considered for public access and recreation. The commenter is referencing the proposed extension of the Acton Community Trail, which is discussed as a Section 4(f) resource in the Draft and Final EIR/EIS. For the Section 4(f) analysis for the proposed Acton Community Trail extension, refer to pages 4-71 to 4-73 of the Draft EIR/EIS.

The Acton Community Trail and proposed trail extensions are outside the limits of the nearest permanent project improvements for the Refined SR14 and SR14A Build Alternatives, and the Refined SR14 and SR14A Build Alternatives would not result in use of this resource. The E1, E1A, E2, and E2A Build Alternatives would require temporary construction easements that would conflict with an approximately 0.25-mile segment of the proposed Acton Community Trail extension near Vincent View Road, and a 0.5-mile segment of the trail along Arrastre Canyon Road. If the proposed trail extension is operational at the time of project construction, access to the trail in these areas would be temporarily restricted. Ultimately, the construction of traction power facilities (electrical lines) would require the permanent acquisition of an approximately 150-foot segment of the proposed Acton Community Trail extension. However, once constructed, the trail will be able to pass underneath the electrical lines.

The project would also require construction of water conveyance facilities (pipeline) across the trail alignment near Carson Mesa Road. Where the trail alignment follows Aliso Canyon Road, Crown Valley Road, and Arrastre Canyon Road, the project would also construct water lines along this same route, which could temporarily affect trail use. However, these water lines would be placed underground, thereby not impairing the use of the trail once installed. As a result of installation of the water and electrical lines, no adverse effect would occur to the trail's protected activities, features, or attributes under the E1, E1A, E2, and E2A Build Alternatives.

Implementation of PR-MM#6 will return temporarily acquired land to the property owners after construction. In addition, implementation of PR-MM#7 and PR-MM#9 will require the Authority to consult with property owners and public agencies for the acquisition or easement of private and public lands. Compensation, replacement, or enhancement would be granted as deemed necessary. These mitigation measures would ensure that each resource acquired would be accessible during construction. As a result, the

4492-9900

Authority has preliminarily concluded that the permanent use of the trail and trail realignment would constitute a de minimis impact because the features and attributes that qualify the resource for protection under Section 4(f), including its purpose as a contiguous recreational hiking trail, would not be diminished under the E1, E1A, E2, and E2A Build Alternatives.

The existing trail intersects with and runs parallel to existing transportation corridors along its alignment, including Metrolink. Trail connectivity would be maintained with implementation of the E1, E1A, E2, and E2A Build Alternatives. Therefore, the Authority has preliminarily concluded that the E1, E1A, E2, and E2A Build Alternatives would result in a de minimis impact as defined by 49 U.S.C. 303(d). This preliminary determination is subject to concurrence by the official with jurisdiction for this resource (Los Angeles County Department of Parks and Recreation).

According to the Authority's knowledge based on the information available on the LA County Department of Parks and Recreation website, as of December 2023, the Acton Community Trail proposed extension has not been constructed. The commenter also states that the land was purchased using monies from the federal Section 6 program. It is assumed that the commenter is referring to the Section 6(f) Land and Water Conservation Fund (LWCF) Area's program. As discussed in Section 4.10, Section 6(f) Analysis of the Final EIR/EIS, a thorough investigation of the properties in the Palmdale to Burbank Project Section determined that there were no properties that were acquired using monies from the LWCF program to develop recreational resources within the Section 4(f) RSA and therefore, the land use restrictions specified in that program would not be applicable to the HSR project and no further analysis of potential conversion of Section 6(f) resources is needed.

Response to Submission 4492 (Kat Selm, The Nature Conservancy, December 1, 2022) - Continued

4492-9901

Refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The comment pertains to potential noise impacts to Arrastre Canyon. As discussed in Section 3.4, noise and vibration impact mitigation measures would be employed for sensitive receptors within 1,000 feet of the HSR alignment centerline. The Arrastre Canyon Trail is located well beyond 1,000 feet from any HSR alignment centerline; therefore, it would not be impacted by noise and vibration from HSR operation. Additionally, please refer to PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife, which addresses impacts to horses.

In addition, the Authority has identified the SR14A Build Alternative to be the preferred build alternative. The SR14A Build Alternative does not cross or pass near the Arrastre Canyon property. Therefore, under this alternative, there would be no noise and vibration related impacts to the Arrastre Canyon Trail.

4492-9902

The commenter indicates that the 16-inch water mains shown on Draft EIR/EIS Volume 3 Drawings UT-C4031-E2, UT-C4032-E2 and UT-C4543-E2 thru UT-C4547-E2 do not connect to AVEK. The commenter also expresses concern that given the location of these mains, groundwater could potentially be used as a water source during construction, and that use of groundwater wells is not evaluated for this location.

Plans are based on information provided by the utility providers. PUE-MM#1 (described in Section 3.6.7 of the Draft EIR/EIS) will require the Authority to prepare an updated water supply analysis for the selected Build Alternative that details and describes the minimum adequate water supply based on a more detailed project design. Based on the results of the water supply analysis, the Authority will coordinate with the water agencies to determine if allocations for additional water supply are needed and would pay the water agencies its fair share of the State Water Project fees. Additionally, PUE-MM#1 will require the Authority to utilize non-potable water from regional water utility service providers for construction activities where feasible, as well as recycling/reusing water used for tunnel construction, further minimizing demand for water supplies. As stated in Standard Response PB-Response-PUE-3: Water Demand and Usage, the sources of water for the Project could be a combination of potentially numerous potable and recycled water suppliers. As such, the Authority would not directly use groundwater. No water will be extracted from the Santa Clara River. Water used during construction activities would be obtained from existing permitted commercial sources in the cities of Palmdale, Santa Clarita, Burbank and Los Angeles, as well as in unincorporated Los Angeles County.

4492-9903

The commenter expresses concern for the feasibility of Mitigation Measure PUE-MM#1 in Section 3.6 of the Draft EIR/EIS. Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which provides additional information about water supplies for the project, including the Authority's consideration of additional water sources beyond AVEK and why implementation of Mitigation Measure PUE-MM#1 is feasible.

Response to Submission 4492 (Kat Selm, The Nature Conservancy, December 1, 2022) - Continued

4492-9904

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter identifies that they would like to see the Authority address connections to AVEK, to fully explore the possibility of increased allocations from the State Water Project, and to evaluate the full environmental impacts if groundwater would be required; requests that any utility lines that cross land under TBC ownership in Arrastre Canyon for the E1, E1A, E2, and E2A Build Alternatives be installed underground; and identifies concerns about wildfire due to overhead utility lines.

Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, for concerns related to water supply, including supplemental water for groundwater-related impacts. Standard Response PB-Response-PUE-3: Water Demand and Usage describes that the Project would not directly use groundwater and that any indirect use of groundwater (from AVEK, which includes groundwater as one of its sources) would not affect sustainable groundwater management or the ability of residents who receive water from AVEK to receive water that includes groundwater.

As a matter of clarification, the Authority's Preferred Alternative remains the SR14A Build Alternative, which would avoid the Arrastre Canyon area. The Authority will work with property owners, as needed, to determine on a case-by-case basis when undergrounding of utility lines is warranted.

Regarding concerns related to wildfire from overhead utilities, Section 3.11 Safety and Security in the Draft EIR/EIS discusses potential impacts related to wildfire, including in Section 3.11.5.3 and Impact S&S#19, which identifies that SS-IAMF#1 and SS-IAMF#2 would require the implementation of fire and life-safety programs during design, operations, and maintenance of the Palmdale to Burbank Project Section to reduce the risk of wildfire from the Build Alternatives.

4492-9905

The commenter states that cultural resources have been found in the Arrastre Canyon Area and requests that these resources be avoided and protected in place. As described in Impact CUL#2, in Section 3.17, Cultural Resources of the Draft EIR/EIS, ground disturbance associated with construction of the HSR Build Alternatives may result in impacts on unknown or previously undiscovered archaeological resources located within the Area of Potential Effect (APE). Implementation of CUL-IAMF#3 (refer to Section 3.17.5.3, in Section 3.17, Cultural Resources) would reduce impacts by ensuring the completion of pre-construction cultural resource surveys in previously inaccessible portions of the archaeological APE. As discussed in Section 3.17.7, CUL MM#1 and CUL-MM#3 would further reduce impacts on previously undiscovered archaeological resources from ground-disturbing activities during construction by consulting with MOA signatories, concurring parties, and tribal consulting parties to determine the preferred treatment and appropriate mitigation measures and by developing meaningful mitigation measures for effects on as-of-yet-unidentified Native American archaeological resources that cannot be avoided. In addition, the Authority will implement CUL-MM#2, which will halt construction activities and require compliance with 48 Fed. Reg. 44716-42 and 14 Cal. Code Regs. Chapter 3, Article 9, Sections 15120–15132, should there be an unanticipated archaeological discovery. These treatment plans describe detailed requirements for the treatment of resources affected by the project, site monitoring during construction, handling of unanticipated discoveries, data recovery, and curation of artifacts, among other things. In accordance with the PA, the mitigation of impacts to historic properties (and the development of Memoranda of Agreement) and historical resources is being developed with input from consulting parties, which include local city and county jurisdictions, as well as local Native American representatives. Combined, these mitigation measures would mitigate for impacts to both known and unknown archaeological resources.

Response to Submission 4492 (Kat Selm, The Nature Conservancy, December 1, 2022) - Continued

4492-9906

The commenter explains that their property in Arrastre Canyon contains habitat for several endangered species which is correct. And that this property contains healthy riparian forested areas and the importance of these habitats in supporting refugia for various species during specific life-history stages, which is also correct. Build Alternatives E1, E1A, E2, and E2A would include above-ground construction footprint in this area which would result in some impacts to the resources cited by the commentor. The EIR/EIS does include various IAMFs and MMs to reduce and off-set such impacts. However, the Authority's Preferred Alternative, SR14A, avoids the need for surface construction footprint in Arrastre Canyon altogether, thereby avoiding impacts to the specific habitat and resources cited by the commentor as present on their property in Arrastre Canyon.

4492-9907

The commenter expresses concern that determinations of mitigation will be made after the Draft EIR/EIS is finalized; that mitigation, including compensatory mitigation, will be developed without input from local organization; requests that mitigation requirements be subject to a public comment period; and that a committee of local experts be formed to review and approve mitigation requirements.

While implementation decisions regarding bank credit purchases and particular parcels to acquire will be made at a later date after design advances, in consultation with resource agencies, the mitigation measures in the Draft EIR/EIS have been prepared appropriately to comply with CEQA and NEPA requirements by specifying details such as mitigation ratios and geographic area. Regarding concern about public input on mitigation, the Authority understands and appreciates the specific needs and expertise of stakeholders and values public participation. Mitigation measures were made available for public review and comment during release of the Draft EIR/EIS, at which time the Authority received comments on mitigation from the public and responded to each one. In some cases, where appropriate, the Authority revised mitigation measures based on public input. Several of the mitigation measures include components for interagency coordination. Per BIO-MM#47 (Prepare and Implement a CMP for Impacts on Aquatic Resources) and BIO-MM#53 (Prepare and Implement a CMP for Species and Species Habitat), all compensatory mitigation provided under ESA, CESA, CWA, 1600, and Porter-Cologne is subject to approval by the regulatory agency or agencies. Because of this outreach and coordination, the Authority sees no further benefits to creating a committee of local experts. Please refer to Standard Response P-B-Response-BIO-2:Construction and Operations Impacts to Special-Status Plants and Wildlife, which provides additional information about effectiveness of compensatory mitigation.

Response to Submission 4492 (Kat Selm, The Nature Conservancy, December 1, 2022) - Continued

4492-9908

Refer to Standard Response PB-Response-BIO-3: Wildlife Movement Corridors.

The commenter expresses concerns related to wildlife connectivity and crossing opportunities. The WCA identified crossing opportunities that align with the South Coast Missing Linkage Project San Gabriel-Castaic Linkage Design. Alternatives SR14 and SR14A would cross over Soledad Canyon on viaduct, allowing wildlife to cross under the project alignment. BIO-MM#99 mitigates for light during construction and BIO-MM#100 mitigates for light during operations.

4492-9909

The commenter expresses support for the SR14A Build Alternative and requests that the Authority adopt the recommended mitigation measures put forth by SMMC, which are listed in Comment #9907. Response to Comment #9907 explains why the mitigation outlined in the Draft EIR/EIS is adequate. SMMC recommends that the SR14A Build Alternative incorporate wildlife connectivity mitigation to offset the associated impacts of at grade segments. Additionally, SMMC recommends mitigation measures for the SR14A Build Alternative that include securing land and constructing new wildlife crossings and recommends that all at-grade and elevated portions of the HSR within the San Gabriel-Castaic Connection incorporate noise and light barriers to reduce impacts to wildlife and wildlife movement. Please see response to Comment #9907, which explains why the Authority's analysis concludes that the SR14A Build Alternative's effects on wildlife movement would be less than significant and additional mitigation is not necessary. In addition, please see standard response PB-Response-Bio-3: Wildlife Movement Corridors, which provides further detail regarding project effects on wildlife movement corridors and the South Coast Missing Linkages San Gabriel-Castaic Linkage Design. The Authority will continue to engage with stakeholders and resource agencies in the implementation of mitigation measures. The commenter's support of the preferred Alternative is acknowledged.

Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022)

Palmdale - Burbank - RECORD #4494 DETAIL

Status :	Ready for Delimiting
Record Date :	12/2/2022
Interest As :	Business and/or Organization
First Name :	Kelly Erin
Last Name :	Decker
Attachments :	SAFE-DEIR Comment Letter-Final.pdf (13 mb)

Stakeholder Comments/Issues :

Dear California High-Speed Rail Board of Directors,
Please find attached comments on the Draft Environmental Impact Report for the Palmdale to Burbank Project Section, prepared and submitted by the S.A.F.E. Coalition (Save Angeles Forest for Everyone).
We look forward to receiving responses to our questions in due course.
Sincerely, Kelly Decker

SAVE ANGELES FOREST FOR EVERYONE
PO Box 345, Sunland, CA 91041-0345 board.safecoalition@gmail.com

November 30, 2022

Sent via Email: Palmdale_Burbank@hsr.ca.gov

California High-Speed Rail Authority
355 S. Grand Ave.
Suite 2050
Los Angeles, CA 90071

Re: Palmdale to Burbank Project Section Draft EIR/EIS Comment

Dear California High-Speed Rail Board of Directors:

4494-9174

This letter serves as Save Angeles Forest for Everyone's official comment letter for the Draft Environmental Impact Report (DEIR) with respect to the above-referenced project section. Our Coalition includes volunteers from the communities of Kagel Canyon, Sunland-Tujunga, Shadow Hills, Lakeview Terrace, La Tuna Canyon, and Sun Valley, all in the Foothills of the San Gabriel Mountains, and all significantly impacted by each/all of CHSRA's proposed build alternatives.

This comment letter is organized by Chapter or Chapters (some with accompanying Appendices), and then stand-alone Appendices. Questions are incorporated throughout the document for CHSRA's review and response. In some sections, the focus was directed to the Preferred Alternative (SR14A) and in others, no specific route alternative was identified, and the analysis was intended to address all six build alternatives.

EXECUTIVE SUMMARY

4494-9175

The California Environmental Quality Act (CEQA) generally requires state and local government agencies to inform decision makers and the public about the potential environmental impacts of proposed projects, and to reduce those environmental impacts to the extent feasible.

The CEQA Guidelines define three types of effects (or impacts):

1. Direct or primary effects that are caused by a project and occur at the same time and place.
2. Indirect or secondary effects that are reasonably foreseeable and caused by a project, but occur at a different time or place.
3. *Cumulative effects, which refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.*

State CEQA Guidelines require that the cumulative impacts of a project be addressed in an EIR when the cumulative impacts are expected to be significant and when the project's incremental effect is cumulatively considerable. Such impacts can result from individually minor but collectively significant actions taking place over time. (State CEQA Guidelines Section 15130[a]).

Section 15355 of the CEQA Guidelines states:

> "Cumulative impacts" refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
> (a) ***The individual effects may be changes resulting from a single project*** or a number of separate projects.

Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9175

(b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

In Chapter 3.19, CHSRA sets forth a cumulative impact analysis. However, CHSRA only considers the cumulative impacts as created by and/or in connection with ***other*** projects in the resource study area; CHSRA fails to take into account or analyze the cumulative impacts of its own project.

Considering that this is the largest infrastructure project in the history of the State of California (and one of the largest in the history of the United States), spanning 800 miles (and comprising over 10 years of construction for this project section alone), CEQA requires that CHSRA consider and study **the cumulative impacts of its own project.**

In its DEIR, CHSRA sets forth nearly 7,000 pages of significant and unavoidable impacts to or with respect to the following categories of study, many of which cannot be mitigated:

- Transportation
- Air Quality and Global Climate Change
- Noise and Vibration
- Electromagnetic Interference and Electromagnetic Fields
- Public Utilities and Energy
- Biological and Aquatic Resources
- Hydrology and Water Resources
- Geology, Soils, Seismicity, and Paleontological Resources
- Hazardous Materials
- Safety and Security
- Socioeconomics, Communities, and Environmental Justice
- Agricultural Farmland and Forest Land
- Parks, Recreation, and Open Space
- Aesthetics and Visual Quality
- Cultural Resources
- Regional Growth
- Project Cost and Operations

Were CHSRA to have studied and accurately reported the cumulative impacts of its own proposed high-speed rail project as required under CEQA, it would be clear that these impacts to the Palmdale to Burbank project section, when considered on a cumulative basis, far outweigh any potential "benefits" which may be realized by the completion of the high-speed rail system.

In light of the foregoing, it is clear that the only choice is the No Project Alternative.

LIMITATIONS OF THIS COMMENT LETTER

4494-9176

Due to the fact that the California High-Speed Rail Authority's ("CHSRA" or "HSR" or "the Authority") DEIR is comprised of nearly 7,000 pages (excluding additional ancillary documents, one of which was over 2,000 pages, which were referenced but not included as part of the official DEIR), and due to the fact that our coalition is comprised solely of community volunteers, we did not have adequate resources to perform an in-depth review of all sections, let alone to subsequently prepare comments and questions on each and every section within the 90-day review period. As such, there are significant portions of the DEIR which we simply did

4494-9176

not have the time to read: CHSRA should not interpret a lack of commentary on any particular section or issue of the DEIR to mean that there were no questions or concerns on that section or issue.

Our task was further hindered by the fact that the DEIR frequently referenced documents that were not available on the website and required a Public Records Request to obtain. While we did utilize CHSRA's portal to request documents, there were delays in getting some of the requests fulfilled. One such request was delayed not once, but twice, with the new date range for fulfillment extending beyond the December 1 comment period deadline.

Additionally, much of the data in the DEIR was stale, i.e., pulled from prior to 2016. We are nearly in 2023, so this data already is 8 years old and, as such, we contend that it is unreliable. Many of the financial data sets were difficult to compare because some were presented in the current year, and others were in the year of expenditure which includes inflation and escalations.

Similar to the DEIR, there is overlap and redundancy among the various sections in this document.

Sincerely,
On Behalf of the S.A.F.E. Coalition,

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CHAPTER 3
CHAPTER 3.2: TRANSPORTATION

Spoils Hauling Conditions

The spoils (rock and dirt) generated from miles of tunneling and other excavation areas will be loaded onto trucks and transported to numerous landfills in the region. Four disposal sites will be able to receive spoils via conveyer belt, therefore, not necessitating truck use.

The truck haul routes are shown in the map below:



Figure 3.2-1 Spoils Haul Routes

Depending on the spoils origination, hauling will occur either 8 hours per day 5 days per week or 16 hours per day 7 days per week (tunnel portals). This nearly incessant two-way parade of trucks will further increase the traffic and wear and tear on the two most traveled (and congested) freeways in the area: the I-5 and the I-210.

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Appendix 2.1-I Spoils Disposal Assumptions contains charts for each alternative that shows: Spoils location, bulk cubic yards/day, years. number of outbound trips per hour, and potential off-hauling scenario. What it does NOT include is the total number of truck trips for the duration of the project or, perhaps even more importantly, the total amount of contaminated or hazardous material that will require special handling. Knowing the total is essential to fully understand the devastating impact this activity will have in our area in terms of air quality, noise, vibration, dust, freeway onramp queues, and traffic congestion.

Question: Why did CHSRA fail to enumerate the truck trips, the amount of contaminated soil, and all of the columns that contain numerical values in Appendix 2.1-I?

The following formula was used to determine the totals for the preferred alternative SR14A:

> No. of outbound trips per hour x no. of hours (either 8 or 16) per day x no. of days per week (either 5 or 7) x 50 weeks per year (assumes 2 weeks' holidays annually) x no. of years. (During a CHSRA working group meeting held in September, CHSRA confirmed this is the correct formula to determine the total no. of truck trips.)

The total is astounding: 2.4 MILLION one-way truck trips
or 4.9 MILLION round-trip truck trips!
10.9 million bulk cubic yards of contaminated soil!

CHSRA assumes that each one-way trip is 20[1] miles, making the total number of round-trip miles: **97 MILLION miles!**[2] This is the equivalent of over 400 trips to the moon or wrapping around the equator 3,900 times—all while emitting greenhouse gas diesel trucks.

Question: Why does CHSRA believe that 4.9 million round-trip truck trips are acceptable?

The following chart summarizes what CHSRA did not—i.e., the total aggregate amount of spoils removal, truck trips, and the amount of contaminated soil what will have to go to a treatment plant.

NO. OF TRUCK HAULING TRIPS
(REMOVING SPOILS FROM LOCATION TO DISPOSAL SITE)

	Per Week	Per Year	Project Duration Total
Round-Trips	42,480	2.1 million	4.8 million
Round-Trip Miles	.8 million	42.5 million	97 million
Duration of removing spoils from location	4 months to 6.4 years		
Duration of truck trips per hour	16.4 average, maximum 49		
Total amount of bulk cubic yards of hazardous/ contaminated material	10.9 million		

At portal P9, the stated estimated truck trips per hour is 49—that means one outgoing truck every 1.2 minutes! The average of 16.4 trucks per hour is still daunting at one outgoing truck every 3.7 minutes. Then there is the issue of empty returning trucks.

Question: What specific mitigation strategies will be implemented to limit truck traffic during peak times?

[1] Per Scott Steinwert of CHSRA, they used 25 miles 1-way to a disposal site. At 10-12-22 in person mtg, another engineer said probably too high so 20 miles 1-way was used

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Then there is the issue of workers' vehicles travelling and parking at the work sites, and the transportation and parking/storage of construction vehicles and equipment.

Question: What is considered a "peak time?"

Question: How will workers get to/from the work sites and where will they park?

Lack of Accountability for "Mitigation" Measures. While CHSRA plans to mitigate the problems that spoils hauling will create, in most instances, it places the burden on the contractor(s):

- TR-IAMF#1: Protection of Public Roadways During Construction—will require **the contractor** to provide a photographic survey documenting the condition of the public roadways along truck routes. **The contractor** will be responsible for the repair of structural damage to public roadways caused by HSR construction or construction access.
- TR-IAMF#2: Construction Transportation Plan—will require **the contractor** to prepare a detailed CTP to minimize construction and construction traffic impacts on nearby roadways. The CTP will address, in detail, the activities to be executed in each construction phase to maintain traffic flow during peak travel periods.
- TR-IAMF#7: Construction Truck Routes—will require **the contractor** to deliver construction-related equipment and materials on appropriate truck routes, avoiding impacts on streets not designed to accommodate truck traffic.
- TR-IAMF#8: Construction during Special Events—will require **the contractor** to provide a mechanism to prevent roadway construction activities from reducing roadway capacity during major athletic events or other special events that substantially (10 percent or more) increase traffic on roadways affected by project construction as part of the CTP outlined in TR-IAMF#2.

Question: Who is ultimately responsible (i.e., the contractor or CHSRA) for imminent failures pertaining to the above four IAMFs?

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Construction impacts

Refined SR14 and SR14A Build Alternative spoils hauling would degrade Level of Service (LOS) to unacceptable levels at the roadway segments for up to 6.4 years. Per CEQA:

> *"Level of service (LOS) is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Safety is not included in the measures that establish service levels."*[3]

In the following chart, there are 11 scenarios of roadway segments for Refined SR14A. Of those 11, **9 fail**!

[3] Transportation Analysis under CEQA First Edition © 2020 California Department of Transportation

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Table 3.2-20 Refined SR14 and SR14A Build Alternatives Spoils Hauling Roadway Segment Analysis

Map ID	Segment	Existing (2019) No Project Conditions			Existing (2019) Plus Spoils Hauling Conditions: Refined SR14			Existing (2019) Plus Spoils Hauling Conditions: SR14A			Change in V/C Refined SR14	Change in V/C SR14A
		Volume[1]	V/C	LOS	Volume[1]	V/C	LOS	Volume[1]	V/C	LOS		
Northbound Routing – AM Peak Hour												
Sierra Highway												
D	West of Pearblossom Highway	2,555	1.028	F*	2,651	1.061	F*	2,117	1.084	F*	0.033	0.056*
D	West of Red Rover Mine Road	853	0.785	D	1,259	1.145	F*	853	0.785	D	0.360*	0.000
Hubbard Street												
N	North of I-210 WB Ramps	2,383	0.829	D	2,593	0.902	E*	2,593	0.902	E*	0.073*	0.073*
Northbound Routing – PM Peak Hour												
Sierra Highway												
D	West of Pearblossom Highway	3,93	1.508	F*	4,033	1.492	F*	4,096	1.425	F*	0.033	0.066*
Lasnil Canyon												
D	East of Osborne Street	2,773	0.965	E*	2,905	1.021	F*	2,905	1.021	F*	0.056*	0.056*
Southbound Routing – AM Peak Hour												
Sierra Highway												
B	West of Pearblossom Highway	2,555	1.028	F*	2,651	1.061	F*	2,117	1.084	F*	0.033	0.056*
D	West of Red Rover Mine Road	853	0.785	D	1,259	1.145	F*	853	0.785	D	0.360*	0.000

Map ID	Segment	Existing (2019) No Project Conditions			Existing (2019) Plus Spoils Hauling Conditions: Refined SR14A			Existing (2019) Plus Spoils Hauling Conditions: SR14A			Change in V/C Refined SR14	Change in V/C SR14A
		Volume[1]	V/C	LOS	Volume[1]	V/C	LOS	Volume[1]	V/C	LOS		
Hubbard Street												
N	North of I-210 WB Ramps	2,383	0.829	D	2,593	0.902	E*	2,593	0.902	E*	0.073*	0.073*
Southbound Routing – PM Peak Hour												
Sierra Highway												
B	West of Pearblossom Highway	3,934	1.368	F*	4,030	1.402	F*	4,096	1.425	F*	0.033	0.056*
C	North of Angeles Forest Highway	1,465	1.275	F*	1,514	1.317	F*	1,583	1.377	F*	0.042*	0.102*
Lasnil Canyon Road												
D	East of Osborne Street	2,773	0.965	E*	2,905	1.021	F*	2,905	1.021	F*	0.056*	0.056*

Source: Authority, 2019.
*Roadway type indicates that the intersection would operate at an inadequate LOS (LOS E/F) or where the change in V/C ratio increases by 0.05 or more.
[1] Volume is measured during peak hour (average daily traffic and indicates the hour volume of roadway during peak hours.
I = Interstate Highway
LOS = level of service
SB = southbound
V/C = volume to capacity ratio
WB = westbound

The same story repeats itself for impacts at street intersections and freeway ramp delays. The spoils hauling would degrade level of service to unacceptable levels for 100% of the 37 intersections for up to 6.4 years. For freeway onramps and offramps, 100% of the ramps (4) fail. Regarding ramps, CHSRA says there is adequate "storage." That means the ramps are large/long enough for the queue of vehicles, including hauling trucks.

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CHSRA states that they will be using 18-cubic yard dump trucks.[4] Standard 18-yard dump trucks are about 22 feet long. The average car is 14.7 feet, so each dump truck equals about 1.5 cars.

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Mitigation Strategies

There is nothing new or innovative with CHSRA's mitigation plans. Even with the best mitigation efforts, all road or rail construction in populated areas cause bottlenecks, congestion, backed-up traffic, drivers making erratic and dangerous maneuvers to avoid congested areas, irate tempers, and more greenhouse gas emissions from idling vehicles sitting in gridlock.

Their "solutions"? Simply implement a transportation Construction (or Congestion) Management Plan during the construction duration (construction will last up to 6.4 years in some areas):

Mitigation Effort	Comment/Questions
Schedule a majority of construction-related travel during off-peak hours	Won't this cause light pollution due to high wattage lamps? Won't this stress the power grid during high-usage times? CalTrans does this and it results in high traffic and bottlenecks during times when drivers do not expect traffic.
Relocate spoils collection areas and access to minimize delays during peak hours	Where? Where are these "collection areas" for spoils?
Develop detour routes to facilitate traffic movements through construction zones without substantially increasing cut-through traffic in adjacent residential neighborhoods	How can this be accomplished? Won't this increase air pollution because drivers' routes will be longer than usual?
Temporarily restripe roadways to maximize vehicular capacity at locations affected by construction closures, where feasible	Won't this cause squeezed lanes, increasing the likelihood of collisions?
Temporarily remove on-street parking to maximize vehicular capacity, transit capacity, and bicycle circulation at locations affected by construction closures, where feasible	Where will these people who normally park on the street park?
Station traffic control officers at major intersections to minimize delays during peak hours, where feasible	Accomplishes nothing.
Develop alternative routes to reduce number of trucks on sensitive facilities without substantially increasing cut-through traffic in adjacent residential neighborhoods	How is this different from the "develop detour" routes above? Won't this increase air pollution because drivers' routes will be longer than usual?
Develop and implement an outreach program to inform the general public about the construction process and planned roadway closures	Won't this increase traffic on side streets in residential neighborhoods?
Develop and implement a program with business owners to minimize impacts on businesses during construction activity	How will they accomplish this? What program?
Modify Signal Timing—Electronically modifying signal timing at existing signals and would involve little to no physical disturbance that could cause impacts	Most cities, including Los Angeles, already have their signals timed and are working at optimal capacity. How can it be further improved?

[4] Transportation Technical Report 2019, p. 2-42.

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Modify Signal Phasing—Electronically modifying signal phasing at existing signals and would involve little to no physical disturbance that could cause impacts	Most cities, including Los Angeles, already have their signals timed and are working at optimal capacity. How can it be further improved?
Provide a Traffic Signal—Installing new signals to existing intersections generally could occur within existing pavement or disturbed graded right-of-way and will involve minor physical disturbance that could cause secondary environmental impacts.	Doesn't more signals mean more congestion and more starts and stops resulting in increased air pollution due to gasoline or diesel vehicles (including hauling trucks) idling while waiting for the signal to turn? To install a single traffic signal in Los Angeles costs $250,000.
Widen Intersection—Widening intersection approaches by adding a through lane to improve LOS and intersection operations	This is completely infeasible.
Reconfigure Intersection—Reconfiguring intersection geometry to improve LOS and intersection operations	By doing what? Turning it into an equilateral triangle?

The above mitigation recommendations generally are not feasible and likely will not work. There is simply no solution to the chaos that will ensue from hauling spoils (particularly contaminated debris) as it requires hauling from the portals on roadways, getting onto the freeway via an onramp, taking up space of 1.5 cars on the onramp, utilizing the already congested 5 and 210 freeways, getting off the freeway, using roadways again, and dumping at the disposal site. Then the journey is reversed with an empty truck.

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Angeles National Forest/San Gabriel National Monument

Once again, CHSRA puts the burden of major impacts upon the contractor. The DEIR states:

> *"Construction activities within the ANF could also lead to temporary disruption of transportation system operations and possible damage to elements of the roadway system such as pavement and bridges, thereby interfering with USFS's abilities to maintain National Forest System roads and infrastructure.* ***The contractor will be responsible*** *for the repair of structural damage to public roadways caused by HSR construction or construction access.*
>
> *Trips for construction workers working within the ANF would generally occur outside of the peak hours for freeway and street traffic. The movement of heavy construction equipment such as cranes, bulldozers, and dump trucks to and from the site generally would occur during off-peak hours on designated truck routes.* ***The Contractor will be responsible*** *for identifying adequate off-street parking for construction-related vehicles and if necessary, designating remote parking areas for these workers, with shuttles to bring them to and from the construction area if the remote parking areas are distant from the project site.*
>
> *The construction of the HSR track alignment would require temporary construction easements, which could require the temporary closure of parking areas, roadway travel lanes, transit routes, pedestrian facilities, bicycle lanes, and paths.* ***The contractor will prepare and implement*** *specific CMPs to ensure safe transit, pedestrian, and bicycle access during the construction period. Upon completion of construction, parking areas, roadway lanes, pedestrian facilities, and bicycle lanes will be restored to a condition equivalent to or better than their pre-project condition."* (Emphasis added)

The roads within the Angeles National Forest and the San Gabriel National Monument are simply not built to handle the weight of heavy construction equipment, years of heavy truckloads of spoils hauling, and overall wear and tear this project will create. They were constructed to accommodate occasional maintenance vehicles.

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CHSRA concentrates on avoiding disruption during "peak" times. The problem with this effort is that they will move activities during "non peak" times, thus turning those "non peak" into times of noise and vibration, increased traffic, and disruption of roadways.

CHAPTER 3.3: AIR QUALITY AND GLOBAL CLIMATE CHANGE

4494-9181

On Page 3.3-9 of the DEIR, CHSRA explains Assembly Bill 32, "The Global Warming Solutions Act of 2006." Among AB 32's specific requirements are the following:

> • **Prepare a scoping plan for achieving the maximum technologically feasible and cost-effective reductions in GHG emissions from sources or categories of sources of GHGs by 2020** (Health and Safety Code Section 38561). The scoping plan, approved by CARB in 2008 and updated in 2014 and 2017, provides the outline for future actions to reduce GHG emissions in California via regulations, market mechanisms, and other measures. The 2008 scoping plan included the implementation of HSR as a GHG reduction measure for the transportation sector.

California Climate Investments reports annually on Cap-and-Trade auction proceeds and investments. Below is a chart delineating the FY 2020-21 & Cumulative Appropriations of Cap-and-Trade Funds by Administering Agency.[5] Considered on both an annual and cumulative basis, CHSRA is by far the recipient of the most money from the Cap-and-Trade funds.

[5] Table 1: https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/2021_cci_annual_report.pdf

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Administering Agency	Program	Appropriations ($ in millions)		
		Cumulative Appropriations Prior to FY 2020-21	FY 2020-21	Cumulative Total[a]
California Air Resources Board	Community Air Protection	$766	-	$766
	Fluorinated Gases Emission Reduction Incentive	$1	-	$1
	Funding Agricultural Replacement Measures for Emission Reductions	$251	-	$251
	Low Carbon Transportation	$2,134	-	$2,134
	Prescribed Fire Smoke Monitoring	$4	-	$4
	Woodstove Reduction	$8	-	$8
California Coastal Commission	Coastal Resilience Planning	$5	-	$5
California Conservation Corps	Training and Workforce Development	$41	$13	$54
California Department of Community Services and Development	Low Income Weatherization	$212	-	$212
California Department of Fish and Wildlife	Wetlands and Watershed Restoration	$47	-	$47
	Dairy Methane	$289	-	$289
	Healthy Soils	$41	-	$41
California Department of Food and Agriculture	Renewable Alternative Fuels	$3	-	$3
	State Water Efficiency and Enhancement	$66	-	$66
	Community Fire Planning and Preparedness	$10	-	$10
California Department of Forestry and Fire Protection	Fire Prevention	$194	$84	$278
	Forest Carbon Plan Implementation	$60	$35	$95
	Sustainable Forests	$424	$35	$459
California Department of Resources Recycling and Recovery	Waste Diversion	$141	-	$141
California Department of Transportation	Active Transportation	$10	-	$10
	Low Carbon Transit Operations	$358	$49	$407
California Department of Water Resources	State Water Project Turbines	$20	-	$20
	Water Energy Grant	$49	-	$49
	Food Production Investment	$124	-	$124
California Energy Commission	Low-Carbon Fuel Production	$13	-	$13
	Renewable Energy for Agriculture	$10	-	$10
California Environmental Protection Agency	Transition to a Carbon-Neutral Economy	$3	-	$3
California Governor's Office of Emergency Services	Wildfire Response and Resilience	$51	$1	$52
California High-Speed Rail Authority	High Speed Rail Project	$3,317	$247	$3,564
California Natural Resources Agency	Regional Forest and Fire Capacity	$20	-	$20
	Urban Greening	$156	-	$156
California State Coastal Conservancy	Climate Ready	$7	-	$7
California State Transportation Agency	Transit and Intercity Rail Capital	$1,227	$98	$1,325
California State Water Resources Control Board	Safe and Affordable Drinking Water Fund	$100	$47	$148
	Affordable Housing and Sustainable Communities including Sustainable Agricultural Lands Conservation	$2,373	$196	$2,569
California Strategic Growth Council	Climate Change Research	$34	-	$34
	Technical Assistance	$6	-	$6
	Transformative Climate Communities	$241	-	$241
California Wildlife Conservation Board	Climate Adaptation and Resiliency	$20	-	$20
California Workforce Development Board	Low-Carbon Economy Workforce	$26	$3	$33
San Francisco Bay Conservation and Development Commission	Climate Resilience Planning	$3	$2	$5
	Total	$12,160	$813	$12,980

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In its 2021 report, California Climate Investments also set forth the following data (table spanning the next three pages), which delineates the "Summary of Investments and Outcomes through 2020."[6]

Administering Agency	Subprogram	Cumulative Funding Status ($M)			Implemented Projects				Benefiting Priority Populations[28]	
		Allocated	Awarded[25]	Implemented	GHG Reduction (1,000 $MTCO_2e$)	Cost per GHG ($/$MTCO_2e$)	Number of Projects	Intermediary Administrative Expenses ($M)[30]	($M)	%
California Air Resources Board	AB 617 Implementation	$40.0	$40.0	$20.0	–[31]	–	1	$20.0	TBD	
	Community Air Grants	$25.0	$15.0	$15.0	–[31]	–	56	–	$13.6	91%
	Community Air Protection Incentives	$704.4	$700.7	$322.7	166	$1,947	1,858	$46.6	$259.6	94%
	Fluorinated Gases Emission Reduction Incentives	$1.0	This program has not yet awarded or implemented funds.							
	Funding Agricultural Replacement Measures for Emission Reductions	$250.8	$250.8	$150.4	110	$1,367	3,905	$4.5	$99.4	68%
	Advanced Technology Demonstration and Pilot Projects	$115.0	$79.2	$79.2	16	$4,939	11	–	$79.2	100%
	Agricultural Worker Vanpools	$6.0	$6.0	$6.0	5	$1,307	1	–	$6.0	100%
	Clean Cars For All	$102.0	$102.0	$73.0	56	$1,299	9,128	$6.3	$58.7	88%
	Clean Mobility in Schools Project	$24.6	$24.6	$24.6	10	$2,453	3	–	$24.6	100%
	Clean Mobility Options	$55.2	$51.6	$10.7	3	$3,312	31	–	$10.7	100%
California Air Resources Board (cont.)	Clean Off-Road Equipment Voucher Incentive Project	$44.2	$44.2	$18.8	10	$1,472	133	$1.3	$12.3	70%
	Clean Vehicle Rebate Project	$948.9	$946.0	$817.3	6,240	$131	338,659	$15.3	$253.4	32%
	Financing Assistance for Lower-Income Consumers	$33.9	$15.9	$5.9	6	$1,038	923	$1.1	$3.7	78%
	Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project	$486.4	$475.3	$271.7	1,112	$244	4,298	$6.5	$168.1	63%
	Outreach, Education, and Awareness	$6.0	$6.0	$6.0	–[31]	–	1	–	$6.0	100%
	Rural School Bus Pilot Projects	$61.6	$58.6	$35.1	32	$1,107	116	$0.3	$21.0	60%
	Sustainable Transportation Equity Project	$19.5	This program has not yet awarded or implemented funds.							
	Zero and Near Zero-Emission Freight Facilities	$148.7	$148.7	$148.7	50	$2,997	10	–	$148.7	100%
	Zero-Emission Truck and Bus Pilot Projects[29]	$85.0	$82.8	$82.8	107	$778	9	–	$64.5	78%
	Prescribed Fire and Smoke Monitoring	$7.2	$3.9	$3.9	–[31]	–	51	–	$0	0%
	Woodsmoke Reduction	$8.0	$8.0	$6.8	94	$72	1,680	$0.8	$5.1	86%
California Coastal Commission	Coastal Resilience Planning	$4.5	$2.1	$2.1	–[31]	–	16	–	$1.1	54%
California Conservation Corps	Training and Workforce Development Program	$55.9	$20.4	$20.4	183	$111	346	–	$16.3	80%

[6] Table 2: https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/2021_cci_annual_report.pdf

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Administering Agency	Subprogram	Cumulative Funding Status ($M)			Implemented Projects				Benefiting Priority Populations[28]	
		Allocated	Awarded[25]	Implemented	GHG Reduction (1,000 $MTCO_2e$)	Cost per GHG ($/$MTCO_2e$)	Number of Projects	Intermediary Administrative Expenses ($M)[30]	($M)	%
California Department of Community Services and Development	Community Solar[32]	$2.2	$2.0	$2.0	10	$204	1	–	$2.0	100%
	Farmworker Housing Single-Family Energy Efficiency and Solar Photovoltaics	$12.3	$10.9	$6.7	8	$860	393	$1.1	$5.3[33]	95%[27]
	Multi-Family Energy Efficiency and Renewables	$63.9	$63.9	$37.2	161	$230	8,342	$1.9	$35.2	100%
	Single-Family Energy Efficiency and Solar Photovoltaics	$70.0	$70.0	$70.0	216	$324	16,146	$9.3	$60.7	100%
	Single-Family Solar Photovoltaics	$51.0	$51.0	$51.0	134	$382	3,160	$6.8	$44.2	100%
California Department of Fish and Wildlife	Wetlands & Watershed Restoration Program[32]	$46.7	$36.9	$36.9	1,000	$37	22	–	$20.5	55%
California Department of Food and Agriculture	Alternative Manure Management Program	$288.9	$60.9	$60.9	1,009	$60	104	$0.7	$0	0%
	Dairy Digester Research and Development Program		$180.0	$180.0	19,379	$9	107	$0.8	$117.7	66%
	Healthy Soils Program	$40.5	$34.1	$34.1	289	$118	479	$0.1	$12.1	35%
	Renewable and Alternative Fuels	$3.0	$3.0	$3.0	–[31]	–	1	–	$0	0%
	State Water Efficiency and Enhancement Program[32]	$66.2	$61.8	$61.8	744	$83	598	$0.5	$22.7	37%
California Department of Forestry and Fire Protection	Community Fire Planning and Preparedness	$580.4	$0.2	$0.2	–[31]	–	1	–	$0.2	100%
	Fire Prevention Program		$161.6	$161.6	–[31]	–	87	–	$108.0	67%
	Forest Carbon Plan Implementation		$42.2	$42.2	–[31]	–	73	–	$5.3	13%
	Fire Prevention Grants Program		$156.6	$156.6	–[31]	–	222	–	$49.4	32%
	Forest Health Program		$317.8	$317.8	11,105	$29	158	–	$117.0	37%
California Department of Forestry and Fire Protection	Forest Health Research	$5.5	$5.4	$5.4	–[31]	–	26	–	$1.2	23%
	Urban and Community Forestry Program	$77.8	$74.8	$56.2	394	$143	93	–	$55.3	98%
California Department of Resources Recycling and Recovery	Community Composting for Green Spaces Grant	$1.4	$1.4	This program has not yet implemented funds.						
	Food Waste Prevention and Rescue Grants	$24.7	$20.2	$20.2	434	$47	64	–	$19.4	96%
	Organics and Recycling Manufacturing Loans	$9.2	$7.7	$7.7	772	$10	5	–	$0.8	11%
	Organics Grants	$75.4	$72.5	$72.5	1,312	$55	29	–	$57.0	79%
	Recycled Fiber, Plastic, and Glass Grants	$36.1	$25.7	$25.7	671	$38	11	–	$14.7	57%
	Reuse Grant Program	$2.0	New program for FY 2021.							
California Department of Transportation	Active Transportation Program	$10.0	$10.0	$10.0	<1	$163,934	3	–	$10.0	100%
	Low Carbon Transit Operations Program	$606.7	$558.3	$558.3	6,224	$90	719	–	$540.2	97%
California Department of Water Resources	State Water Project Turbines	$20.0	$20.0	$20.0	37	$542	2	–	$0	0%
	Water Energy Grant Program	$49.3	$45.3	$36.7	382	$96	95,300	–	$23.1	63%

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Administering Agency	Subprogram	Cumulative Funding Status ($M)			Implemented Projects				Benefiting Priority Populations[32]	
		Allocated	Awarded[33]	Implemented	GHG Reduction (1,000 MTCO2e)	Cost per GHG ($/MTCO2e)	Number of Projects	Intermediary Administrative Expenses ($M)[34]	($M)	%
California Energy Commission	Fuel Production Investment Program	$124.0	$103.2	$103.2	3,172	$33	42	–	$89.6	87%
	Low Carbon Fuel Production	$12.5	$12.5	$12.5	452	$28	4	–	$11.7	94%
	Renewable Energy for Agriculture Program[35]	$10.0	$9.5	$9.5	127	$75	45	–	$1.1[35]	11%[35]
California Environmental Protection Agency	Transition to a Carbon-Neutral Economy	$2.6	$2.6	$2.6	–	–	2	–	$0	0%
California Governor's Office of Emergency Services	Fire Engines and Maintenance	$26.0	$4.8	$4.8	–	–	1	–	$0	0%
	Wildfire Response and Readiness	$25.0	$25.0	$25.0	–	–	61	–	$0	0%
California High-Speed Rail Authority	High-Speed Rail Project	$3,563.8	$2,284.8	$2,284.8	–	–	1	–	$0	0%
California Natural Resources Agency	Regional Forest and Fire Capacity	$20.0	$18.1	$4.6	–	–	27	–	$1.3	27%
	Urban Greening Program	$156.0	$117.4	$117.4	45	$2,626	69	–	$110.9	94%
California State Coastal Conservancy	Climate Ready Program[36]	$7.0	$6.7	$6.7	2	$3,982	18	–	$4.1	62%
California State Transportation Agency	Transit and Intercity Rail Capital Program	$1,324.8	$2,123.4	$389.9	2,557	$153	29	–	$357.6	92%
California State Water Resources Control Board	Safe and Affordable Drinking Water Fund	$149.3	$54.4	$30.7	–	–	18	–	$49.2	97%
	Affordable Housing and Sustainable Communities Program	$2,272.4	$838.6	$838.6	1,793	$468	83	–	$674.6	80%
	Sustainable Agricultural Lands Conservation Program		$153.5	$46.4	5,319	$9	39	–	$4.3	9%
California Strategic Growth Council	Climate Change Research Program	$34.0	$32.3	$32.3	–	–	20	–	$0	0%
	Technical Assistance	$13.5	$9.4	$6.9	–	–	26	–	$5.6	81%
	Transformative Climate Communities Program	$241.3	$179.1	$164.8	123	$1,341	119	$2.9	$156.9	97%
California Wildlife Conservation Board	Climate Adaptation and Resiliency Program	$20.0	$11.5	$11.5	2	$6,767	20	–	$5.9	51%
California Workforce Development Board	Low Carbon Economy Workforce	$30.3	This program has not yet awarded or implemented funds							
San Francisco Bay Conservation and Development Commission	Climate Resilience Planning	$4.7	$4.5	$4.5	–	–	12	–	$0	0%
	Total	$13,781.7	$11,122.2	$8,272.6	66,072	–	488,246	$156.9	$4,044.9	49%

34 Due to an error, this value does not reflect an additional $0.3M in benefits to priority populations, including those additional benefits, 15% of project dollars are benefiting priority populations.
35 Estimated GHG emission reduction from the California High Speed Rail Project is 102 million MTCO2e over its first 50 years of operating life, as detailed in the Revised Draft 2020 Business Plan available at http://ca.gov/cahsrbusinessplan/2020/.
36 GGRF funds provide an essential part of the total funds for the system, though it is difficult to estimate precisely what the ultimate GGRF investment will be, and consequently, a comparable "GGRF investment per ton of GHG reduced" metric.

In reviewing this data, there are some noteworthy conclusions. First, 70% of the recipients of cap-and-trade funds have already reported a demonstrable reduction in greenhouse gas emissions; CHSRA has not -- and will not for years to come (if it ever does).

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Second, we can compare projects in terms of their efficacy. Evaluating simply the GHG reductions achieved to date, some standouts include the Clean Vehicle Rebate Program, which has already achieved over 6 million metric tons of GHG reductions; the Dairy Digester Research and Development Program, which has already achieved over 19 million metric tons of GHG reductions; the Forest Health Program, which has already achieved over 11 million metric tons of GHG reductions; the Sustainable Agricultural Lands Conservation Program, which has already achieved over 5 million metric tons of GHG reductions; and the Low Carbon Transit Operations Program, which has already achieved over 6 million metric tons of GHG reductions. By comparison, despite being the largest recipient of cap-and-trade funds, CHSRA has achieved 0 tons of GHG reductions as it has only been a net polluter during the construction phase.

Another way that we can compare the efficacy of projects is to consider the cost per metric ton of GHG reduced. California Climate Investments reported that, "Overall, California Climate Investments are reducing greenhouse gas emissions at an average rate of $125 per MTCO2e, not including greenhouse gas emission reductions attributable to the High-Speed Rail Project."[7]

The projects that stand out here in terms of being the best value or best investment of funds when compared against GHG reductions are: the Dairy Digester Research and Development Program, at a cost of just $9 per $MTCO_2e$ reduction; the Forest Health Program, at a cost of $29 per $MTCO_2e$ reduction; and the Sustainable Agricultural Lands Conservation Program, at a cost of just $9 per $MTCO_2e$ reduction. Even other transit projects present a respectable rate of return on investment: the Low Carbon Transit Operations Program has a cost of $90 per $MTCO_2e$ reduction (reporting a better-than-average rate of return when considered across all programs); and the even the Clean Vehicle Rebate Program costs $131 per $MTCO_2e$ reduction (at a cost slightly higher than the average rate of return, though very popular with over 300,000 people participating in the program).

Footnote 35 on this table states that: "The estimated GHG reduction from the California High-Speed Rail Project is 102 million $MTCO_2e$ reduction over its first 50 years of operating life, as detailed in the Revised Draft 2020 Business Plan." Note that on page 3.3-12 of the DEIR, Figure 3.3-1 depicts the Aggregate GHG Emissions Reductions that Would Result from the California High-Speed Rail System. CHSRA's data in this chart states that the "Anticipated GHG Benefits Over 50-Year Timeframe" total 75.9 $MMTCO_2e$. This is 26 million less than quoted in the chart presented by California Climate Investments.

4494-9182

Question: Why is there such a large discrepancy in the data reported in the 2020 Business Plan and the data reported in the DEIR with respect to GHG reductions?

4494-9183

Question: In Summary of Investments and Outcomes reported by California Climate Investments, there is no data included for CHSRA with respect to both GHG reductions and Cost per GHG. In the interest of full disclosure and transparency, shouldn't the chart reflect negative data (meaning, a total net expenditure, not reduction of GHG) at least during the construction phase of the CHSRA project? Why is data not included to show the extent to which CHSRA is a contributor to GHG during the construction phase of the project?

Even if we were to believe CHSRA's claims that it will reduce GHG by somewhere between 75.9 and 102 $MMTCO_2e$ over its first 50 years of operating life, the cost of construction is currently estimated to be $105 billion. Using CHSRA's 75.9 $MMTCO_2e$ estimate, **this puts its cost per $MTCO_2e$ reduction at $1,383.** Comparing this cost to the more cost-effective projects, this the means that – on an investment to return basis – the Dairy Digester Research and Development Program is 153 times more effective than CHSRA; the Sustainable Agricultural Lands Conservation Program is 153 times more effective than CHSRA; and the Forest Health Program is 48 times more effective than CHSRA. Comparing CHSRA to other transit projects, the Low Carbon Transit Operations Program is 15 times more effective than CHSRA; and the even the Clean Vehicle Rebate Program is more than 10 times more effective than CHSRA. Compared to the California Climate Investment's reported average rate of $125 per $MTCO_2e$, the average award recipient is 11 times more effective than CHSRA.

[7] Page 25, https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/2021_cci_annual_report.pdf

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Returning for a moment to the language of AB 32, the specific requirements of the The Global Warming Solutions Act of 2006's included the following: **Prepare a scoping plan for achieving the maximum technologically feasible and cost-effective reductions in GHG emissions from sources or categories of sources of GHGs by 2020.**

Question: CHSRA has achieved no GHG reductions by 2020 and will not for the foreseeable future. How does it meet the requirements of AB 32?

4494-9184

Question: When considering CHSRA in comparison to other recipients of cap-and-trade funds, even using CHSRA's own high estimates for eventual GHG reductions (i.e., over the next 50 years), CHSRA's cost per $MTCO_2e$ is significantly higher than the more successful program recipients which have already demonstrated GHG reductions. Given that CHSRA has not demonstrated and will not demonstrate **cost-effective reductions in GHG emissions** (by 2020, let alone ever), and AB 32 sets forth the expectation to achieve the maximum cost-effective reductions in GHG emissions, how does CHSRA meet the requirements of AB 32?

In its *Due Diligence Report*, the Reason Foundation highlights several problems with the HSR's claims that it will reduce GHG emissions. The first of those is that the United Nations Intergovernmental Panel on Climate Change has estimated that GHG emissions reductions can be achieved at a cost of $20 - $50 per ton. Using CHSRA data, Reason's report calculated that the emissions offset by the HSR during operation would cost $1,800 per ton – and this was before the cost of the project more than doubled and before ridership projections were revised downward.[8] This $1800/ton offset cost is in line with the $1,383/ton estimate calculated above.

Question: Given that the United Nations Intergovernmental Panel on Climate Change has estimated that GHG emissions reductions can be achieved at a cost of $20 - $50 per ton, and given that CHSRA's cost per ton is between 30 – 90 times that cost, how does CHSRA meet the requirements of AB 32 with respect to achieving **cost-effective reductions** in GHG emissions?

4494-9185

Question: Historically with respect to GHG reduction claims, CHSRA intentionally omits the GHG produced during construction of the project. How were CHSRA's estimates of 75.9 and 102 $MMTCO_2e$ over 50 years of operation calculated? Do these estimates take into account the GHG that are created/emitted during construction of the project? Assuming the answer is no, and the estimates were advised to take into account the GHG created during construction, what would be the net increase or reduction in GHG emissions?

Other independent entities have evaluated CHSRA's claims that it is a "green" project. The non-partisan California Legislative Analyst's Office states:

> *"High–Speed Rail Would Initially Increase GHG Emissions for Many Years.* As mentioned above, in order to be a valid use of cap–and–trade revenues, programs will need to reduce GHG emissions. While the HSRA has not conducted an analysis to determine the impact that the high–speed rail system will have on GHG emissions in the state, an independent study found that—*if the high–speed rail system met its ridership targets and renewable electricity commitments*—***construction and operation of the system would emit more GHG emissions than it would reduce for approximately the first 30 years***. While high–speed rail could reduce GHG emissions in the very long run, given the previously mentioned legal constraints, the fact that it would initially be a net emitter of GHG emissions could raise legal risks."[9]

Additionally, the researchers at the University of California, Berkeley, who published "*Life-Cycle Assessment of High-Speed Rail: The Case of California*" concluded that it would take 71 years of HSR operations to save enough GHG emissions to negate the emissions produced during the construction of the train. Much of HSR's ability to recoup its GHG emissions depends upon its ridership levels. The Berkeley researchers concluded that

[8] http://reason.org/files/california_high_speed_rail_report.pdf page 14
[9] http://www.lao.ca.gov/analysis/2012/transportation/high-speed-rail-041712.pdf.

if the HSR operates at 25% ridership capacity, it will NEVER achieve a recoupment on the amount of energy consumed and GHG emissions produced during construction.[10]

On the other hand, in Table 3.3-44, CHSRA asserts that, "The Build Alternatives construction would generate GHG emissions between 2020 and 2029. However, these emissions would be almost fully offset after 4 to 6 months of operations (depending on the ridership scenario and Build Alternative). After a maximum of 6 months, the Build Alternatives would result in net annual emissions reductions and a GHG benefit."

Question: The independent analyses conducted by California Legislative Analyst's Office and the University of California, Berkeley, each reach conclusions that are vastly different from CHSRA's own claims that it will recoup all construction emissions in the first 4 – 6 months of operation. How does CHSRA account for this difference?

SB 32 (Chapter 249, Statutes of 2016) established a 2030 greenhouse gas emission reduction target of 40 percent below 1990 levels.[11] Further, in April 2015, Governor Edmund Gerald Brown issued EO B-30-15, which directed **all State agencies with jurisdiction over GHG-emitting sources to implement measures designed to achieve the new interim 2030 goal**, as well as the pre-existing, long-term 2050 goal identified in EO S-3-05 of reducing emissions 80 percent under 1990 levels by 2050.

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Question: As no section of the train will be operable by 2030, by the time the State is legislatively required to achieve the target of 40% below 1990 GHG emissions levels, CHSRA will have only contributed to, not reduced, GHG emissions. How is CHSRA operating in compliance with the requirements of SB 32? As CHSRA is a State agency with jurisdiction over GHG-emitting sources, and CHSRA will be a net emitter of GHG between 2015 and 2030, how is CHSRA operating in compliance with EO B-30-15?

State law requires the Department of Finance, in consultation with the California Air Resources Board and other state agencies, to submit a three-year investment plan to the Legislature to guide the investment of Cap-and-Trade Auction Proceeds. The Third Investment Plan was submitted to the Legislature in February 2019 and provided three main recommendations to the Legislature. One of those was to:

> • Continue to invest in existing programs and prioritize new programs that **achieve near-term climate and health benefits** and contribute to long-term transformation to low-carbon communities and ecosystems that are adaptable and resilient.[12]

Question: Given that CHSRA will not achieve any reduction in GHG emissions until at least the train begins operating (and may never in the life of the train achieve a net reduction in GHG emissions), and given that CHSRA is by far the largest recipient of Cap-and-Trade Auction Proceeds, and given that the Department of Finance recommendation to the Legislature was to prioritize programs that **achieve near-term climate benefits**, how is CHSRA meeting the requirements of the state Investment Plan?

In Table 3.3-16, CHSRA sets forth its estimated emissions in each year of the construction period:

[10] http://its.berkeley.edu/btl/2010/spring/HRS-life-cycle
[11] Page 135, https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/2021_cci_annual_report.pdf
[12] Page 137, https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/2021_cci_annual_report.pdf

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Table 3.3-16 Annual Construction Emissions in the South Coast Air Quality Management District – SR14A Build Alternative

Projected Construction Year	VOCs	NO_x	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[3]
Annual General Conformity *de minimis* levels	10	10	100	100	100	100
Annual CEQA threshold	The SCAQMD does not have annual CEQA thresholds. The SCAQMD CEQA thresholds for daily emissions are presented in subsequent tables.					
Year 2020						
Emissions (tons/year)	1.2	13.5	38.5	0.1	4.7	1.3
Exceeds General Conformity threshold?	No	Yes	No	No	No	No
Year 2021						
Emissions (tons/year)	3.1	45.1	73.7	0.3	9.4	2.6
Exceeds General Conformity threshold?	No	Yes	No	No	No	No
Year 2022						
Emissions (tons/year)	4.3	49.0	100.7	0.4	11.2	3.0
Exceeds General Conformity threshold?	No	Yes	Yes	No	No	No
Year 2023						
Emissions (tons/year)	4.9	54.8	112.7	0.4	12.0	3.4
Exceeds General Conformity threshold?	No	Yes	Yes	No	No	No
Year 2024						
Emissions (tons/year)	2.4	30.9	69.5	0.3	6.3	1.9
Exceeds General Conformity threshold?	No	Yes	No	No	No	No
Year 2025						
Emissions (tons/year)	1.4	19.5	43.9	0.2	4.4	1.3
Exceeds General Conformity threshold?	No	Yes	No	No	No	No
Year 2026						
Emissions (tons/year)	0.6	11.5	19.3	0.1	2.7	0.8
Exceeds General Conformity threshold?	No	Yes	No	No	No	No
Year 2027						
Emissions (tons/year)	0.3	3.8	8.5	0.0	0.9	0.2
Exceeds General Conformity threshold?	No	No	No	No	No	No
Year 2028						
Emissions (tons/year)	<0.1	0.1	<0.1	<0.1	<0.1	<0.1
Exceeds General Conformity threshold?	No	No	No	No	No	No

Total for Years 2020 – 2028 (supposed construction phase of the project section).	VOC	NOX	CO	SO2	PM	PM
	18.3	228.2	466.8	1.8	51.6	14.4

Throughout the DEIR, CHSRA explains that it will rely on the purchase of "offset credits" to mitigate the GHG emissions it will generate during 10+ years of construction, as described on Page 3.3-72 of the DEIR:

> AQ-MM#1 requires the purchase of emission offsets through the SCAQMD Emission Offsets programs. Emission reduction credits will be obtained from SCAQMD to offset emissions associated with the construction of the Build Alternatives. Purchase of emission offsets through SCAQMD's RECLAIM Program or Air Quality Investment Program, emission reduction credits, or another mechanism, subject to discussion with and approval by SCAQMD (AQ-MM#1), would offset and/or decrease NOX emissions.

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On Page 3.3-79, CHSRA states:

> Unlike the federal General Conformity regulations, obtaining offsets or emission reduction credits for CO exceedances of the CEQA thresholds is not prohibited. AQ-MM#3, described in Section 3.3.7, requires the use of ZE or NZE technology for 25 percent of all light-duty on-road vehicles, with a goal to use ZE or NZE technology for 100 percent of the light-duty on-road vehicles, 25 percent of the heavy-duty on-road vehicles, and a minimum of 10 percent for off-road conduction equipment used for construction. **All remaining emissions after implementation of AQ-MM#3 will be offset with emission offset credits required under AQ-MM#1 to below the SCAQMD CEQA thresholds.** However, until the contractual agreement between the Authority and the SCAQMD is in place and the purchase of emission offsets is secured, this represents a significant and unavoidable impact for the SR14A Build Alternative.

Further, on Page 3.3-104 of the DEIR, CHSRA explains:

> Emissions from construction of the Palmdale to Burbank Project Section would be temporary. However, based on the amount of construction to be completed, **construction activities would involve heavy-duty construction equipment and cause air quality impacts that would conflict with or obstruct implementation of the applicable air quality plan, which serve to attain federal and state ambient air quality standards**. Construction NOx and CO emissions would exceed the SCAQMD and AVAQMD thresholds and could impede the implementation of the respective air quality plans. With incorporation of on-site IAMFs (AQ- IAMF#1, AQ-IAMF#2, AQ-IAMF#4, AQ-IAMF#5, and AQ-IAMF#6), NOx and CO effects will be reduced. With implementation of AQ-MM#1 and AQ-MM#2, construction emissions of NOx and CO will be offset until General Conformity or the CEQA threshold is met.

Per its own estimations as set forth in Table 3.3-16, CHSRA will be exceeding AQMD emissions levels in 7 of the 9 years of construction, and CHSRA will be required to purchase offset credits for at least these 7 years of construction.

4494-9187 **Question:** How can an agency that will be a gross polluter for at least the first 7 years of construction (i.e., to the extent that it is required to purchase offset credits as its emissions levels surpass those established by AQMD) simultaneously qualify to be the largest recipient of Cap-and-Trade funds?

4494-9188 **Question:** If the high-speed rail project is not completed, will CHSRA be required to return the funds it has already received to the Greenhouse Gas Reduction Fund so that the money can be reallocated to projects that actually reduce GHG emissions?

Question: If the high-speed rail project is completed, but never demonstrates a net reduction in GHG emissions, will CHSRA be required to return the funds it has already received to the Greenhouse Gas Reduction Fund so that the money can be reallocated to projects that actually reduce GHG emissions? Is there a penalty for not producing demonstrable emissions reductions?

4494-9189 **Question:** CHSRA includes the caveat that, "However, until the contractual agreement between the Authority and the SCAQMD is in place and the purchase of emission offsets is secured…" What is the process by which CHSRA purchases credits from AQMD? Is there the possibility that CHSRA will not be permitted to purchase the entirety of credits necessary to offset its construction emissions? In the event that CHRSA is unable to secure such a contractual agreement, what will CHRSA do to mitigate its significant deviance from AQMD accepted emissions levels?

Question: Why is purchasing offset credits considered to be an acceptable mitigation for pollution? Do the people who are living next to and working next to the construction staging areas (i.e., the people who will be

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subjected to the pollution for 10+ years) get a say in what is an acceptable mitigation for violating applicable air quality standards?

4494-9190

On Page 3.3-27 of the DEIR, CHSRA sets forth its General Assumptions for Construction Activities, stating, "This analysis quantitatively estimates construction phase emissions related to the earthwork and construction activity associated with the following Build Alternative components":

- Mobilization (including on-road deliveries)
- Site preparation/access roads (Off-road construction equipment, as well as on-road worker trips, deliveries, truck hauling, and grading activities)
- Demolition (Off-road construction equipment, as well as on-road worker trips, deliveries, truck hauling, and demolition activities)
- Earthmoving (Off-road construction equipment, as well as on-road worker trips, deliveries, and truck hauling activities)
- Tunneling (Off-road construction equipment, as well as on-road worker trips, deliveries, and truck hauling activities)
- Roadway segment construction (Off-road construction equipment, as well as on-road worker trips, deliveries, and truck hauling, grading, and paving activities)
- Grade separation construction (Off-road construction equipment, as well as on-road worker trips, deliveries, truck hauling, grading, and paving activities)
- Cut-and-cover (Off-road construction equipment, as well as on-road worker trips, deliveries, and truck hauling activities)
- Train station construction (Off-road construction equipment, as well as on-road worker trips, deliveries, truck hauling, grading, architectural coating, and paving activities)
- Retaining wall construction (Off-road construction equipment, as well as on-road worker trips, deliveries, truck hauling, and grading activities)
- Viaduct construction (Off-road construction equipment, as well as on-road worker trips, deliveries, truck hauling, and grading activities)
- Build Alternative alignment construction (Off-road construction equipment, as well as on-road worker trips, deliveries, and truck hauling activities)
- Demobilization (On-road deliveries)

While at first glance, this appears to be an exhaustive list of construction-related activities that would produce GHG emissions, upon closer look, there are several notable line items missing from this list. The first is concrete.

Per Table 2-12 (Summary of Design Features for the Build Alternatives) located on Page 2-79 of the DEIR, the Preferred Alternative features 27.95 miles of bored tunnel. For the ease of calculating using the estimated layman's methodology herein, we will call the tunnel length an even 28 miles.

The online "Concrete Calculator" located at https://www.calculator.net/concrete-calculator.html allows uses to estimate the volume of concrete necessary to build elements of various shapes and sizes. The screenshot below is the result of the calculation of the total volume of concrete necessary to build one of the twin bore tunnels at a length of 28 miles.

4494-9190

Circular Slab or Tube

Result

Total Volume: **17,852,399.33** cubic feet
or **661,199.98** cubic yards
or **505,523.65** cubic meters

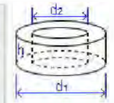
If using pre-mixed concrete with density of 2,130 kg/m^3 or 133 lbs/ft^3*:

Total Weight needed	2,374,369,111.42 lbs or 1,076,765,381.4 kg
Using 60-lb bags	39,572,818.52 bags
Using 80-lb bags	29,679,613.89 bags

* Different types of concrete can have very different densities.

Outer Diameter (d_1)	32	feet
Inner Diameter (d_2)	29.5	feet
Length or Height (h)	5280	feet
Quantity	28	

Calculate Clear



Total volume for one tunnel = 17,852,399 cubic feet of concrete.
For two tunnels (twin bore): 17,852,399 x 2 = 35,704,798 cubic feet of concrete.

In addition to the twin tunnels through which the HSR trains will traverse, there are going to be cross tunnels connecting the twin tunnels (primarily for the purpose of emergency evacuation), and these will be located every 800'. For 28 miles of tunnel, that means there will be 184 cross tunnels constructed (6.6 cross tunnels per mile of twin tunnel length).

Per CHSRA's specs set forth on Page 234 of the tunneling appendix, the average length of the cross tunnel will be 44', and the diameter of the cross tunnel will be 16'.

The screenshot below is the result of the calculation of the total volume of concrete necessary to build the 184 cross tunnels with the specifications set forth above.

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4494-9190

Circular Slab or Tube

Result

Total Volume: **319,518.55** cubic feet
or **11,834.02** cubic yards
or **9,047.76** cubic meters

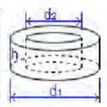
If using pre-mixed concrete with density of 2,130 kg/m^3 or 133 lbs/ft^3*:

Total Weight needed	**42,495,967.49** lbs or **19,271,724.19** kg
Using 60-lb bags	**708,266.12** bags
Using 80-lb bags	**531,199.59** bags

* Different types of concrete can have very different densities.

Outer Diameter (d_1)	17.5	feet
Inner Diameter (d_2)	16	feet
Length or Height (h)	44	feet
Quantity	184	

Calculate Clear



Adding together the concrete for the twin bores (35,704,798 cubic feet of concrete) + the concrete for the 184 smaller cross tunnels (319,518 cubic feet of concrete) = **36,024,316 cubic feet of concrete**.

To calculate the tons of concrete based on this volume, we can assume that:

1 cubic foot of concrete = .075 tons of concrete

1:.075 = 36,024,316:x

1x = 36,024,316 * .075

x = 2,701,823 tons of concrete

This estimate seems low when compared to comparable tunneling projects which have already been completed. For example, the Gotthard Tunnel in Switzerland consists of 35-mile long twin bore tunnels that are between 29 and 31.5 feet in diameter, with 178 cross passage tubes to connect them. This project used 4.4 million tons of concrete.[13]

The Channel Tunnel (the "Chunnel") connecting Folkestone, England to Calais, France is 31.35 miles in length and is a three-bore tunnel, consisting of two 25' diameter rail tunnels and one 16' diameter service tunnel in between. Given its length and the size of its tunnels, the Chunnel serves as a suitable comparator to the tunnels that CHSRA proposes to build through the San Gabriel Mountains. Though the Chunnel is slightly longer than the proposed Preferred Alternative, the Chunnel only has 2 portals (one at each end), whereas the

[13] https://www.basf.com/global/en/media/news-releases/2016/05/p-16-212.html

4494-9190

Proposed Alternative features 5 portals; therefore, the assumption is made that the Chunnel and the Preferred Alternative tunnels would use comparable amounts of concrete, as the amount of concrete needed at the greater number of San Gabriels tunnel portals offsets the greater length of the Chunnel. Construction of the Chunnel utilized 6.82 million tons of concrete,[14] which is more than twice the estimated 2.7 million tons of concrete needed to complete the tunneled portion of the Preferred Alternative.

Why is the volume of concrete an important consideration vis à vis GHG emissions?

Because the major component of concrete is cement, and the cement industry is one of the two primary producers of carbon dioxide, a GHG. The cement industry produces over 5% of worldwide man-made emissions of CO_2.[15]

California ranks second in the nation (just behind Texas) in terms of CO_2 emissions created by the cement industry, producing over 11 million metric tons per year.[16] The intensity of CO_2 emissions created by cement plants varies per state, and can be higher or lower depending on the fuel type, the raw ingredients used, and the energy efficiency of the cement plant.[17] While the weighted national average is 0.97 tons of CO_2 emitted for each ton of cement produced, California comes in slightly higher with just over 1 ton of CO_2 emitted per ton of cement produced. This makes for an easy comparison, as we can consider that for every ton of cement produced for the HSR project, one ton of CO_2 is emitted.[18]

If we use the estimate calculated above, that **2,701,823 tons of concrete** will be utilized in the construction of the tunnels for the Preferred Alternative, and if we use the industry standard that that structural concrete is comprised of 15% cement, then the tunnels will use:

2,701,823 * .15 = 405,273 tons of cement.

Employing the intensity factors established above, **we may conclude that the production of 405,273 tons of cement used to build the tunnels will produce 405,273 tons of CO_2.**

By comparison, the Gotthard Tunnel, with 4.4 million tons of concrete, utilized approximately 660,000 tons of cement, which equates to 660,000 tons of CO_2 emissions; and the Chunnel, with 6.82 million tons of concrete, utilized approximately 1.023 million tons of cement, which equates to 1.023 million tons of CO_2 emitted during construction. As these are comparable projects to the Preferred Alternative, we can assume that CO_2 emissions attributable to just the concrete used during the construction of the tunnel portion of the project will range from 400,000 tons to 1 million tons of CO_2.

4494-9191

Question: In its emissions estimates presented in the DEIR, does CHSRA include the amount of CO_2 that will be generated during the creation of cement mixed to build the tunneled portion of the project? If not, why not?

California Climate Investments reports its investments and outcomes on a statewide basis, not per geographic area or project section. As calculated above, between 400,000 and 1 million tons of CO_2 will be emitted simply from the production of the concrete utilized to construct the 28-mile tunneled segment between Palmdale and Burbank. But the Palmdale to Burbank segment represents only 7% of the total HSR length.

[14] Page 256 of Concrete in the Service of Mankind: Appropriate Concrete Technology. By Ravindra Dhir and Michael McCarthy. 1996.
[15] http://en.wikipedia.org/wiki/Environmental_impact_of_concrete
[16] http://epa.gov/ttnchie1/conference/ei13/ghg/hanle.pdf pages 9 and 10 CO2 Emissions Profile of the U.S. Cement Industry, produced by the EPA
[17] Page 6 http://www.nrmca.org/sustainability/ The Concrete CO2 Fact Sheet produced by the National Ready Mixed Concrete Association February 2012
[18] http://epa.gov/ttnchie1/conference/ei13/ghg/hanle.pdf pages 9 and 10 CO2 Emissions Profile of the U.S. Cement Industry, produced by the EPA

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4494-9192 **Question:** How many tons of CO_2 will be emitted during the production of the concrete needed to construct the remaining 492 miles connecting San Francisco to Los Angeles? Is California Climate Investments aware of these figures and, if so, why do they not include them when reporting annually on the efficacy of its Cap-and-Trade funding recipients?

Question: Does CHSRA assume that the concrete/cement tunnel linings will be manufactured locally? If not, where will they be manufactured?

In another chapter of the DEIR. CHSRA suggests that it may use 40-foot pre-fabricated lining segments. 28 miles x 5,280 feet / 40 feet = 3,696 segments. Admittedly this is for the entire circumference of the tunnel lining, and these would be broken into smaller segments to complete the round.

Question: In the event that these 3,696 tunnel segments are pre-fabricated elsewhere (i.e., to save local water sources) and then transported to the project section for installation, this will require 3,696 diesel truck trips made from a potentially significant distance. In its estimates of GHG emissions as set forth in the DEIR, has CHSRA included estimates of emissions that will be generated by the transportation of pre-fabricated concrete tunnel lining pieces?

4494-9193 **Question:** In Chapter 3.08 of the DEIR ("Hydrology and Water Resources"), CHSRA describes that for sections of the tunnel which experience water pressure in excess of 25 bar, CHSRA will install a second concrete tunnel lining. How will this additional layer of concrete lining impact the estimates above and, therefore, the overall carbon emissions stemming from the use of concrete in this project?

In an article entitled, "The Secrets of the World's Longest Concrete Tunnel," Cembureau, the European Cement Association, explains some of the unique factors of the Gotthard Tunnel in Switzerland. One of these was the stipulation that 100% of the aggregate used to make the concrete must come from recycling materials excavated on site. Cembureau explains that, "The key to ensuring that the material was sustainable was the use of recycled aggregate – with the tunnel team recycling more than one third of 28.2 million tonnes of excavated rock during the manufacture of the concrete."[19]

4494-9194 **Question:** Does CHSRA have plans to recycle any of the aggregate that it is removing from the tunnels as spoils and use it in the creation of concrete needed to build the tunnels?

In a previously released document on "Green Practices," CHSRA provides only one example of GHG tonnage produced by its construction activities. That's the example of 30,107 tons of CO_2 that it expects to be generated from construction of the first 29-mile segment of rail from Madera to Fresno.[20] This 29-mile Madera to Fresno segment is comparable in length to the 28-mile tunneled portion of the Palmdale to Burbank segment; however, the tonnage of emissions is drastically different between the two project segments.

In considering GHG emissions from cement alone, we can compare 400,000 tons to 1 million tons of CO_2 emitted during construction of the 28-mile Preferred Alternative tunnels to 30,107 tons of CO_2 emitted during construction of the 29-mile Madera to Fresno rail alignment. We can only assume that the difference is attributable to the fact that the Madera to Fresno segment is at grade, while the Palmdale to Burbank section is tunneled, meaning that it requires exponentially more concrete to build.

4494-9195 **Question:** If construction of a tunneled route will generate 30X as much GHG emissions than construction of an at-grade route of comparable length, and if CHSRA purports to be a "green project," then why does CHSRA not construct the Palmdale to Burbank project section at grade utilizing the existing transportation corridor?

[19] http://useofcement.cembureau.eu/2018/04/06/the-secrets-of-the-worlds-longest-concrete-tunnel/
[20] http://www.hsr.ca.gov/docs/programs/green_practices/HSR_Reducing_CA_GHG_Emissions_2013.pdf

4494-9195 In the same "Green Practices" paper, CHSRA explains that it will offset the 30,107 tons of CO_2 emitted during construction of the 29-mile Madera to Fresno rail alignment by planting over three million trees.[21] The equivalent for the Palmdale to Burbank section would require planting to over 90,000,000 trees.

4494-9196 **Question:** Does CHSRA plan to plant over 90 million trees along the Palmdale to Burbank project section in order to offset its GHG emissions in this region? To get a sense of how large that number is, if CHSRA did nothing but plant trees every day for one year, it would need to plant 246,575 trees every single day in order to plant 90 million trees on day 365. If we increased the planting time to 10 years – i.e., to coincide with the construction period of the project in the Palmdale to Burbank project section – then CHRSA would still need to plant approximately 25,000 each day in order to achieve the equivalent offset goal that it set for the Madera to Fresno project section.

4494-9197 In a recent article for *Electrical Contractor* magazine entitled "Feeding the Monster," author Claire Swedberg describes the important role played by Royal Electric Construction Corporation in a public utilities project in Columbus, Ohio that involves using a tunnel boring machine to tunnel 4.5 miles under the city.

> Of course, digging out a 4.5-mile tunnel under city streets, as well as under a river, requires not only heavy equipment, but also power. Royal Electric Construction Corp. is providing all power to light the way, pump water in and out of the tunnel, and maintain wireless connectivity. In addition, Royal is powering a giant by the name of Marsha, a 546-foot-long tunnel boring machine (TBM), which is chewing through rock and clay under the city. "There is a great deal of high-voltage and data work being done, and they are handling all aspects of the job," said Bob Rautenberg, Kenny Construction project manager.
>
> Marsha, the TBM, is working her way deeper into the tunnel—which drops down to 170 feet beneath the surface—at a rate of up to 40 feet per day, five days per week, 24 hours per day.The $16 million, two-story machine consists of its 95-ton, 23-foot diameter grinding disk and an excavation chamber where broken rock passes before entering an auger-screw conveyor. That conveyor excavates the material into a slurry system, where a water, rock and clay mix is pumped to the surface. The TBM also has thrust cylinders to hold six 5-foot-long concrete pieces in place, while installing them into what becomes a segment ring in the newly cut hole; those cylinders also advance and steer the machine by pushing off from the concrete segments.
>
> The TBM was assembled, as much as possible, on the surface in segments of 30–40 feet. The machine is hydraulically driven but requires electric power, so the mechanical and electrical contractors rely on each other to keep it operating correctly. To turn the blade, the machine requires six 350-kilowatt (kW) motors. Additionally, its 546-foot length houses multiple motors for the many oiling and grease systems and the fresh-air ventilation system.
>
> To power the TBM, Royal Electric installed approximately 18,000 feet of machine cable, ranging in size from 1/0 to 500 MCM (thousand circular mils) and more than 30,000 feet of low-voltage control cable for the wireless networks.
>
> The entire project is supplied with a medium-voltage switchyard that was constructed on-site to allow for two 14,400V circuits for the TBM and water-pumping system. Both circuits will travel the entire length of the expanding tunnel, one providing 26,000 kW to the TBM and the other providing 36,000 kW to the pumps that are moving fresh and wastewater through the tunnel. To accomplish this, more than 46,000 feet of 15-kilovolt, tough, oil-resistant, SO cable is being installed as the TBM travels toward the other end of the tunnel.

[21] http://www.hsr.ca.gov/docs/programs/green_practices/HSR_Reducing_CA_GHG_Emissions_2013.pdf

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4494-9197

The TBM's lower level houses three transformers to convert the incoming 14,400 circuit to 480 volts (V). The upper level contains five large motor control cabinets and an emergency generator for lighting in the event of a power outage.

The monthly cost to power the entire site for the temporary power averages between $75,000 and $100,000, and that average is expected to double toward the end of the project. In fact, this volume of electricity consumption causes a major challenge for contractors.

"The biggest hurdle is managing the incoming power," Rautenberg said. "We are limited on the amount of electrical energy that the city can supply to us, and we need to balance that energy between the TBM and the 13 pumps (six at 500 horsepower, seven at 300 hp) that need to be installed in the tunnel. We are working with Royal to optimize the positioning of all this equipment."

4494-9198

Question: Other sections of the DEIR address electrical requirements. Do the estimates that CHSRA set forth in Table 3.6-22 include the energy electricity to run multiple tunnel boring machines a day with each boring machine requiring up to 3,500 kwh (this number based on existing boring machine specifications)?

Additionally, this exceptional use of electricity factors into this chapter on Climate Change. The EPA's online Greenhouse Gas Equivalencies Calculator[22] allows a user to convert emissions or energy data to the equivalent amount of carbon dioxide emissions from using that amount.

We used the Greenhouse Gas Equivalencies Calculator to convert the amount of energy required to power one tunnel boring machine for the duration of time it would take to complete one tunnel.

Assuming an average daily energy usage of 3,500 kwh per day * 365 days per year * 10 years * estimation that it will really only be running 70% of the time due to downtime, maintenance, etc. = 8,942,500 kwh of electricity.

4494-9202

Inputting this number to the GHG Equivalencies Calculator, 8,942,500 kwh of electricity equates to 3,868 metric tons of CO_2 emitted just to operate one TBM.

Per "Construction Power Requirements" set forth in a report by Jacobs Associates for the Gorge 2nd Tunnel project in Seattle, the electricity consumed by the TBM represents about 55 percent of the total electric needed to run corollary operations in tunnel construction.[23] Therefore if we double the calculations above, we can estimate the total amount of electricity needed during tunnel construction. 8,942,500 kwh * 2 = 17,885,000 kwh of electricity, which equates to 7,736 metric tons of CO_2 emitted in order to run construction-related equipment during tunnel construction.

4494-9199

Question: In its emissions estimates presented in the DEIR, does CHSRA include the amount of GHG that will be generated by the electricity necessary to operate the TBMs and/or the related equipment necessary to effectuate tunnel construction? If not, why not?

4494-9200

Question: Given the challenges experienced by Royal Electric with respect to the sheer volume of electricity required for the project and the limited supply available from the city electric company, what conversations has CHSRA had with SoCal Edison and/or DWP regarding the 10+ year need for a significant increase in energy on an already stressed system?

[22] https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results
[23] https://www.seattle.gov/light/g2t/docs/Appendix_O_Power_Reqmts.pdf

4494-9200

Additionally, there is an electrical requirement for the production of cement. Per information presented by Cembureau, each ton of cement requires 121kwh of electricity to produce.[24] Per previous calculations in this comment section, we can assume that the construction of the tunnels in the Preferred Alternative will require between 400,000 and 1 million tons of cement.

400,000 * 121 kwh = 48,400,000 kwh of electricity. Using the EPA's GHG Equivalencies Calculator, that is equivalent to 20,938 metric tons of CO_2. Using the higher estimate of 1 million tons of cement, 1,000,000 * 121 kwh = 121,000,000 kwh of electricity, which equates to 52,344 metric tons of CO_2.

4494-9201

Question: In its emissions estimates presented in the DEIR, does CHSRA include the amount of GHG that will be generated by the electricity necessary to mix the cement utilized in the construction of the tunnels? If not, why not?

On Page 3.3-20 of the DEIR, CHSRA explains the statewide, regional, and local air quality standards that must be achieved with respect to sensitive receptors:

> The local air quality impact analysis focuses on the effects of pollutant emissions from both the construction and operation of the six Build Alternatives on nearby sensitive receptors. Sensitive receptors include residential dwellings, schools, churches, hospitals, and parks. The local RSA is defined as the Build Alternative footprint, plus 1,000 feet around the Palmdale and Burbank Stations, as well as roadway intersections projected to operate at unacceptable levels of service (i.e., generate localized pockets of traffic congestion and vehicle emissions) under future project conditions.

However, in Section 3.3.5.5, CHSRA sets forth its list of sensitive receptors that will be impacted by the build alternatives, including, "Non-residential sensitive receptors located within 1,000 feet of the Build Alternative."

4494-9202

Question: If "parks" were included in the definition of sensitive receptors on Page 3.3-20, why in its list of sensitive receptors in Section 3.3.5.5 does CHSRA not list the Angeles National Forest, the San Gabriel Mountains National Monument, the Big Tujunga Wash, and Hansen Dam? These locations are sensitive receptors that will suffer tremendous impacts as portals will be constructed and operated at their borders. In addition to many years of construction of the infrastructure needed to support portals, portals will also serve as a place by which spoils will be extricated for the duration of the excavation of the tunnels.

On Page 3.3-28 of the DEIR, CHSRA lists Build Alternative Start Dates as January 2020. This DEIR was not even released until nearly two full calendar years later, and will not be finalized/certified until at least three full calendar years after this supposed Start Date. Additionally, before the route can be started, significant additional geotechnical investigation will have to be conducted along the tunneled portions (i.e., 100 – 150 additional test bore holes will need to be drilled) before design-build contracts can even be bid, let alone issued.

4494-9203

Question: Why are CHSRA's dates so far off what could be considered a reasonable construction schedule? In releasing this DEIR to the public in September 2022, CHSRA was well aware that they had long passed the "Build Alternative Start Date" of January 2022. Why was the DEIR not revised to include more realistic dates?

On Page 3.3-113 of the DEIR, with respect to vehicle exhaust emissions, CHSRA states that:

> AQ-IAMF#1, AQ-IAMF#2, AQ-IAMF#4, and AQ-IAMF#5 implement the lowest- emitting construction equipment technology and adopt best management practices to minimize construction-period emissions. No additional emissions control/mitigation measures exist. Given that all feasible DPM control measures (i.e., renewable diesel, Tier 4–compliant construction equipment, and 2010 or newer

[24] https://cembureau.eu/about-our-industry/key-facts-figures/

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4494-9203

truck fleet) will already be implemented as IAMFs, no additional DPM control measures exist. Therefore, this impact would be significant under CEQA.

4494-9204

Question: In a separate section of this comment letter, we utilized information in the DEIR to calculate that more than 5 million truck trips will be required to haul spoils from the tunnel portals and transport them to their ultimate destination. Are the emissions from these 5 million truck trips included in CHSRA's Annual Construction Emissions tables?

4494-9205

Question: If, after the implementation of all available/known mitigation measures, the air quality impact with respect to vehicle exhaust emissions is still significant per CEQA standards, what is the consequence? It seems there are many study areas presented in this DEIR for which, even after mitigation, there will still be a significant impact. Has CHSRA prepared a Statement of Overriding Conditions? If not, will CHSRA prepare a Statement of Overriding Conditions and present it to the State Legislature for consideration with respect to either approval and/or funding requests vis a vis this project?

On Page 3.3-114 of the DEIR, CHSRA addresses the issue of Aircraft Emissions:

> As indicated in Table 3.3-37 and Table 3.3-38, the operation of the six Build Alternatives would be expected to reduce aircraft emissions when compared to the existing and future No Project baselines (Table 3.3-12). The decrease in aircraft emissions would occur as intrastate travelers are expected to shift away from flying toward more use of the California HSR System. The reduction in aircraft travel as a result of the California HSR System is the largest contributor to the reduction in statewide and regional emissions.

As more thoroughly examined in a separate section of this comment letter, there is no evidence to suggest that the implementation of high-speed rail in California will lead to a reduction in flights. The only flights that could change or be impacted by the implementation of high-speed rail are flights between San Francisco and Burbank (i.e., the hubs serviced by both HSR and airplanes). As of the time of this writing, current flights on both United and Southwest are $168 round trip between SFO and BUR and take under 1 ½ hours. On the other hand, a high-speed rail ticket is predicted to cost $200 round trip ($100 each way) and take a minimum of 2 hours 40 minutes.

4494-9206

Question: CHSRA's assumption that travelers will choose HSR over flying is overstated at best (if not misplaced entirely). Given the cost and time parameters set forth above, on what grounds does CHSRA believe that it will capture such a significant share of the air market?

Second, CHSRA's assumption that air carriers who currently service this route will simply take planes out of commission as passengers choose HSR over air is not realistic; in the event that airlines servicing SFO and BUR see a reduction in demand, they will simply reallocate those airplanes to different routes that are experiencing a higher demand.

Question: Considering that CHSRA admits that, "The reduction in aircraft travel as a result of the California HSR System is the largest contributor to the reduction in statewide and regional emissions," if CHSRA revised its calculations to not overstate HSR's potential capture of the air market, what emissions gains, if any, would result? If CHSRA recalculated its emissions tables based on the questions and information provided in this comment letter (including, but not limited to, factoring in and accurately reporting emissions generated during construction), what, if anything, would be the emissions gains for the lifetime of the project? In what year, if ever, would CHSRA recoup the amount of emissions generated during construction of the project?

4494-9206

On Page 3.3-129 of the DEIR, CHRSA asserts that:

> Operation of the Palmdale to Burbank Project Section would reduce statewide GHG emissions by 1.1 to 1.7 MMT CO2e in 2040, depending on the ridership scenario (medium and high). These annual reductions would represent 0.6 to 1.0 percent of the 172 MMT CO_2e needed to achieve the SB 32 goal.

Going back to the very first comments presented in response to this chapter of the DEIR, it is a requirement of AB 32 to, "**Prepare a scoping plan for achieving the maximum technologically feasible and cost-effective reductions in GHG emissions from sources or categories of sources of GHGs by 2020.**" CHSRA's current budget predicts that it will cost $105 billion to complete the high-speed rail network. Under CHRSA's own best-case scenario (and still not taking into account other construction-related emissions which we do not believe have been accounted for in CHSRA's tables), CHSRA predicts that its operations will represent, at most, 1% of the CO_2 emission reductions necessary to achieve the goals set forth in SB 32. In reviewing the "Summary of Investments and Outcomes" compiled by California Climate Investments, the cost-benefit ratio achieved by CHSRA would be the highest of all agencies administering programs funded by the Cap-and-Trade Auction Proceeds.

4494-9207

Question: Given that CHRSA has not demonstrated and cannot demonstrate that it can achieve cost-effective reductions in GHG emissions (let along achieve the maximum feasible cost-effective reductions in GHG emissions), how is CHSRA in compliance with the requirements of AB 32? Why should CHSRA continue to receive funding from the Cap-and-Trade auction proceeds when it is not a cost-effective program and when it is questionable if/when it will ever reduce GHG emissions?

In Section 3.3.4.5 (Method for Determining Significance Under CEQA) of the DEIR, CHSRA states that, "The Authority is using the following thresholds to determine if a significant impact on air quality and global climate change would occur as a result of the project. A significant impact is one that would:

1. Conflict with or obstruct implementation of the applicable air quality plan;
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the Palmdale to Burbank Project Section region is nonattainment under an applicable NAAQS or CAAQS;
3. Expose sensitive receptors to substantial pollutant concentrations;
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people;
5. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment;
6. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs."

Question: Considering that CHSRA's plans as set forth in Chapter 3.3 of the DEIR meet each/all six of the foregoing criteria for determining if a project will result in a "significant impact" on air quality and global climate change, how is this project in compliance with CEQA with respect to air quality considerations? If state and/or federal legislators were aware of the information presented in Chapter 3.3 of the DEIR, for what reasons should they continue to allocate funds to support the continuation of this project?

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CHAPTER 3.5: ELECTROMAGNETIC INTERFERENCE & FIELDS
CHAPTER 3.6: PUBLIC UTILITIES AND ENERGY
APPENDIX 3.6-A: HIGH RISK AND MAJOR UTILITY IMPACT REPORT

Electromagnetic Interferences and Electromagnetic Fields

4494-9208

Section 3.5, Electromagnetic Interference and Electromagnetic Fields, is CHSRA's evaluation of existing Generated Electromagnetic Fields (EMF) and how CHSRA's operations will impact existing EMF infrastructure. The existing EMF infrastructure includes radio waves (RF) from radio communications in use by Public Safety Organizations, Burbank Airport, private radio communications use by delivery companies, Cell Phone communications and EMF generated by critical machinery including Medical Equipment (MRI for example).

Per government regulation, CHSRA's generated EMF from CHSRA's operations (train's electric motors for example) must not create Electromagnetic Interference (EMI) which adversely impacts the operations of the EMF infrastructure or provide plans for shielding CHSRA's operations to mitigate the generated EMI from CHSRA's. CHSRA'S trains, tracks, and electrical infrastructure generate EMF fields. The generated EMF can impact existing EMF infrastructure as well as impact the health of people and animals in close proximity to the CHSRA train and electrical power lines and distribution stations. CHSRA has defined a 1000-foot buffer zone between CHSRA trains and power lines to mitigate the impact of EMI to people, animals, and electrical infrastructure in order to meet US and California regulations.

Question: CHSRA proposes to have their contractors "prepare an Implementation Stage Electromagnetic Compatibility Program Plan (ISEP) to identify construction BMPs that will minimize EMI/EMF effects and demonstrate how EMI/EMF will be maintained below applicable standards." Given how current CHSRA contractors on the Merced Line have not met CHSRA build standards as defined in their existing contracts, what actions will CHSRA take to ensure that appropriate standards are met within this project section? Will CHSRA implement heavy contractual penalties for failure to meet contractual obligations?

4494-9209

Question: CHSRA operations will operate in sparsely populated areas and through heavily populated areas. In non-tunnel CHSRA right of way, a 500' buffer from the centerline to streets, homes, businesses, or wildlife was studied to assess the effects of CHSRA EMF on the affected areas. For areas where a 500' buffer cannot be maintained, what mitigation will CHSRA provide to the impacted businesses, homes, schools, and wildlife? For example, if Sierra Hospital's MRI system is impacted by CHSRA EMF, who will pay to mitigate this impact – CHSRA or Sierra Hospital?

Table 3.5-2 (p3.5-3) identifies the Frequency and related Wavelengths studied for this section to evaluate CHSRA impacts to existing infrastructure.

Table 3.5-1 Relationship Between Typical Frequencies and Their Wavelengths

Frequency	Wavelength	Common Commercial Uses
60 Hz	3,105 miles	Electric power grid
10 kHz	18 6 miles	Radio navigation
10 MHz	98 4 feet	Shortwave radio
100 MHz	9.8 feet	FM radio
2000 MHz	6 inches	Cellular communications

Source: Authority, 2017
Hz = Hertz MHz = Megahertz
kHz = kilohertz

4494-9209

Volunteer "HAM" radio operators are critical during a catastrophic infrastructure emergency (such as earthquakes) and provides critical communications when established infrastructure (such as cell phones, landlines, and even public safety agencies) are inoperable.

In Appendix 3.5-A, Electromagnetic Measurement Survey Summary, the introduction indicates "Two types of measurements were performed at each location. The first involved measurement of radiated electric fields from 10 kilohertz (kHz) to 6 gigahertz (GHz), meant to characterize the radio frequency (RF) environment. These electric field strengths were measured using an RF spectrum analyzer and calibrated antennas."

The purpose of this evaluation is to measure the interference to existing RF infrastructure caused by the CHSRA and how the CHSRA will interfere with communications and electrical equipment operations close to CHSRA. By measuring the existing infrastructure RF environment, CHSRA performed an evaluation projecting how the CHSRA-generated RF will impact existing infrastructure and what mitigation would be required to eliminate or reduce the impact to the existing infrastructure or how the existing infrastructure could impact CHSRA operations.

During infrastructure emergencies (e.g., floods, earthquakes, fires), HAM operators provide critical communications when traditional infrastructure is down. During disasters, HAMs will establish mobile operations at critical locations. The most used HAM bands are in the Very High Frequency (VHF) and Ultra High Frequency (UHF) Bands; most often in the 144MHz, 220MHz, and 420MHz ranges. Most of the HAM repeater Networks, located on mountain tops and supported by backup power, operate in the VHF and UHF ranges. Additionally, HAMs may need to operate at the Super (SHF) and Extremely (EHF) Frequency Bands from 10 GHz to above 275GHz. While some infrastructure emergencies may shutdown CHSRA operations, the CHSRA electrical infrastructure could still be operations emitting EMI.

4494-9210

Question: Why did CHSRA exclude the HAM radio frequency spectrum above 2000MHz in section 3.5 in their evaluation of RF interference?

Question: Why was the RF environment capped at 6GHz when many HAM radio operators may need to operate at the SHF and EHF bands?

Question: Why was the RF environment capped at 200MHz (B6) and started again at 2.0Ghz (B9) on Table A3.5-1, ignoring the VHF and UHF bands?

Question: Why hasn't CHSRA considered RF impact on the critical HAM radio spectrums that become critical in local disaster situations?

Electrical Requirements of the High-Speed Rail System

4494-9211

Section 3.6.6.3 on p3.6-86 of the Draft EIR states: "The proposed California HSR System would obtain electricity from the statewide grid. None of the Build Alternatives would involve construction of a separate power source, but instead, would require the extension of existing power lines to traction power substations positioned along the HSR corridor. Impacts that might result from the proposed California HSR System would not affect statewide electricity reserves or transmission capacity. In September 2008, the Authority adopted a policy goal of utilizing renewable energy for all traction power. An industry survey in April 2013 indicated that there is sufficient renewable energy capacity to meet the system demand (Authority 2014b). Under the 2013 Policy Directive POLI-PLAN-03, the Authority has adopted a goal to purchase 100 percent of the HSR system's power from renewable energy sources (Authority 2016b)."

Table 3.6-7 Utility Service Provider (p3.6-24) of the Draft EIR indicates:

- Electrical Power to CHSRA will be provided by the local Power Utilities where CHSRA is planned to run. The relevant power utilities are Southern California Edison (SCE) from Palmdale to the LA City

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Line, Los Angeles Department of Water and Power (LADWP) from LA City Line to Burbank City Line, and Burbank Water and Power (BWP) from Burbank City Line to Burbank Airport.

- All electrical power (100%) will be from renewable sources.

4494-9211 **Question:** Is this based upon SB100 – The 100 Percent Clean Energy Act that sets "State Policy": that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all State agencies by December 31, 2045?

4494-9212 **Question:** It has been almost 10 years since CHSRA has evaluated electrical power requirements sufficient to power the Palmdale to Burbank Project Section. Given the significant changes to the existing power infrastructure, the addition of renewal power sources to the power grid, and expanding electrification automobile transportation, why hasn't CHSRA reevaluated and validated 10-year-old assumptions?

4494-9213 **Question:** What discussions has CHSRA had with SCE, LADWP, and BWP regarding CHSRA power requirements to support CHSRA Palmdale to Burbank operations? What are the dates/times of these discussions? Are there notes/documentation of these discussions? What conclusions/agreements have been made as a result of these discussions?

4494-9214 **Question:** Have the Power Utilities committed to supplying 100% green electricity to CHSRA? At peak CHSRA power requirements? During Heat Emergencies when Cal ISO has declared a power "Flex Alert"? If so, what conclusions/agreements have been made from these discussions? When and where were these commitments made, and by what people? Can CHSRA's planned power backup capabilities provide enough power to keep CHSRA operational until a "Flex Alert" has been lifted?

4494-9215 **Question:** Has CHSRA provided Peak/Normal/Minimal power supply requirements (KWh) to run the CHSRA train from Palmdale to Burbank based upon expected train traffic to SCE, LADWP, BWP by Utility?

Question: If the necessary power requirements are not currently available from either SCE, LADWP,and/or BWP, have these utilities committed to increasing their infrastructure to provide CHSRA's "Green" power requirements?

4494-9216 **Question:** How much power (KWh) is to be delivered to each CHSRA power distribution station? If this metric cannot be determined until detailed design is complete, how can CHSRA justify statements in the Draft EIR that the current or future energy grid can supply the 100% green energy required to power the Palmdale to Burbank Project?

Question: Does the electrical infrastructure (e.g., high power electrical lines, utility distribution stations, etc.) required to deliver electrical power from the Electrical Utility (SCE, LADWP, BWP) to CHSRA at each electrical Power Distribution Station currently exist?

Question: If the required electrical infrastructure does not exist, who will build the infrastructure? Who will pay for the cost of building this infrastructure: CHSRA or SCE, LADWP, BWP? If built by the Electrical Utility, will SCE, LADWP, and/or BWP bill back the cost of building the required infrastructure to CHSRA? Or pass it along to their customers?

4494-9217 **Question:** Has the cost of additional electrical infrastructure required to power CHSRA been included in the latest published CHSRA Palmdale to Burbank Project Cost Projections?

4494-9218 **Question:** Has CHSRA had discussions with SCE, LADWP, and/or BWP regarding high fire danger and the brown/black out of existing power lines to prevent catastrophic wildfires?

4494-9219 **Question:** In the event of a utility planned power outage, how will SCE, LADWP, and BWP allocate power to CHSRA?

Question: In the event of a utility planned power outage, will SCE, LADWP, and BWP prioritize power to their residential/commercial/government customers over CHSRA? How would this situation affect CHSRA train schedules and operations?

4494-9220 **Question:** Given that sections of the Palmdale to Burbank Project are within a High Fire Severity Zone, how will CHSRA mitigate these risks and ensure to CHSRA is operational?

4494-9221 **Question:** How will temporary power be provided to CHSRA contractors? Will temporary infrastructure be required – poles, lines, etc.? Who will be responsible for installing and removing this infrastructure? Who will pay for these activities?

Question: Has CHSRA negotiated power rates for construction for the temporary infrastructure required to build the CHSRA?

4494-9222 **Question:** Has CHSRA considered alternative electrical power supplies? Solar Power Arrays at CHSRA Power Distribution Stations? Placing Solar Arrays along the CHSRA above ground rights of way above the tracks and electrical train connections?

4494-9223 **Environmental Consequences**

Section 3.6.6.2, No Project Alternative of the Draft EIR, developed in 2016 details the assumptions used to provide environmental impact of the Palmdale to Burbank Project. This section states that, "Demand for energy would also increase at a level commensurate with population growth. Peak- and base-period electricity demand would increase and require additional generation and transmission capacity. According to the CEC Demand Analysis Office (CEC 2014), the average annual growth rate for statewide electricity demand between 2014 and 2026 is forecast to increase between 0.54 percent (low energy demand) and 1.27 percent (high energy demand). The CEC analysis included forecasts that considered impacts (beneficial and adverse) of approved efficiency programs, climate change, electric vehicle use, other electrification projects (including port projects and HSR), and demand response (time-of-use pricing) programs. Energy use in Los Angeles County would be anticipated to trend along the forecast state average during this same time period (2015-2040)."

Additionally, this section states, "Under the No Project Alternative, the projects listed in the regional transportation plans are expected to encourage both compact development and greater investment in local transit modes as a means of reducing VMT. Table 3.6-19 shows the projected 2040 estimate of energy consumed from fueling cars and planes, without the California HSR System. Under the No Project Alternative, the daily VMT in Los Angeles County would increase by the year 2040. In 2040, daily VMT would undergo an estimated increase of 9 percent under baseline conditions without implementation of the Southern California Association of Governments' *2016–2040 Regional Transportation Plan/Sustainable Communities Strategy* (SCAG 2016). With implementation of this plan, which includes operation of the California HSR System, it is estimated that VMT would be reduced by 0.7 percent in 2040."

This evaluation was completed in 2016, and as such, could not accurately predict the rapid increase in solar energy infrastructure (e.g., utility solar farms and rooftop solar), the increase of home solar battery systems, the rapid development and acceptance of electric vehicles, the government support of electrical charging stations along interstate and state highways, and the State of California's commitment to be Carbon Neutral by 2045. This evaluation also predicts net population gains, while California's population has held steady or decreased since 2016.

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4494-9223

Question: Why hasn't CHSRA re-evaluated the accuracy of the 9% MVT increase or the expected 0.7 percent reduction by 2040 considering the changing infrastructure environment?

Construction Impacts

4494-9224

Section 3.6.6.3 states: "Construction and operations of the Build Alternatives could result in temporary and permanent impacts on public utilities and energy." Table 3.6-20 Summary of Potential High-Risk and Potential Major Low-Risk Utility Conflicts identifies these risks by build alternative. These risks include long or short-term interruption to electrical, water, gas, and other utility infrastructure.

Question: What compensation will homeowners and businesses receive from if their utilities are suspended due to construction of the Palmdale to Burbank Project?

Question: What supplemental utilities (e.g., power generators, water tanks, etc.) will a homeowner or business receive to bridge their utility outage?

Question: Will CHSRA compensate homeowners if suspended utilities require the homeowner to temporarily relocate to a hotel or other location during the outage?

Question: Will CHSRA compensate business for their outages if suspended utilities shut down their business?

4494-9225

Temporary Energy Consumption During Construction

Impact PUE#6 states: "During construction of the Palmdale to Burbank Project Section, energy would be consumed for the construction of trackway, stations, and ancillary facilities; production and transportation of construction materials; and the operation and maintenance of construction equipment. These construction activities typically utilize diesel- or gasoline-powered equipment and vehicles. Table 3.6-22 shows estimates of construction-related indirect energy consumption for the construction phase of the Build Alternatives.

Table 3.6-22 Estimated Energy Consumption for Construction of the Build Alternatives Build Alternative	Central Subsection (MMBtu)	Burbank Airport Station (MMBtu)	Total Consumption (MMBtu)
Refined SR14	2,982,239	173,589	3,155,828
SR14A	3,061,181	173,589	3,234,770
E1	2,522,664	173,589	2,696,253
E1A	2,532,424	173,589	2,706,013
E2	2,838,622	173,589	3,012,211
E2A	2,850,812	173,589	3,024,401

Energy used during construction of the Palmdale to Burbank Project Section would represent a one-time, nonrecoverable energy cost. The temporary demand for energy utilized during construction would not require additional permanent electricity transmission capacity and would not increase peak- or base-period demands for electricity from the electrical grid system."

4494-9225

Question: Do the estimates in Table 3.6-22 include the energy electricity to run multiple tunnel boring machines a day with each boring machine requiring up to 3,500 kwh (this number based on existing boring machine specifications)?

4494-9226

Question: How can CHSRA claim that, "The temporary demand for energy utilized during construction would not require additional permanent electricity transmission capacity and would not increase peak- or base-period demands for electricity from the electrical grid system"? How would CHSRA's operations not increase peak or base power demand when the tunnel boring machines would be running 24 hours per day 7 days a week?

4494-9227

High Risk & Major Utility Impact Report

Appendix 3.6-A details the impacts of CHSRA to critical Utility infrastructure including. Water. Power. Phone. Internet cables, Sewer, and other impacts.

Per CHSRA's report, you communicated with the various Organizations (Public and Private) to understand their existing infrastructure and how CHSRA will impact this critical infrastructure for each of the proposed CHSRA Route Alternatives.

Question: Appendix 3.6-A latest communications were in 2016. Why hasn't this EIR been updated or validated with current conditions, considering the last communications were 7 years ago?

Question: Did CHSRA validate the findings in Appendix 3.6-A with each of the Impacted organizations? If so, when (date), with whom (persons), what were the results of discussion?

Question: Has CHSRA communicated with any of the impacted organizations since August 2016 to validate these findings? If so, when (date), with whom (persons), what were the results of discussion?

Question: Has CHSRA been informed of new or additional infrastructure projects since August 2016 (assuming this was the completion date of the Appendix) and how new or planned infrastructure would impact CHSRA Alternatives? If so, when (date), with whom (persons), what were the results of discussion? If updates were received, why are these updates not included in the Draft EIR?

4494-9228

Construction Water Usage

Appendix 3.8-D page 16 states that: "the volume of water necessary for construction of the SR14A Build Alternative has been estimated as a total of 193,680,000 gallons for the entire construction period." In water terms,193,690,000 gallons is equal to 595 acre feet (AF) of water required to complete construction of the entire SR14A Build Alternative.

In Section 3.6-19, CHSRA estimates the amount of water required to build various CHSRA structures, including tunnelling, concrete structures, construction buildings, and cut-and-cover structures. See table 3.6-4 below.

A ballpark estimate of the tunneling requirement for boring the tunnels for SR14A, assuming a boring speed of 43 feet per day, estimates between a low of 327,1400,000 gallons (1,004 AF) and a high of 660,228,000 (2,026 AF) of water. Estimating the combined construction water estimates for all identified structures is between a low of 471,930,000 gallons (1,283 AF) and high of 751,018,000 (2,305 AF) of water (see spreadsheet below).

These water estimates are ONLY for major SR14A structures. This does not include additional construction water requirements for personnel, dust abatement around construction sites, water for constructing additional

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utility infrastructures, or water required for movement of existing utility wires, pipelines, water lines, telecommunications lines and other construction activities.

The Western States of the US (i.e., California, Idaho, Utah, Wyoming, Nevada, Arizona, and Colorado) are in a multi-year long drought that will require reduced water allocations from the Sierra Nevada, Cascade, and Colorado Water sheds. Critical negotiations are currently being held by these Upper and Lower Colorado River Water Shed State to reduce water allocations to each State.

Question: Where does CHSRA expect to obtain this volume of water to support construction?

4494-9229

Question: Will CHSRA construction require a reduction in water allocation to all residents of California?

Question: Will CHSRA construction require a reduction in water allocation to California's multi-billion dollar agricultural sector?

Question: Since all Californians are currently being asked to reduce water usage, what benefits will California residents obtain from additional water reductions that would be required to build the Palmdale to Burbank project section?

4494-9230

Question: Will there be sufficient water to support ongoing CHSRA activities once the CHSRA is completed?

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Table 3.6-4 Water Demand Rates for Construction Activities Activity	Demand Rate
Constructing a steel structure (truss/arch)	10,000 gallons/structure
Constructing a concrete structure	10,000 gallons/structure
Constructing station buildings	20,000 gallons/building
Cut-and-cover	40,000 gallons/day/double track tunnel
Tunnel boring machine	55,000–105,000 gallons/day per tunnel boring machine[1]

Estimated Water Usage Table - Route SR14A Estimated

Feet per day estimate is based upon a Tunnel Boring Machine used in 2016 to bore a tunnel in the Swiss Alps. While this estimate is a maximum speed for this machine going through the Swiss Alps, the San Gabriel Mountains geology will provide additional challenges given the historic seismic conditions that currently exist.

Tunnel	Miles	Feet	Boring Speed-ft/day	Build Days
Tunnel 1	7.3	38544	43	897
Tunnel 2	3.1	16368	43	381
Tunnel 3	0.5	2640	43	62
Tunnel 4	0.9	4752	43	111
Tunnel 5	12.4	65472	43	1523
Tunnel 6	1.4	7392	43	172

Activity	Days to Build	Estimated Gallons per Day per Boring Machine	No. of Tunnels	Total Gallons per Activity	Acre Feet Per Tunnel	Tunnel Length(miles)
Tunnel 1						
Low Usage	897	55,000	2	98,670,000	302.81	7.3
Medium Usage	897	78,000	2	139,932,000	429.43	
High Usage	897	111,000	2	199,134,000	611.12	
Tunnel 2						
Low Usage	381	55,000	2	41,910,000	128.62	3.1
Medium Usage	381	78,000	2	59,436,000	182.40	
High Usage	381	111,000	2	84,582,000	259.57	
Tunnel 3						
Low Usage	62	55,000	2	6,820,000	20.93	0.5
Medium Usage	62	78,000	2	9,672,000	29.68	
High Usage	62	111,000	2	13,764,000	42.24	
Tunnel 4						
Low Usage	111	55,000	2	12,210,000	37.47	0.9
Medium Usage	111	78,000	2	17,316,000	53.14	
High Usage	111	111,000	2	24,642,000	75.62	
Tunnel 5						
Low Usage	1,523	55,000	2	167,530,000	514.13	12.4
Medium Usage	1,523	78,000	2	237,588,000	729.13	
High Usage	1,523	111,000	2	338,106,000	1037.61	
Tunnel 6						
Low Usage	172	55,000	2	18,920,000	58.06	1.4
Medium Usage	172	78,000	2	26,832,000	82.34	
High Usage	172	111,000	2	38,184,000	117.18	

Bridge	# Trusses per Bridge	Gallons per Truss	No. of Bridges	Total Gallons per Bridge	Acre Feet Per Bridge	Number of Trusses is a guestimate given actual building plans don't exist.	Location	# Trusses
Bridge 1	8	10000	1	80,000	0.25		Barrel Springs	8
Bridge 2	16	10000	1	160,000	0.49		Red Rover	16
Bridge 3	10	10000	1	100,000	0.31		Big Springs-1	10
Bridge 4	12	10000	1	120,000	0.37		Big Springs-2	12
Bridge 5	6	10000	1	60,000	0.18		Big Springs-3	6
Bridge 6	4	10000	1	40,000	0.12		Big Springs-4	4
Bridge 7	7	10000	1	70,000	0.21		Agua Dulce -1	7

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Bridge 8	20	10000	1	200,000	0.61		Agua Dulce -2	20
Bridge 9	12	10000	1	120,000	0.37		Soledad Cyn-1	12
Bridge 10	18	10000	1	180,000	0.55		Soledad Cyn-2	18
Bridge 11	4	10000	1	40,000	0.12		Tujunga Channel	4
Bridge 12	6	10000	1	60,000	0.18		Lankershim Bl	6
Bridge 13	6	10000	1	60,000	0.18		Tuxford St	6
Total Bridge				**1,290,000**	**3.96**			

Cut and Cover	**Days to Build**	**Gallons per Day**	**No. Cut Cover**	**Total Gallons per Tunnel**	**Acre Feet Per Tunnel**	**Number of days to build are an estimate given building plans don't exist.**	**Distance/Miles**
Olinda St	800	40000	1	32,000,000	98.20		1
Burbank Airport	1000	40000	1	40,000,000	122.76		1
Total Cut/Cover				**72,000,000**	**220.96**		

Trench	**Days to Build**	**Gallons per Day**	**Total Gallons per Activity**	**Total Gallons per Trench**	**Acre Feet Per Trench**	**Assume Trench 50% Cut and Cover**	**Distance/Miles**
Montegue St	200	20000	1	4,000,000	12.28		0.5
Tuxford	400	20000	1	8,000,000	24.55		1
Total/Trench				**12,000,000**	**36.83**		

Other Structures	**Number of Structures**	**Total Gallons per Structure**	**Total Gallons per Activity**	**Total Gallons per Trench**	**Acre Feet Per Trench**
Station Buildings	25	20,000	1	500,000	1.53
Concrete Structure	500	10,000	1	5,000,000	15.34
Total Other				**5,500,000**	**16.88**

Estimates Project Water Usage
Estimate Per Table 3.6-4

	Gallons			**Acre Feet**		
	Low	**Medium**	**High**	**Low**	**Medium**	**High**
Tunnel	327,140,000	463,944,000	660,228,000	1,004	1,424	2,026
Bridges	1,290,000	1,290,000	1,290,000	4	4	4
Cut/Cover	72,000,000	72,000,000	72,000,000	221	221	221
Trench	12,000,000	12,000,000	12,000,000	36.83	36.83	36.83
Other Structures	5,500,000	5,500,000	5,500,000	16.88	16.88	16.88
Total	**417,930,000**	**554,734,000**	**751,018,000**	**1,283**	**1,702**	**2,305**

Table 3.6-30 Summary of CEQA Significance Conclusions and Mitigations Measures for Public Utilities and Energy states: "Impact PUE#3 Effects from Water Demand during Construction, Level of CEQA Significance after Mitigation is Less than Significant."

4494-9231

Question: Given the current drought conditions and expected low level of water availability in the future, how can CHSRA still consider this impact "Less than Significant"?

Impact	**Level of CEQA Significance before Mitigation**	**Mitigation Measures**	**Level of CEQA Significance after Mitigation**
Construction Impacts			
Impact PUE#1: Planned Temporary Interruption of Utility Services.	Significant	PUE-MM#2	Less than Significant
Impact PUE#2: Accidental Disruption of Utility Systems.	Less than Significant	No mitigation measures are required.	N/A
Impact PUE#3: Effects from Water Demand during Construction.	Significant	PUE-MM#1	Less than Significant

CHAPTER 3.7: BIOLOGICAL AND AQUATIC RESOURCES

Questions:

4494-9232

3.7-4 Who will be stipulating recovery plans? Who will be carrying the plans out? Who will be paying for them?

4494-9233

3.7-9 Over what time period has CHSRA been working with the U.S. Forest Service with respect to the ANF? Were communications available to the public? If not, then why not?

What is the process for voluntary protections under CA Assembly Bill 498?

4494-9234

3.7-10 Are all contractors working in the ANF familiar with each of these listed Acts and Codes?

4494-9235

3.7-11 Is the Authority exempt from Forest Service regulations? What would be an example of a mitigation measure that would minimize removal of native vegetation?

4494-9236

3.7-12 What would be an example of an unavailable RSA? What exactly is the process of identifying species through aerial photography interpretation?

4494-9237

3.7-18 How much training would be given during construction in addition to before construction? What is an example of WEAP training material? What is an example of a special status plant that might be encountered? Will workers be distracted from identifying plants when doing their jobs?

4494-9238

3.7-19 How many Project Biologists will be working in an area? Will there be video cameras at night to track animal life? How will wildlife movement corridors be identified? What

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4494-9238

materials will be used to clean vehicles? Will rodenticides be used, given that they are harmful to animals, including owls and mountain lions?

4494-9239

3.7-22 What are examples of modeling tools?

4494-9240

3.7-24 Were any of the Field Surveys, aside from the red-legged frog, actually conducted in the field as opposed to prepared from desktop research or aerial photographs?

4494-9241

3.7-28 How were these 5 species chosen? Black bears are also prevalent in the San Gabriel Mountains. Why are they not on the list?

4494-9242

3.7-29 What are the special status plants? How many are there?

4494-9243

3.7-32 Although much of the 834-square mile Los Angeles River Watershed has been paved over, it is not necessarily largely polluted. What specific evidence is there that water from the area cannot be converted or used, especially in this time of drought? Which specific areas of the 834 square miles can be used? How will vegetation communities be affected by spoils hauling both in north and south routes?

4494-9244

3.7-90 Since what is under the mountains affects what is above, how might wildlife be affected in significant ecological areas? How would vibrations from trains affect animal and wetland life as the train traverses these areas above ground? What part of Hansen Dam is under the jurisdiction of the Army Corps of Engineers?

4494-9245

3.7-92 Are any of the Build Alternatives to go on ground level in any part of the 275,000 protected areas? Are specific wildlife corridors known to the Forest Service?

4494-9246

3.7-93 What wildlife, including but not limited to mountain lions, have been killed on the 14 Freeway?

4494-9247

3.7-95 Exactly what is meant by "would affect?"

4494-9248

3.7-96 To what extent are special status plants protected by law? Does "range of impact" mean that plants would be destroyed? Does "acres of impact" signify the number of acres found within the area of a Build Alternative or the number of acres that would be destroyed by the Build Alternative?

4494-9249

3.7-96-99 What will be done to mitigate the loss of threatened, endangered, and rare species plants?

4494-9250

3.7-101 How will the destruction of each plant community specifically affect wildlife (mammals, birds, fish) that depend on the plants for shelter or food?

4494-9251

3.7-102 Will workers be allowed to smoke during construction?

4494-9252

3.7-102 Why is CHSRA using the word "temporary" to describe impacts? How could the impacts described be temporary? How many biologists would be present on-site during construction? What are examples for WEAP training materials for workers? Where would construction spoils and waste go? How can construction equipment be cleaned and still not affect plant life from water drain off? Realistically speaking, how can hydrology changes in groundwater levels during construction be "temporary" in their impacts on plant life?

4494-9253

3.7-103 Is there groundwater recovery from tunnel construction as mentioned in the Arrowhead Tunnels? If so, how did that affect vegetation recovery?

4494-9254

3.7-106-7 How can the Authority justify destroying plants living in the San Gabriel Mountains National Monument? Is not that land protected? If endangered species of plants and animals are present, aren't they federally protected?

4494-9255

3.7-110 In a 2015 meeting in Pacoima, Michele Boehm from CHSRA told those present, including myself, "If any routes affect the watershed, then they won't be selected." Was this statement, made by a high-ranking High-Speed Rail representative, not accurate? If it was accurate, then why are routes with impacted streams that foster plant communities being considered?

4494-9256

3.7.109 Research has now established the fact that tree communities communicate underground, and their well-being depends upon this communication. How will forest communities of special-status trees survive when their habitats are interrupted?

4494-9257

3.7-112 How will surveys for Special-Status Plant Species and Communities be conducted? Where will seed banks be stored? How will they be preserved, and then who will replant them? Where will they be replanted, and who will monitor their growth? What exactly is Vernal Pool Work Restriction? Who will oversee the work? What would be an example for BIO-MM#32,33 of associated plants that rely on a particular special-status plant? For how long during train operation would monitoring of aquatic resources continue?

4494-9258

3.7-113 Who would receive compensation in BIO-MM#38? Who would determine what that compensation should be? What method would be used for restricting sensitive plant areas from construction areas? Would once a year suffice for an Annual Vegetation Control Plan? Wouldn't such plans vary by species? Who will be making specific plans in specific areas and monitoring activities? What does a Compliance Reporting Program look like? Who receives it and gives feedback? How do plans make impacts on plants "less than significant for all six Build Alternatives"? How could the Authority know if restoration of an affected habitat area is successful? How long would such an area be observed and maintained to determine success? What entity would receive compensation?

4494-9259

3.7-114 When were surveys and habitat assessment conducted for red-legged frog populations? Were the observations done in person? If so, by whom?

4494-9260

3.7-116 How do we know that destruction to aquatic breeding habitats would be temporary? How often will the BIO AMFs be employed? Will workers be on the job at night?

4494-9261

3.7-117 How does one compensate for "unavoidable impacts"? How will groundwater inflow during tunnel construction affect people who depend upon wells in the ANF for their water? Is there compensation for them?

4494-9262

3.7-121 What is the source of the surveys, Restoration Plans, and Minimization Measures? Have they been used in other high-speed rail construction projects? How successful have been? What are examples of Construction Activities and monitoring measures that can reduce impacts on nesting habitats? When a species is lost, how is it compensated?

Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9263

3.7-122 What constitutes a way to eradicate weeds? Would a weed killer be used? It is important that rodenticides not be used. Will Arundo be eliminated? What are examples that would need reduced traffic speeds? Are these roads that are shared with other vehicles not related to High-Speed Rail construction? In what way and how often would compliance reports be made? Who receives them? What are examples of construction activities that can reduce impacts on breeding habitats for amphibian species? Will there be workers who specialize in construction in wetlands?

4494-9264

3.7-123 How can one determine that the listed mitigation measures automatically make impacts on amphibians less than significant in all cases, when construction has not started? Will construction continue from February to September during nesting months for the 5 FESA-listed species?

4494-9265

3.7-125 How has CHSRA concluded that, "There is no known breeding activity within 10 miles of the Build Alternatives?" How do we know this to be true?

4494-9266

3.7-128 Looking at Section 3.7.4.2:

BIO-IAMF #1: Would appropriate Biologists for specific areas plan ahead to coordinate with bird nesting habits?

4494-9267

BIO-IAMF#2: If issues are raised following a meeting between agencies, such as the USFWS, and sent to the Authority, what happens next?

4494-9268

BIO-IAMF#3: How long should dissemination of WEAP Training Materials take to thoroughly make certain that workers understand? How are workers evaluated for understanding? Are materials available in the primary language of each worker?

4494-9269

BIO-IAMF#4: What is an example of a penalty for noncompliance of a regulation?

4494-9270

BIO-IAMF#5: At what point in the building process is the Resources Management Plan compiled?

4494-9271

BIO-IAMF#6: What is an example of a type of material appropriate for a particular species protection? Will the Project Biologist inspect for wildlife daily?

4494-9272

BIO-IAMF#8: How much space will be used by staging areas and traffic routes that cover special-status species? How long will species be restored when temporary structures are removed? How large and permanent will the staging areas for construction equipment be?

4494-9273

BIO-IAMF#9: Will a new facility be built for storing construction spoils and waste? If so, how large will it be? How will disrupted plant species be preserved? What is meant by "treatment"?

4494-9274

BIO-IAMF#10: Where will cleaning locations be? How large and disruptive to the forest will they be? What materials will be used to clean the equipment?

4494-9275

BIO-IAMF#11: Will rodenticides that can harm animals, such as bobcats and mountain lions, be used? What method will be used to train workers to implement correct housekeeping?

4494-9276

BIO-IAM#12: How will books regarding electrical wires and birds be enough to affect disrupted nests, noise from construction, and fragmented habitats of birds? Will construction avoid the breeding season for birds?

4494-9277

3.7-133 In the Protection of Wetlands (USEO 11990), "practicable measures to minimize harm" are necessary. How would the Bio Mitigation Measures that conduct surveys reduce impacts on nesting birds? What do the surveys consist of? Who conducts them? How are their results translated to construction workers?

In BIO-MM#16, what specific measures would protect the California Condor? How does noting the presence of a nest protect the Swainson Hawk or the Burrowing Owl? What specific mitigation measures are used for protection? Does construction cease? Since restoration of habits and foraging areas are key to preservation of species, how would revegetation be carried out and when would it be done?

4494-9278

3.7-134 How and when will mitigation measures be documented? What evidence is there that habitat restoration will cause birds to return to a previous area?

How specifically will weeds be controlled? What are examples? How is noise from construction confined? What are specific examples of reducing traffic speeds through the ANF? What does the Compliance Reporting Program consist of? What entity receives it? How is it evaluated during construction? BIO-MM-63 states the Work Stoppage is the same as "reduced." Which is it?

4494-9279

3.7-135 How does an active eagle nest get relocated? Who replaces an eagle nest? What measures are referred to in BIO-MM#68? Who identifies the Tricolored Blackbird Nest Colony? What method is used for the identification? What mitigations methods beside identification of habitats are used? How is helicopter use avoided? Migrating birds can be drawn to light at night. How will they, along with the California Condor, be protected? What are examples of "helicopter-based construction activities"? How would special-status birds be rescued? How do surveys directly reduce impacts on bird species?

4494-9280

3.7-136 Where would supplemental water for fostering habitat come from, and how would it be delivered? What "compensatory mitigation" would be issued and to whom? How does that make for "less than significant?"

4494-9281

3.7-138 How do mitigations involving biologists, planning, training, waste disposal, traffic, and maintenance of workspace and tools insure that special status fish are protected? How much time would this preparation be allowed?

4494-9282

3.7-142 BIO-MM#-32: At what point in the construction would riparian habitat be restored?

4494-9283

BIO-MM#33: What is the process for restoring aquatic resources? What is the difference between "Temporary" and "Permanent" impacts to fish?

4494-9284

BIO-MM#34: How does monitoring construction activities help to reduce impacts on fish? What is one activity that would have an effect in protecting a special status fish?

4494-9285

BIO-MM#46: How is it determined that compensatory mitigation is appropriate? Who receives compensation? What is the follow-up process to offset the loss?

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4494-9286 BIO-MM#47: Are Aquatic Resources to be replenished? What is the source for replenishment?

4494-9287 BIO-MM#53: What is done with offset compensation?

4494-9288 **3.7-143** How could construction itself reduce special-status fish disturbance? What power would the Biologist have in enforcing these mitigations? To what extent does the contractor follow the biologist's recommendations?

4494-9289 BIO-MM#61: Who is responsible for compiling and reporting on implementation of mitigation measures? How does a report reduce impacts on special-status fish?

4494-9290 BIO-MM#62: What is an example of a mitigation measure to reduce an impact on a special-status fish species should dewatering be an issue?

4494-9291 BIO-MM#63: How likely is it that work will be stopped for a fish species?

4494-9292 BIO-MM#76: What is meant by "relevant guidelines for all special-status fish species?"

4494-9293 BIO-MM#84: How knowledgeable are workers expected to be of the three-spine stickleback? How will workers show their knowledge from an awareness program? Why will contaminants be allowed to enter the Santa Clara River channel?

4494-9294 BIO-MM#86: What are some expected weather or seasonal work restrictions?

4494-9295 BIO-M#87 What are some spill-proof measures?

4494-9296 **3.7-144** BIO-MM#88: Which debris prevention measures are expected to be most effective?

4494-9297 BIO-MM#89 Exactly what are the seasonal restriction dates for the unarmored three-spine stickleback?

4494-9298 BIO-MM#90: If dewatering decreases water in the Santa Clara River, at what point will construction dewatering results begin again? Are pollutants expected to enter the river?

How do planned mitigations result in less than significant impacts? How are habitat areas measured to determine whether mitigation measures have been successful? At what point does measurement take place? Who receives compensation?

4494-9299 **3.7-146** How can the mitigation measures listed prevent construction activities, off-road traffic, and chemical runoff into habitats of special-status invertebrate habitats?

4494-9300 BIO-MM#3: Does surveying the area for wildlife species change construction at all?

4494-9301 BIO-MM#4: What is an example of vernal pool work restriction for a particular species? Would work stop during that period?

4494-9302 **3.7-147** BIO-MM#6: How will a revegetation plan, even if implemented, bring back a butterfly? When and how would its success be determined?

4494-9303 BIO-MM#39: What kind of compensatory mitigation can be expected?

4494-9304 BIO-MM#47: What is an example of an offset for a species?

4494-9305 BIO-MM#50: Who will supervise and carry out these mitigation measures? How will restoration be measured?

4494-9306 BIO-MM#53: What is an example of a Compensatory Mitigation Plan for a specific species?

4494-9307 BIO-MM#55: Who will prepare and implement the weed control plan?

4494-9308 BIO-MM#56: Will the Contractor be answering to the Biologist? Will the Biologist be present at all construction activities which could impact invertebrate species habitat?

4494-9309 BIO-MM#60: What is a safe speed for a particular construction vehicle in an endangered butterfly zone?

4494-9310 **3.7-148** BIO-MM#61: How often are compliance reports written? Who receives them?

4494-9311 BIO-MM#63: What is an example of work stoppage or reduction?

4494-9312 BIO-MM#94: How will workers recognize Monarch Butterfly host plants? What kind of compensatory mitigation would be provided?

4494-9313 How are the mitigation measures above ground guaranteed to be effective and, thus, considered "less than significant?

4494-9314 **3.7-150** What is the likelihood of mountain lions straying into human-populated areas as a result of high-speed rail construction disturbance? How will loss of mountain lions be determined and tabulated?

4494-9315 How can lighting be changed and/or reduced to discourage insects and prevent disorientation of bats?

4494-9316 **3.7-151** How do the listed BIO-IAMFs work for recognition of badger presence and survival? What does preservation "to the extent feasible" actually mean for a special-status mammal, such as a badger or bat? What studies are referenced by "previous monitoring of tunnel effects?"

4494-9317 **3.7-155** BIO-MM#6: How could revegetation plans be made for a ringtail?

4494-9318 BIO-MM#25: How will mitigation be determined as successful for bats?

4494-9319 BIO-MM#26: What method would be used to relocate bats?

4494-9320 BIO-MM#27: How do bats get excluded?

4494-9321 BIO-MM#28: How would construction be changed to avoid Ringtails?

4494-9322 BIO-MM#29: Once a badger den is spotted, does construction cease?

4494-9323 BIO-MM#36: How deep into the ground will barriers be installed?

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4494-9324		BIO-MM#47: What is an example from an aquatic resource that would provide compensatory mitigation?
4494-9325		BIO-MM#50: Who will oversee Off-Site Habitat Restoration? How soon after construction will it be implemented?
4494-9326		BIO-MM#55: What is an example for a weed control plan for a specific habitat?
4494-9327	**3.7-156**	BIO-MM#56: How many Project Biologists will be monitoring sensitive areas when several different locations are involved in construction at a given time?
4494-9328		Will different types of exclusionary materials be installed at the same locations for different species? If construction equipment would crush burrows, how would impacts on species be avoided?
4494-9329		BIO-MM#61: Does compliance reporting necessarily insure that impacts on special-status species are reduced?
4494-9330		BIO-MM#63: How many times is work stoppage expected to minimize mammal injury?
4494-9331		BIO-MM#76: What is an example of a Wildlife Rescue Measure?
4494-9332		BIO-MM#96: Will cameras be used when surveying for mountain lion dens?
4494-9333		BIO-MM#97: Once a mountain lion den is located, what is a following procedure?
4494-9334		BIO-MM#99: How would reduced lighting be different for species which are accustomed to no lighting? What lighting that is not artificial would be employed?
4494-9335	**3.7.157**	How exactly is groundwater-dependent surface water monitored? Where would needed supplemental water come from? How does CHSRA guarantee that the mitigation measures would make impacts "less than significant"?
4494-9336	**3.7-163**	BIO-MM#6: How does a plan reduce impacts?
4494-9337		BIO-MM#7: How are surveys for reptile and amphibian conducted?
4494-9338		BIO-MM#8: Will amphibians be cleared from construction areas on a daily basis?
4494-9339		BIO-MM#36: What materials are best for barriers against reptiles?
4494-9340		BIO-MM#47: Who prepares this plan? How is the contractor involved?
4494-9341		BIO-MM#50: How do off-site mitigations differ from other mitigations?
4494-9342		BIO-MM#52: What specifically is done during lizard monitoring?
4494-9343		BIO-MM#53: Does a mitigation plan aways offset impacts?
4494-9344		BIO-MM#55: What is an example of an invasive weed and an example of a weed control plan that would be implemented in reptile species habitat?

4494-9345	**3.7-164**	What evidence is there that the aforementioned mitigation measures will make impacts "less than significant"?
4494-9346	**3.7-167**	To what extent would the E2 Build Alternative affect private wells in Kagel Canyon, north of Lake View Terrace? Because construction is significantly longer than two growing seasons, how long will it take for aquatic resources to be restored?
4494-9347	**3.7-169**	With BIO-IAMF#11, what is considered a "timely manner" for weed abatement that will reduce impacts on aquatic resources? What regulatory agencies receive documentation? What sources are used for previous monitoring of tunnel effects? How are they pertinent to the ANF?
4494-9348	**3.7.172**	What is the name of the "agency-approved mitigation bank"? Knowing that the CEQA Conclusion acknowledges significant impact, how can CHSRA justify destroying California and Federal wetlands and water, especially in this time of extreme drought?
4494-9349		BIO-MM#4: How would pool work restriction be carried out? Who would monitor it?
4494-9350		BIO-MM#5: What expert will oversee avoidance and minimization measures?
		What is an example of one measure and how it protects aquatic resources?
4494-9351		BIO-MM#s32,33: How will habitats be restored?
4494-9352		BIO-MM#34: Will waters not considered Jurisdictional also be monitored?
4494-9353		BIO-MM#39: Who will oversee the mitigation for impacts?
4494-9354		BIO-MM#47: Will these mitigation plans also be approved by Federal authorities? What are several different specific plans to mitigate impacts on shrimp habitats?
4494-9355		BIO-MM#50: How does saying that some unstated measures will definitely minimize and reduce impacts on habitats actually mean that aquatic resources will be restored?
4494-9356	**3.7-173**	BIO-MM#56 and BIO-MM#58: Who will be in charge of these two mitigations?
		What will be the source of supplemental water? Do the mitigations mentioned here change impacts under CEQA? How?
4494-9357	**3.7-176**	Who will design, monitor, and implement the mitigation measures that are to be applied in each area that has construction that could affect fish and wildlife species in streams, rivers, and lakes?
4494-9358	**3.7-177**	Can changes in groundwater levels caused by tunnel construction be permanent?
4494-9359	**3.7-178**	Is tunnelling allowed in the SGMNM?
4494-9360	**3.7-179**	BIO-MM#6: How would a revegetation plan affect wildlife and fish dependent upon streams during construction?
4494-9361		BIO-MM#32: What is considered "long term"?

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4494-9362 BIO-MM#33: How much time is considered as "temporary"?

4494-9363 BIO-MM#34: How does construction activity monitoring differ in Jurisdictional waters as opposed to non-Jurisdictional water monitoring?

4494-9364 BIO-MM#46: How does compensatory mitigation offset permanent impacts on areas?

4494-9365 BIO-MM#47, MM#50 and MM#53: Who prepares and oversees the Compensatory Mitigation Plan on Aquatic Resources? How does a plan ensure mitigation?

4494-9366 **3.7-180** BIO-MM#55: What weeds are expected in the different Build Alternatives?

4494-9367 BIO-MM#62: How much time will be given to ascertain the existence of special-status species within a waterbody? If dewatering affects such an area, how will the species be protected? To what extent have these aquatic mitigation measures been effective in other sections of the project? How would supplemental water be supplied?

4494-9368 **3.7-181** Although BIO-IAMF#1-5 andIAMF#12 may have good intentions, what evidence is there that they would have the desired effect until they were put into practice?

4494-9369 **3.7-183** BIO-MM#6: Who prepares the RRP, oversees that it is carried out, and evaluates the results?

4494-9370 BIO-MM#47: In what way could there be an additional benefit to a critical habitat?

4494-9371 BIO-MM#50: In what way could off-site habitat restoration restore fish? How do these mitigation measures ensure no adverse effects? What would be the source of supplemental water? How would it be administered? How does importing water justify that there are no adverse effects on species?

4494-9372 **3.7-184** What is the acreage of the Hansen Dam Spreading Grounds that would be affected? The Audubon Society conducts bird watching walks in the Hansen Dam area? How would birds, endangered or not, be affected by construction there?

4494-9373 **3.7-185** BIO-MM#6, MM#47, MM#50: During the construction period, would these plans be put into place? How would their success be determined? What are examples of particular measures to be put into place in the Hansen Dam SEA, for example?

4494-9374 **3.7-186** What specific mitigations would work for protecting native oak trees? Making and carrying out a plan will not work since oaks do not transplant well, and Oak Tree Ordinances require permission to cut more than 2 inches in diameter. What are mitigations for each of the kinds of trees that will be uprooted? What methods of compensation are being offered in BIO-MM#35? Because off-site tree colonies communicate underground for survival, how could they avoid being impacted in BIO-MM#50? Because oaks in particular have adapted to seasonal water from rain and can get mold from other watering, will there be any mitigations to protect the trees? Is the Authority aware that many oaks are well over 100 years old? Is it important to preserve native trees?

4494-9375 **3.7-187** BIO-MM#56: How close to elderly trees will construction machinery be allowed, keeping in mind that compaction over ground above tree roots is harmful to the trees? How can it

4494-9375 be concluded that unnamed mitigation measures will be successful? What kinds of fencing will be used around portals and adits?

4494-9376 **3.7-188** How much soil will be displaced and allowed to cover areas around open-cut activities? How long will the soil stay in one spot before removal? How wide would the grading footprint be in at-grade sections in the San Gabriel Mountains and foothills?

4494-9377 **3.7.193** Considering its width, why is Angeles Forest Highway considered constraining to wildlife crossing?

4494-9378 **3.7-198** "Inundated" by what?

4494-9379 BIO-MM#36: At what point in the process will fencing be introduced as opposed to the wildlife corridor protection?

4494-9380 **3.7-199** BIO-MM#37: Specifically, how would effects on wildlife movement corridors be minimized during construction?

4494-9381 BIO-MM#60: What specific speeds are mandated for vehicle traffic at construction sites?

4494-9382 BIO-MM#78: What does a Wildlife Jump-out look like, and how does it work?

4494-9383 BIO-MM#83: What are examples of specific measures for at least three different kinds of special-status wildlife? How do WEAP training materials differ in areas for operation and maintenance compared to WEAP during construction?

4494-9384 **3.7-200** What are examples of herbicides and pesticides that would be used for weed abatement for different species needing protection? Why would trash and chemicals have accumulated within a Build Alternative footprint after construction if mitigation is complete? If mitigation for hazardous materials has been accepted as environmentally safe, how could it still be an issue?

4494-9385 **3.7-201** How will lights from catenaries affect birds which travel at night? How would light and noise at portals by the ANF and SGMNM affect wildlife?

4494-9386 **3.7-202** How would Santa Ana winds, prevalent in the area, affect seed settlement? How does a short duration of noise affect amphibians, given statements that they would already have been affected by possible water contamination and invasive plant species? What spacing is considered effective to prevent bird electrocution? How does marking lines help protect birds at night? What are other types of flight diverters besides fencing? What distance from a moving train could protect bird habitat?

4494-9387 **3.7-204** How exactly would implementing BIO-IAMF#12 minimize alteration of melatonin metabolism on several different species?

4494-9388 **3.7-206** Which reptiles are most vibration-sensitive? Are those reptiles inactive during the day in all seasons?

4494-9389 BIO-MM#36: How much noise from a moving train would be reduced by an apron or fenced barrier for special-status species such as the mountain lion, for example?

4494-9390 BIO-MM#53: What is an example of a CMP for a state-listed fish, for example?

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4494-9391 **3.7-207** BIO-MM#54-55: How useful is weed control when invertebrates have already been crushed during equipment maintenance?

4494-9392 BIO-MM#73: How often will tracks be inspected for carrion removal?

4494-9393 BIO-MM#76: What would be a wildlife rescue measure for a specific endangered mammal? How would it be carried out? Who would oversee the operation?

4494-9394 BIO-MM#86: What is a specific example of a weather-related or seasonal work restriction for avoiding the Santa Clara River channel?

4494-9395 BIO-MM#88: Who will oversee debris prevention measures? What is an example of a measure?

4494-9396 BIO-MM#92: What are avoidance measures during operation and maintenance for the Santa Clara River?

4494-9397 BIO-MM#98: How can aerial species wildlife be minimized?

4494-9398 **3.7-208** BIO-MM#101: How does measurement of conditions for noise reduction for special-status bird habitats work? How logical is it to assume that the mitigations measures will be successful for a project that has not begun? At what point do you measure the effectiveness of the listed mitigation measures?

What happens if the mitigation measures have not been effective?

4494-9399 **3.7-210** Will decibels be measured during operation further than 50 feet of the aboveground centerline? Who will be carrying out the measurement? How often will measurements be recorded?

4494-9400 **3.7-211** What are examples of herbicides and pesticides that would be applied? Who would determine the compensation for impacts on protected trees?

4494-9401 **3.7-212** When removal of a tree is affected by a law (such as the L.A. County Oak Tree Ordinance) and transplantation is not possible, how is real compensation possible, and how does that suggest a "less than significant" measure? Would the contractor, who is responsible, be knowledgeable about tree conservation? Who in "The Authority" oversees the contractor's work with this issue?

4494-9402 **3.7-213** BIO-MM#2: Who will determine appropriate replanting areas to substitute for plants that could not be salvaged? Who will attend to new plant growth? Who approves the Project Biologist's plan?

4494-9403 BIO-MM#3: Is the "work" referred to the work of the Biologist or construction? Will there be no groundbreaking activities between October and April?

4494-9404 **3.7-214** BIO-MM#6 is quite general without CHSRA having identified a specific Build Alternative. Where would the Project Biologist be procuring these procedures for a variety of vegetation communities?

4494-9405 **3.7-215** BIO-MM#7: How does one survey for the presence or absence of special-status reptiles and amphibian species? How much time is given to a particular survey location?

4494-9406 BIO-MM#8: How is relocation of amphibians done?

4494-9407 BIO-MM#14: Will birds remain in nests within 75 feet of construction? Will construction take place between February and September?

4494-9408 BIO-MM#15: How effective are buffers for raptor nests?

4494-9409 BIO-MM#16: Will construction take place after sunset and before sunrise in the area of a roosting California Condor? If several different work areas will be constructed at the same time, will there be different Project Biologists overseeing different areas? Will the Project Biologist have had experience in identifying Swainson Hawks and their nests? What kinds of trees do Swainson hawks usually nest in?

4494-9410 **3.7-217** BIO-MM#21: How often do burrowing owls return to a relocated burrow?

4494-9411 BIO-MM#26: What determines whether removal or relocation of bat roosts is feasible? What is an example of an exclusion techniques? Are project activities continuing during the week after implementing exclusion activities? What kinds of relocation plans exist for bats?

4494-9412 **3.7-218** BIO-MM#29: Since badgers burrow, how will the Project Biologist determine whether a badger is pregnant? What is an example of a "passive den exclusion measure" for badgers?

4494-9413 BIO-MM#32: How will the Project Biologist time native plant seeding with the growing season for the plants to be restored?

4494-9414 BIO-MM#33: What is an example of maintenance monitoring for a specific aquatic plant?

4494-9415 BIO-MM#34: Will protective barriers be permanent?

4494-9416 BIO-MM#35: Examples would be useful here, especially since some plants, such as native oaks, do not transplant.

4494-9417 **3.7-219** BIO-MM#36, 37: How permanent and aesthetically unappealing will the fencing be?

4494-9418 **3.7-220** BIO-MM#38, 39, 44, 46: What are some examples from the Compensatory Mitigation Plan?

4494-9419 **3.7-221** BIO-MM#47: What are two agency-approved mitigation banks that could be used? Where is property that could be acquired? Would it be property conducive to aquatic resources?

4494-9420 BIO-MM#50: Who will be in charge of carrying out the IAMF measures?

4494-9421 **3.7-222** Does BIO-MM#53 apply to all federal and state-listed species and their habitat? What role does the Project Biologist have in the process of CMP preparation? Who will decide the type of credits to be given? Will easements be permanent?

3.7-223 How long is the process presented in BIO-MM#53 likely to take?

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4494-9422 BIO-MM#54: What are cultural controls over vegetation? What chemicals might be used to control vegetation?

4494-9423 **3.7-224** BIO-MM#55: Who is in charge of carrying out the weed control plan? What paperwork is involved?

4494-9424 **3.7-225** Will new roads be created? If so, are they likely to cover over endangered plants which will need replacement?

4494-9425 BIO-MM#61: What kind of feedback will go to the Project Biologist after the annual and daily reports are submitted and read?

4494-9426 **3.7-227** BIO-MM#62: What is the turnaround time for approval of preparation of plans or dewatering and diverting water plans?

4494-9427 **3.7-228** What would be an example of a feature that would accommodate wildlife movement when designing bridges and culverts in BIO-MM#64?

4494-9428 BIO-MM#65: How is the "pre-construction sweep" for golden eagle use carried out?

4494-9429 BIO-MM#66: What kinds of activities would likely disturb active eagle nests? Would the no-work buffer halt all work?

4494-9430 **3.7-229** BIO-MM#67: Can active eagle nests be relocated?

4494-9431 BIO-MM#70: Will the project Biologist be able to identify habitat loss of the tricolored blackbird?

4494-9432 **3.7-230** BIO-MM#72: Will the Project Biologist be on site both day and night?

4494-9433 BIO-MM#74: How are vertical buffers measured? What materials are jump-outs made of?

4494-9434 **3.7-231-2** BIO-MM#79, 80, 81, 82: How will the surveys for the Coastal California Gnatcatcher, the Least Bell's Vireo, the Southwestern Willow Flycatcher, the Western Flycatcher, the Western Yellow-billed Cuckoo be conducted?

4494-9435 BIO-MM#83: How much fencing is being planned at at-grade sections? How tall will it be?

4494-9436 **3.7-233** Are crossing structures and fences to be inspected in perpetuity? Will there be a variety of biologists, each who specialize in different species?

4494-9437 BIO-MM#85: Will the K-rail eventually be moved?

4494-9438 **3.7-234** BIO-MM87: Will hazardous materials be used at night?

4494-9439 BIO-MM#88: What materials would the underslung tarp or other barrier consist of?

4494-9440 **3.7-235** BIO-MM#90: What is the purpose of dewatering? During this time of severe drought and given the unknown time period when this project might occur, how much water is expected to be dewatered? How will it be used?

4494-9441 **3.7-236** BIO-MM#93: Will AMMPs vary with different sites? How would supplemental water be provided? Where would it come from? How much supplemental water is expected to be needed over 3 seasons? How will supplemental water be transported? How often during the post-construction 5 years would groundwater levels be monitored?

4494-9442 **3.7-237** Is it not ironic that a project intended to help the environment is purchasing credits due to its destruction of habitats of endangered species?

4494-9443 **3.7-238** BIO-MM#96: If a mountain lion den is determined to be occupied, will construction work continue? Given that mountain lions are apt to claim large areas, how will CHSRA keep track of them?

4494-9444 **3.7-239** BIO-MM#100: How much light from above will shields allow?

4494-9445 BIO-MM#101: What might be an example of a special-status bird that could withstand noise as a result of sound barriers?

4494-9446 **3.7-240** Although many of the mitigations may be standard and applicable to different locations, the question is: how long would they be in operation in order to be successful? Would they be temporary enough so that wildlife could revive or return to former habitats? How long would most of them be needed?

4494-9447 **3.7-241** Stating that because secondary impacts are common in construction should not apply to this particular project, which is a first of its kind. How do impacts from this project differ from others, especially in the San Gabriel Mountains?

4494-9448 **3.7-242** How can permanent security fencing be made agreeable to the eye? Will management activities be on-going? Are they budgeted?

4494-9449 **3.7-246-250** How do we know that the mitigations would leave no adverse effect when they have yet to be tried?

4494-9450 **3.7-256-269** Once again, there is an assumption that there would be no adverse effects due to mitigations when no work has begun. How is it possible to be certain of this conclusion?

4494-9451 **3.7-271-73** How have the mitigations managed to be so successful?

4494-9452 **3.7-275** What might be some difficulties in determining that there would be not adverse effects? Does reducing impacts erase all impacts in SEASs?

4494-9453 **3.7-178** What existing constraints make wildlife movement impossible?

4494-9454 **3.7-282-288** CEQA significance post-mitigation has also been deemed less than significant. Does the fact that compensation, when mitigations are not possible, make for low levels of significance?

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CHAPTER 3.8: HYDROLOGY AND WATER RESOURCES
APPENDIX 3.8-A: HYDROLOGY AND WATER RESOURCES FIGURES PART 1
APPENDIX 3.8-A: HYDROLOGY AND WATER RESOURCES FIGURES PART 2
APPENDIX 3.8-B: MAJOR WATERBODIES CROSSED TABLE

4494-9455

Case Study: Nora, the Tunnel Boring Machine

In a 2017 article entitled, "Meet Nora, the TBM that will help to repair the world's longest tunnel," *NYC Water* magazine describes the tunnel boring machine that was tasked with repairing New York City's Delaware Aqueduct. Nora was charged with tunneling a bypass tunnel to convey water around a leaking portion of the Aqueduct. Nora's bypass tunnel is 2.5 miles long, and at a depth of 600 feet below the Hudson River. The article describes the capabilities unique to this TBM:

> ***Nora was built to withstand 30 bar of pressure—believed to be the most of any TBM every manufactured***. That's about 11 times the amount of pressure that comes out of a garden hose. The machine was built to withstand that much pressure because workers encountered huge inflows of water under immense head pressure when the aqueduct was first built more than 70 years ago. [25]

In Table 3.8-8 of the DEIR, CHSRA delineates the estimated groundwater pressure it expects to encounter in various sections of the alignments. CHSRA anticipates encountering groundwater pressure between 25 and 35 bars for lengths of tunnel segments between .6 miles and 2.1 miles (depending on the alignment); and anticipates encountering groundwater pressure over 35 bars for lengths of tunnel segments between 1 mile and 4.5 miles (depending on the alignment).
Further, on Page 3.8-33, CHSRA states that, "The highest anticipated groundwater pressures… are anticipated to be as high as 50 bar for Refined SR14, SR14A, E1, and E1A, and greater than 60 bar for E2 and E2A."

Question: If Nora is the TBM believed to withstand the most water pressure of any TBM ever manufactured, and if the amount of water pressure that Nora is able to withstand is equivalent to 30 bars, and if CHSRA anticipates having to tunnel for as much as 4.5 miles through terrain where it will encounter water pressure >35 bars; what evidence does CHSRA have that leads it to believe that it is possible to tunnel through these extreme conditions? What TBM(s) does CHSRA plan to utilize that can withstand >35 bars of pressure? And in what previous projects have these TBMs achieved proven success at these levels of pressure?

4494-9456

Case Study: The Parbati Hydroelectric Project in India

On Page 2-E-24 of the DEIR, CHSRA describes the mitigation measure HYD-IAMF#5 which pertains to the Tunnel Boring Machine Design and Features. HYD-IAMF#5 states that the TBMs that will be used in the boring of the tunnels through the ANF will be, "designed with ports for drilling horizontal probe holes through the TBM cutterhead," the purpose of which is to allow for water pressure and flow rates to be measured ahead of the TBM and to allow for pre-excavation grouting to be employed to prevent groundwater inflows.

In *The Greatest Challenges in TBM Tunneling: Experiences from the Field*, engineers from the Robbins Company detail their experience with the Parbati Hydroelectric Project in India. This tunneling project bears some similarities to the proposed CHSR tunnels through the ANF, as Parbati is located in a highly stressed mountain range at the foot of the Himalayan Mountains where there is limited access and high overburden above the tunnel alignment. Like CHSRA's proposed tunnels, Parbati offered limited availability of geological

[25] https://medium.com/nycwater/meet-nora-the-tbm-tasked-with-repairing-the-worlds-longest-tunnel-111f4d04fe5f

4494-9456

information, and therefore, "geological investigation ahead of the tunnel face was essential and was achieved by maintaining a strict regime of probe drilling."[26]

In their article, engineers Jim Clark and Steve Chorley describe the challenges they faced in boring this tunnel:

> A routine probe hole (P1) was drilled at chainage 4056 m at the 11 o'clock position on the face. The depth of the hole was 27 m and minor ingress of water and silt was observed from probe chainage 4066.5 m up to 4077.3 m. A decision was made to drill a second probe hole (P2) at the 1 o'clock face position in order to gain further information on the geology/hydrology ahead of the face. During the night shift of the 18th November 2006, the P2 probe drilling operations were underway when the crew heard several cracking sounds emanating from the surrounding rock mass. Shortly after these events, the initial probe hole (P1) was observed to be discharging water and silt under high pressure. It took the crew almost 2 1⁄2 hours to seal the 51 mm hole using a mechanical packer attached to the probe drill. During these 2 1⁄2 hours, approximately 180 cubic meters of silt and 125,000 liters [33,021 gallons] of water were discharged, and continuous rock bursting was occurring.
>
> On the 24th November probe hole P1 was successfully intersected and drainage operations were underway when several rock bursting events occurred. The pressure in probe hole P1 gradually increased until it exceeded the 25-bar capacity of the pressure gauge, and minor inflows of silt and water began to flow through fissures in the rock mass close to the face. Further rock bursting fractured the rock mass surrounding the collar of probe hole P1 causing the rock to fall away and expose the hole behind resulting in an inrush of water and silt under massive pressure. The crew tried unsuccessfully for several hours to insert a packer into P1 to stem the flow of material, but at 7:00 am with silt levels rising rapidly and rock bursting continually occurring, the tunnel was evacuated for safety reasons.
>
> During the 25th November it was deemed impractical and unsafe to enter the tunnel. Water ingress was measured at the portal throughout the day and flow rates gradually increased until they exceeded 7000 liters/min [1,850 gallons/min]. On the 26th November flow rates stabilized so a team entered the tunnel to assess the situation. ***They observed that the inundation had almost completely buried the TBM (see Figure 9) and that silt and water were still flowing from the probe hole***. However the pressure of the discharge had reduced and a crew was mobilized and managed to seal the probe hole by inserting a mechanical packer. ***The total amount of silt deposited during this event was over 14,000 cubic meters, and the cleanup operation took over 2 months***.

[26] Jim Clark and Steve Chorley, the Robbins Company. *The Greatest Challenges in TBM Tunneling: Experiences from the Field*. Pages 106 – 107. https://www.robbinstbm.com/wp-content/uploads/2010/09/14_Challenges_FieldService_NAT2014.pdf

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4494-9456



Photo: Parbati TBM buried in silt

For the purposes of comparison, 14,000 cubic meters is the equivalent of 5 ½ Olympic-sized swimming pools of silt that was accumulated in one day due to the inflow of water and silt into the tunnel bore.

Questions: CHSRA's HYD-IAMF#5 lists the use a TBM with probe drilling capability as a mitigation measure to preemptively address the potential for groundwater inflow into the tunnel. The TBM used in the Parbati project also had this capability, and yet the result was rock bursting resulting in significant inflow of highly pressurized water – so much so that the tunnel had to be evacuated for the safety of the crew, and the amount of damage caused in the day that followed took two months to clean up. Based on this case study, coupled with the limited geotechnical data that CHSRA has on the tunnel areas, what leads CHSRA to believe that its experience will be any different or better than that which faced the Robbins Company in Parbati?

Questions: The engineers in Parbati mentioned damage that occurred when the pressure in one of the probe holes gradually increased until it exceeded the 25-bar capacity of the pressure gauge. CHSRA plans to tunnel for miles in areas that are expected to significantly exceed 25 bars of pressure. In these areas of the CHSRA alignments, will the conditions faced by the TBM and the crew not exceed what was experienced by those in the Parbati tunneling project?

4494-9457

Case Study: The Gerede Water Transmission Tunnel in Turkey

In their article, "*Tunneling through 48 Fault Zones and High Water Pressures on Turkey's Gerede Water Transmission Tunnel*," engineers D. Harding and Y. Alpagut of the Robbins Company detail what is known to be one of the greatest success stories of tunneling through difficult conditions. The article begins by stating that although preliminary bore holes of the area revealed challenging conditions, including a mix of rock types punctuated by fault zones, "What the contractor and owner could not know were the distinct challenges they would encounter, making it one of the most difficult projects attempted in the world of tunneling. The tunneling

4494-9457

success story highlights what today's equipment is capable of, and how far the Turkish tunneling industry has come in tackling its own incredibly difficult geology."[27]

The authors describe the challenges faced in tunneling through this difficult terrain:

> TBM-2 was launched from an intermediate shaft under higher cover, starting at 60 m and reaching over 400 m as it bored toward the south. The rock was more transitional in this section, and the TBM had bored a significant section of its 10,339 m tunnel when it encountered a massive inrush of water that flooded the TBM and tunnel. The TBM was boring downhill and the water had to be pumped out, which took some time. **The TBM was deemed a loss, and removed from the tunnel**.
>
> TBM-3 began boring from the south portal under increasingly high cover that would reach a maximum of over 500 m. The TBM was several kilometers into its 11,653 m downhill drive, struggling in karstic aquifer conditions that required polyurethane injection and slowed tunneling, when its problem became worse. **A high water inrush of 1,500 liters/second [400 gallons/second] flowed into the tunnel, causing the machine to become stuck. This inflow resulted in enough pressure to crush the TBM shields and send cylinders catapulting into the back- up**. Dye tests showed that the water had come from a river flowing overhead and entered into the tunnel through a cave system. **As quickly as it had started, the Gerede Water Transmission Tunnel ground to a halt with two TBMs stuck 9 km apart**.
>
> **Of the three standard Double Shield TBMs used to originally bore sections of the tunnel, two became irretrievably stuck or damaged amid massive mud and water inflows.**
>
> The revised geology was now understood to contain **more significant fault zones and an aquifer system that could cause high-pressure water inrushes of up to 20 bar**. However, the ground was expected to improve as the TBM advanced and consist mostly of sandstone, limestone and tuff with a maximum UCS in the range of 100 MPa. Kolin/Limak needed a machine that could effectively bore in those wide-ranging conditions, but also statically hold water pressure up to 20 bar in the event of an emergency flow—a failsafe that none of the standard Double Shield TBMs were equipped with.
>
> Due to previous experiences at Gerede, the **new TBM is designed to statically hold up to 20 bar pressure in the event of a massive water inflow**. In order to protect the machine from such high water pressure, an extensive sealing system has been put into place. Around the main bearing, there is an outer row of six (6) seals and an inner row of three (3) seals. Between each seal, the cavity is filled with pressurized grease to ensure a constant pressure in each of the cavities. In the event that the machine is shut down and an inrush of water overtakes the machine, a pressure sensor will detect this presence of water and pressurize each cavity with grease in order to continually protect the seals from the pace pressure.
>
> The logistics of getting components through the existing tunnel were the most challenging thing. The assembly chamber was 7 km (4 mi) from the portal. "The water inflow of 600 l/s (159 gal/s) made it difficult to get the materials to the machine," said Glen Maynard, Robbins Field Service Site Manager. **By the end of tunnelling, the TBM had crossed 48 such fault zones and statically held back 26**

[27] D. Harding and Y. Alpagut, the Robbins Company. *Tunneling through 48 Fault Zones and High Water Pressures on Turkey's Gerede Water Transmission Tunnel*. May 2020. https://www.robbinstbm.com/wp-content/uploads/2020/09/WTC2020_Gerede_HardingAlpagut_Paper282.pdf

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> **bar water pressure**. Each time a zone was encountered, exceptional thrust was used to keep the machine from becoming stuck combined with dewatering to lower the water pressure.[28]

The authors begin describing their field experience by touting the completion of the Gerede project as being, "***one of the most difficult projects attempted in the world of tunneling. The tunneling success story highlights what today's equipment is capable of.***" By all accounts, it appears that the conditions that CHSRA will face in tunneling through the San Gabriel Mountains will exceed the difficulty level faced by the engineers in Turkey. Though the North Anatolian Fault in Turkey has been considered comparable in many ways to our San Andreas Fault, the water pressure in the depths of the San Gabriel Mountains is expected to exceed that experienced in Gerede.

In an article entitled, "*What Could Possibly Go Wrong,*" author Dominic Holden makes a case for Seattle's City Council to vote against giving the State of Washington permission to dig the world's largest deep bore tunnel under downtown Seattle. In his article, Holden cites Levent Ozdemir, the author of *North American Tunneling*, a technical book that examines, among other things, TBMs getting stuck underground due to boulders. Ozdemir explains that, "The tunnel boring machines were stuck... a total of 12 times in 40 cases (30 percent overall stuck rate)." Ozdemir notes that, "the delay and cost consequences of getting stuck are very high," in tunnels deeper than 50 feet and in those that go beneath the water table.[29]

In Table 3.8-12 of the DEIR, CHSRA delineates the expected water pressure in various segments of its alignments through the San Gabriel Mountains. One of the alignments anticipates 6.9 miles of tunneling at pressures exceeding 25 bars. Further, on Page 3.8-33, CHSRA states that, "The highest anticipated groundwater pressures… are anticipated to be as high as 50 bar for Refined SR14, SR14A, E1, and E1A, and greater than 60 bar for E2 and E2A."

Question: If the Gerede project is touted as being a success story highlighting what today's equipment is capable of, and if in the course of that project, two of three TBMs utilized became irretrievably stuck or damaged due to massive mud and water inflows, and if in the course of that project, the highest water pressure experienced was 26 bars, under what scientific reasoning does CHSRA believe that it will have success tunneling through fault zones where water pressure >60 bars will be encountered?

Question: Given that in the "success story" of the Gerede tunneling project, two of three TBMs were destroyed in the process, and given the warning of Levent Ozdemir that TBMs have a 30% overall "stuck rate," has CHSRA built into its plans an anticipated loss of TBMs?

4494-9458

Question: What is the anticipated cost of the tunnel boring machines to be used in this project? The cost of "Nora," the TBM utilized in the recent New York City Delaware Aqueduct project is estimated to be $30 million.[30] How many, and at what total cost, is CHSRA planning to "lose" during the course of the tunneling project due for factors including but not limited to damage from mud and water inflows which are likely to exceed those experienced in the Gerede project?

4494-9459

Question: What is the methodology proposed by CHSRA to remove or retrieve a TBM in the likely event that at least one will get stuck during tunneling? If TBMs are incapable of backing up and cannot move forward, how will they be removed from the tunnel?

[28] D. Harding and Y. Alpagut, the Robbins Company. *Tunneling through 48 Fault Zones and High Water Pressures on Turkey's Gerede Water Transmission Tunnel.* May 2020. https://www.robbinstbm.com/wp-content/uploads/2020/09/WTC2020_Gerede_HardingAlpagut_Paper282.pdf

[29] Dominic Holden, "What Could Possibly Go Wrong," July 8, 2010. https://www.thestranger.com/pullout/2010/07/08/4399657/what-could-possibly-go-wrong

[30] https://www.recordonline.com/story/news/2017/09/08/tunnel-boring-machine-dedicated-in/18852633007/



Photo Caption from the Robbins Company white paper on the Gerede Project:
Of the three standard Double Shield TBMs used to originally bore sections of the tunnel, two became irretrievably stuck or damaged amid massive mud and water inflows.

4494-9460

Discussion: Potential for Groundwater Contamination from Use of Grout

In a 2001 report for *Water Research* entitled, "Environmental risk assessment of acrylamide and methylolacrylamide from a grouting agent used in the tunnel construction of Romeriksporten, Norway," the authors concluded that:

> "Increased focus on the possible environmental risk associated with large-scale use of grouting agents has revealed that leakage of chemicals from grouting activities may cause harm to the environment."[31]

Weideborg et al. studied the environmental impacts caused by the use of Rhoca-Gil (Siprogel), a common chemical grouting agent used to reduce water leakages during tunnel construction. Drainage water from the Norwegian tunnel was monitored to test for levels of acrylamide and methylolacrylamide, and the results showed that these substances leaked into the drainage water as a result of two factors: (1) in connection with

[31] Mona Weideborg, Torsten Kallqvist, Knut Ødegård, Line Sverdrup, and Ellen Vik. "*Environmental risk assessment of acrylamide and methylolacrylamide from a grouting agent used in the tunnel construction of Romeriksporten, Norway.*" Included in the August 2001 Edition of *Water Research (Volume 35, Issue 11)*. Pages 2645-2652.

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the injection of Rhoca-Gil, and (2) in connection with after-injection using other grouting agents. In the case of the Norwegian tunnel, the water was eventually discharged into the Alna River and into the Oslo Fjord. Both receiving waters demonstrated negative impacts on the aquatic life therein.[32]

> During the period 1995–1997, the acrylamide and methylolacrylamide (N-hydroxymethylacrylamide)-containing product Rhoca-Gil (Siprogel) was used in tunnel construction works in both Hallandsåsen, Sweden, and in Romeriksporten, Norway. In both cases, discharge water from the injection sites led to high concentrations of acrylamide in recipient waters. In addition, the injections did not give the expected reductions of water leakages to the tunnels.
>
> In Hallandsåsen, an 8.6 km long tunnel was built through a bed-rock ridge. The large-scale use of Rhoca-Gil in this tunnel started in August 1997. ***A few weeks after the grouting agent was used, adverse effects symptomatic of acrylamide poisoning were observed in fish and cattle downstream the construction works. At the same time, symptoms characteristic of exposure to acrylamide were observed in workers in the tunnel.***
>
> Symptoms characteristic of exposure to acrylamide were also observed for workers in this tunnel. An examination of 73 exposed tunnel workers, by the Norwegian Occupational Health Services, revealed suspected skin effects due to acrylamide exposure in 4 workers, and 7 workers had slight reductions of nerve conduction velocities or amplitudes. The product was used in areas with large water leakages both in the Hallandsasen and the Romeriksporten tunnels, and this explains the high concentrations of acrylamides found in the drainage waters, and the subsequent high risk for adverse aquatic effects in the receiving waters.[33]

By the volume used, polyacrylamide grouting agents (including Rhoca-Gil) constitute one of the largest groups of grouting agents, but monitoring data from the use of polyacrylamide grouting agents are yet unpublished. Rhoca-Gil is prepared by mixing two solutions immediately prior to injection; Solution 1, containing 30–60% methylolacrylamide, 2% acrylamide and 1% formaldehyde, and Solution 2, containing a sodium silicate solution. In addition, an accelerator (Solution 3) containing an unspecified mixture of esters of dibasic acids and amine derivates is used during the injection process. [34]

The authors noted that prior to their study, little research had been done on the toxic effects of acrylamide and methylolacrylamide, and, further, "the leakage potential of chemicals from the grouting agents during large-scale usage had never been examined." [35] As a result of these findings, the Norwegian authorities banned the use of grouting agents that contained acrylamide and methylolacrylamide. The use of acrylamides as a grout had already been banned in Japan as early as 1974, likely due to the correlation between their usage and several cases of neural disorder.[36] However, it does not appear that these chemicals have ever been banned in the United States, despite being under investigation by the EPA and included on California's Prop 65 List.

In a paper entitled, *Chemical Grouts for Potential Use in Bureau of Reclamation Projects*, the U.S. Department of the Interior warns against the use of grouting in tunnels in proximity to water sources:

4494-9466

> The key to the question of toxicity is to be found during the selection process and planning. **If drinking water, especially ground water near wells, is involved, chemical grouts should not be used.** No matter how well a grout is mixed, excesses of one ingredient or another will remain after the grout has

[32] Mona Weideborg, et al. Pages 2645-2652.
[33] Mona Weideborg, et al. Pages 2645-2652.
[34] Mona Weideborg, et al. Pages 2645-2652.
[35] Mona Weideborg, et al. Pages 2645-2652.
[36] *Chemical Grouts for Potential Use in Bureau of Reclamation Projects.* December 1986. U.S. Department of the Interior, Bureau of Reclamation Division of Research and Laboratory Services Applied Sciences Branch. Page 8. https://www.usbr.gov/tsc/techreferences/research/GR8613.pdf

4494-9460

> set. These excesses will migrate through the soil at a rate that depends on the presence of water and permeability of the grouted body.[37]

4494-9461

On Page 3.8-16 of the DEIR, CHSRA states that, "Construction of adits for the tunnels would be conducted using conventional mining methods, which would include pre-exploratory grouting, tunnel liners, and check grouting **such that effects on groundwater would be minimized**." Per the case studies conducted above, we can conclude that the opposite is true: while grouting may be effective in limiting seepage of groundwater into the tunnels, grouting will still have effects on groundwater as the chemicals comprising the grouting compounds are likely to leak into the groundwater, negatively impacting the plant and animal life with which it comes into contact.

4494-9462

Question: What grouting compounds are likely to be used in tunneling through the ANF and the SGMNM?

Question: What chemicals comprise those compounds?

Question: What tests have been done to determine the toxicity of these grouting compounds?

4494-9463

Question: When mixed with water inflow into the tunnel, this water, contaminated with grouting chemicals, will be discharged. What is the ultimate destination of this contaminated water?

4494-9464

Question: When mixed with groundwater surrounding the tunnels, the chemicals will travel with the water where they will encounter flora and fauna. What tests have been done to determine the effects that these chemicals will have on the plant species in the ANF? What tests have been done to determine the effects that these chemicals will have on the animal species in the ANF, including the sensitive and threatened riparian species in the ANF and the Big Tujunga Wash?

4494-9465

Question: When mixed with groundwater surrounding the tunnels, the chemicals will travel with the water where they may eventually mix with water wells. What tests have been done to determine the effects that these chemicals will have on humans may consume them if chemicals are mixed with their primary source of water for a prolonged period of construction?

HYD-IAMF#7 describes CHSRA's reliance on grouting to minimize groundwater flows into the tunnels. On Page 2-E-26 of the DEIR, CHSRA describes that after pre-grouting, "Additional grouting will be implemented radially outward from the tunnel interior to broaden the diameter of the grouted zone surrounding the tunnel, as necessary, to further reduce groundwater flows into the tunnel." Further, CHSRA plans to inject bentonite to fill the void space between the TBM shield and the rock/soil outside the shield; plus backfill grouting with two-component grout; plus check grouting. Given the size of the tunnels (meaning, the diameter of each of the twin tunnels X the length of the tunnel, between 22 and 28 miles, depending on the build alternative that is ultimately selected), the volume of grouting needed must be significant.

4494-9466

Question: What is the estimated total volume of grouting compound that will be needed to complete HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7? How does the sheer volume of grouting needed to complete the tunnels correlate to the risk of contamination of the water supply and potential impacts on flora and fauna?

[37] *Chemical Grouts for Potential Use in Bureau of Reclamation Projects.* December 1986. U.S. Department of the Interior, Bureau of Reclamation Division of Research and Laboratory Services Applied Sciences Branch. Page 8. https://www.usbr.gov/tsc/techreferences/research/GR8613.pdf

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4494-9467

Discussion: Tunnel Boring Mitigation Measures

On Page 2-E-24 through 2-E-27 of the DEIR, CHSRA sets forth HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7. mitigation measures designed to address and overcome the significant geologic challenges presented by the combination of faults and high water pressure.

On Page 2-E-24, CHSRA states that, "Current technology allows TBMs to sustain up to 17 bar of groundwater pressure while boring without additional measures." This implies that with the implementation of additional measures (e.g., pre-grouting), TBMs can sustain the intensity of water pressure that will be encountered in the tunnels beneath the ANF. However, according to sources previously cited in this analysis, the best tunnel boring machine in the world can only withstand water pressure up to 30 bars, and the TBM utilized in the construction of the Gerede project in Turkey withstood water pressure of 26 bars maximum. The TBM used in Gerede also implemented additional measures such as pre-grouting.

Question: Given that CHSRA's preliminary geotechnical analysis has indicated that TBMs will encounter water pressure >60 bars, what case studies does it have to demonstrate success of a TBM under these conditions?

4494-9468

Also on Page 2-E-24, CHSRA states that:

> In circumstances where groundwater pressures are 25 bar or less, a one-pass lining system will be installed in the tunnels constructed behind the passing TBM. In circumstances in which groundwater pressures exceed 25 bar, a two-pass lining system will be installed after the TBM has finalized its operations.

This mitigation measure is more fully set forth in HYD-IAMF#6. "Tunnel Lining Systems":

4494-9470

> The lining system, which will consist of segmental, precast, concrete lining with bolted and gasketed joints, will create a tunnel lining capable of resisting the groundwater pressure with minimal, leakage. In sections where groundwater pressures are above 25 bar, and after the first lining has been installed, no significant water leakage is expected until a second lining has been put in place. Current gaskets available in the market are nominally rated up to 50 bar; however these gaskets are assumed to withstand only 25 bars in the design (using a safety factor of 2) to account for construction quality defects and the 100-year lifespan of the infrastructure. In order to minimize water leakage into the tunnel for the complete lifespan of the infrastructure, in the segments where ground water pressures are expected to exceed 25 bar, a monolithic second lining will be put in place after the TBM has finalized its operations and all its facilities have been dismantled (approx. 16 months).

CHSRA anticipates encountering water pressure conditions >25 bars in significant lengths of tunneling: between 1.6 miles and 6.6 miles of tunneling, depending on the alignment selected. Per its explanation above, the single lining system will suffice for the sections of tunnel where the water pressure is <25 bars; but for sections of the tunnel where the water pressure is >25 bars, CHSRA will have to put in place a second lining.

This second lining will be put in place after the TBM has finalized its operations. Per CHSRA's estimate, for a period of approximately 16 months, significant sections of the tunnel (between 1.6 miles and 6.6 miles) will be under water pressure >25 bars with a single tunnel lining that can only withstand 25 bars of pressure.

4494-9471

Question: Does CHSRA not anticipate breakthroughs due to significant water pressure during the 16 months that the tunnel is protected by only a single layer of lining? How does the mitigation measure of installing the second lining count as protection during the period of over one year when the tunnel will be vulnerable due to water pressures higher than are able to be withstood by the single layer? In the lengths of the tunnel where water pressure is anticipated to exceed 60 bars, and for the period of 16 months where the tunnel will only

4494-9468

have a single layer of lining that can withstand 25 bars of pressure, what is the failure rate predicted for these segments?

4494-9469

Per CHSRA's explanation of how the single layer lining is installed, it appears to be installed in pre-cast. 40-foot segments. This implies that the TBM has to have excavated a minimum of 40 feet ahead in order to allow for a 40-foot segment to be installed. As the TBM can excavate approximately 50 feet per day (under good conditions), we can expect that it will take a day for the TBM to advance sufficiently to allow installation of the single layer liner. Under difficult conditions, TBMs can expect a forward rate of progress of approximately 3 feet at best. Under these conditions, which could be anticipated in the difficult terrain under the San Gabriel Mountains where the water pressure is highest, we can expect that it will take over 13 days for the TBM to advance sufficiently to allow installation of the single layer liner. This means that for the span of somewhere between one day and two weeks, the only "protection" that the tunnel will be afforded against water pressure is the pre-grouting treatment advanced by the TBM.

Question: During this period of time when the tunnel is vulnerable, before the installation of the single liner, what is the failure rate anticipated by CHSRA for the miles of tunnel sections where water pressure exceeds 25 bars? What is the failure rate anticipated by CHSRA for the sections of tunnel where the water pressure exceeds 50 bars?

Question: Cumulatively, taking into account both the short period of time (i.e., approximately one day to two weeks) in which the tunnel has no liner, and the long period of time (i.e., approximately 16 months) in which the tunnel has a single layer liner, what is the risk associated with tunnel failure for the sections of tunnel in which the water pressure exceeds 25 bars? What is the risk associated with tunnel failure for sections of tunnel in which the water pressure exceeds 50 bars?

4494-9470

Discussion of Applicable Laws

In Section 3.8.2 ("Laws, Regulations, and Orders") of the DEIR, CHSRA asserts that, "The Authority would implement the high-speed rail project, including the project extent, in compliance with all federal and state regulations." In reviewing the applicable laws and regulations governing the use of water resources in comparison with CHSRA's plans, we have concluded that there are a number of inconsistencies between the six proposed Build Alternatives and the federal and state laws and regulations.

On Page 3.8-4 of the DEIR, CHSRA states that the *Protection of Wetlands (USEO 11990)*, "aims to avoid direct or indirect impacts on wetlands from federal or federally-approved projects when a practicable alternative is available." CHRSA previously considered a number of alignments that did not impact wetlands to the extent impacted by the routes through the Angeles National Forest, including routes following the 5 and 14 freeways. These alignments were practicable, but were eliminated from consideration for political (not engineering or geotechnical) reasons.

Question: Given the existence of practicable high-speed rail alignments that would not impact, or would impact to a lesser extent, wetlands, how is CHSRA's proposal to tunnel through the ANF and build corollary infrastructure in wetlands within and surrounding the ANF (e.g., Big Tujunga Wash, Hansen Dam) to support a high-speed train system ***not*** a violation of the intent of the USEO 11990?

The Safe Drinking Water Act (42 USC Section 300 et seq.) protects against both naturally-occurring and human-produced contaminants that may be found in drinking water. The Sole Source Aquifer Protection Program is authorized by Section 1424(e) of the Safe Water Drinking Act, and it is used, "to protect drinking water supplies where there are few or no alternative sources and where, if contamination occurred, use of an alternative source would be extremely expensive. All proposed projects to receive federal funds are subject to USEPA review to ensure that they do not endanger the water source."

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4494-9471 The naturally-occurring sources of water in the San Gabriel Mountains are estimated to provide between 15 and 30 percent of Los Angeles' drinking water. Given the epic drought and given the depletion of sources of imported water (e.g., the Colorado River, Lake Mead), these sources are all the more important at this time and could be considered per the definition above to be the "sole source." Further for those residents within the ANF who rely on wells, those water sources truly represent the sole source.

Question: Given the impacts to naturally occurring water sources that are likely to result from CHSRA's tunneling through the ANF, how are CHSRA's plans not in violation of the Safe Drinking Water Act?

4494-9472 Per USFS Soil, Water, Riparian, and Heritage Standard 45, "all construction, reconstruction, operation, and maintenance of tunnels on National Forest System Lands shall use practices that minimize adverse effects on groundwater aquifers and their surface expressions." CHSRA's build alternatives have been designed to cross between 23 and 60 surface water features (depending on the alignment selected), including between 13 and 37 streams and tributaries. The DEIR devotes upwards of 100 pages detailing the potential impacts to groundwater and the myriad mitigation measures meant to address these impacts that will be created by tunneling.

Question: How are CHSRA's proposed alignments not in violation of S45?

4494-9473 Per USFS Soil, Water, Riparian, and Heritage Standard 47, a screening process must be applied to projects that could impact riparian areas, including such areas that are dependent on groundwater aquifers.

Question: What does this screening process entail, and has CHSRA begun the screening process with the USFS? What comments or concerns, if any, has the USFS brought forward with respect to CHSRA's potential impacts on riparian areas within the ANF?

4494-9474 Per US Fish and Wildlife Standard 11, habitat of special-status species within the National Forest System must be protected, including surface habitat that is impacted by subsurface changes in hydrogeologic conditions.

Question: Given the special status species within the ANF and the need for water to sustain their habitats, how are CHSRA's proposed alignments impacted by S11? Maps in Chapter 3.7 of the DEIR show the crossover of special species habitat with the CHSRA proposed alignments, including critical habitat for special status species like the Santa Ana Sucker Fish, the Arroyo Toad, and the Western Pond Turtle. Given that CHSRA's proposed alignments as well as surface infrastructure improvements intersect the critical habitat in multiple places, and given the likelihood of impacts to groundwater which will impact these sensitive species, how are CHSRA's plans protecting the habitat of special-status species within the ANF?

4494-9475 Sections 1601 to 1603 of the California Fish and Game Code ("Streambed Alteration Agreement") require that agencies notify the California Department of Fish and Wildlife prior to implementing any project that would divert, obstruct, or change the natural flow or bed, channel, or bank of any river, stream (including intermittent streams) or lake.

Question: Has CHSRA notified the California Department of Fish and Wildlife of its proposed alignments and their impacts on numerous applicable bodies of water? What has been the response of the California Department of Fish and Wildlife?

4494-9476 The Los Angeles Flood Control Act, adopted by the State Legislature in 1915, established the Los Angeles Flood Control District with a directive to provide flood protection, water conservation, recreation, and aesthetic enhancement within its boundaries.

Question: Given that the entirety of the Palmdale-Burbank Project Section takes place within the boundaries of the LAFCD, and given the amount of water necessary to construct the proposed alignments (including water

4494-9476 to operate the TBMs, water to mix cement, as well as water for mitigation measures including control of fugitive dust and trucking in water to supplement lost water in the ANF), how are CHSRA's plans not in violation of the LA Flood Control Act which requires water conservation within the district boundaries?

4494-9477 **General Discussion of Hydrological Concerns:**

On Page 3.8-15 of the DEIR, CHSRA states that for its analysis of potential hydrologic impacts, it relied in part on case studies of tunnel construction occurring under similar conditions, "including documented effects on surface water and other water resources associated with those tunnels," including case studies of other tunnels in Southern California.

Question: Did CHSRA study the tunneling of the Metro Red Line and the effects on Runyon Canyon? The tunneling dewatered Runyon Canyon, lowering the water table by over 100 feet. What did CHSRA learn from this case study, and how are those lessons applied to the plans to tunnel through the ANF?

4494-9478 On Page 3.8-16 of the DEIR, CHSRA states the following with respect to the potential for impact to naturally occurring water sources within the ANF:

1. The greatest potential for groundwater to flow into tunnels exists at locations where tunnel construction intersects faults and fractures in the bedrock.
2. The potential for water to flow into tunnels during construction, as well as the rate and volume of any such flows, is greatest in areas of high water pressure, assumed for purposes of this analysis to greater than 25 bar.
3. Proximity of the tunnel construction to water resources influences the severity of the water loss. Closer proximity of a water resource to the tunnel excavation may result in greater impact.
4. Springs, intermittent and perennial streams, and water supply wells along, or in proximity to, faults are most vulnerable to impacts when tunnel construction intersects faults, areas of high water pressure, and water within fractures that seeps into the tunnel excavation.

With respect to Refined SR14 and SR14A, there are at least 12 intersection points:

- Figure 3.8-A-1 (Tunnel Construction RSA Detailed Map Refined SR14/SR14A – Map 1 of 3) depicts 7 intersection points where the proposed alignment crosses BOTH a fault line and a stream.
- Figure 3.8-A-2 (Tunnel Construction RSA Detailed Map Refined SR14/SR14A – Map 2 of 3) depicts at least 4 intersection points where the proposed alignment crosses BOTH a fault line and a stream.
- Figure 3.8-A-3 (Tunnel Construction RSA Detailed Map Refined SR14/SR14A – Map 3 of 3) depicts at least 1 intersection point where the proposed alignment crosses BOTH a fault line and a stream.

With respect to E1 and E1A, there are as many as 7 intersection points:

- Figure 3.8-A-4 (Tunnel Construction RSA Detailed Map E1/E1A – Map 1 of 6) depicts possibly 1 intersection point where the proposed alignment crosses BOTH a fault line and a stream.
- Figure 3.8-A-5 (Tunnel Construction RSA Detailed Map E1/E1A – Map 2 of 6) depicts possibly 1 intersection point where the proposed alignment crosses BOTH a fault line and a stream.
- Figure 3.8-A-6 (Tunnel Construction RSA Detailed Map E1/E1A – Map 3 of 6) depicts 0 intersection points where the proposed alignment crosses BOTH a fault line and a stream.

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4494-9478

- Figure 3.8-A-7 (Tunnel Construction RSA Detailed Map E1/E1A – Map 4 of 6) depicts at least 1 intersection point where the proposed alignment crosses BOTH a fault line and a stream.
- Figure 3.8-A-8 (Tunnel Construction RSA Detailed Map E1/E1A – Map 5 of 6) depicts possibly 3 intersection points where the proposed alignment crosses BOTH a fault line and a stream.
- Figure 3.8-A-9 (Tunnel Construction RSA Detailed Map E1/E1A – Map 6 of 6) depicts possibly 1 intersection point where the proposed alignment crosses BOTH a fault line and a stream.

With respect to E2 and E2A, there are at least 17 intersection points:

- Figure 3.8-A-10 (Tunnel Construction RSA Detailed Map E2/E2A – Map 1 of 6) depicts possibly 1 intersection point where the proposed alignment crosses BOTH a fault line and a stream.
- Figure 3.8-A-11 (Tunnel Construction RSA Detailed Map E2/E2A – Map 2 of 6) depicts possibly 1 intersection point where the proposed alignment crosses BOTH a fault line and a water source.
- Figure 3.8-A-12 (Tunnel Construction RSA Detailed Map E2/E2A – Map 3 of 6) depicts at least 1 intersection point where the proposed alignment crosses BOTH a fault line and a stream.
- Figure 3.8-A-13 (Tunnel Construction RSA Detailed Map E2/E2A – Map 4 of 6) depicts at least 3 intersection points where the proposed alignment crosses BOTH a fault line and a stream.
- Figure 3.8-A-14 (Tunnel Construction RSA Detailed Map E2/E2A – Map 5 of 6) depicts at least 9 intersection points where the proposed alignment crosses BOTH a fault line and a stream.
- Figure 3.8-A-15 (Tunnel Construction RSA Detailed Map E2/E2A – Map 6 of 6) depicts at least 2 intersection points where the proposed alignment crosses BOTH a fault line and a stream.

4494-9479 **Question**: Based on the alignment that is selected, CHSRA proposes tunneling through as few as 7 or as many as 17 "high risk" intersections, where the alignment tunnels through a point where a known fault crosses a stream. Given that these water sources are considered to be most vulnerable to the impacts of tunneling, isn't jeopardizing 7 to 17 streams in the ANF too big a risk to take, particularly during a period of epic drought in California? What number of water sources does the USFS say is an acceptable number to jeopardize?

On Page 3.8-27 of the DEIR, CHSRA lists the number of active groundwater wells within 1 mile of the center lines of each of the 6 build alternatives. CHSRA states that for the Refined SR14/SR14A route, there are 30 active wells; for the E1/E1A route, there are 24 active wells; and for the E2/E2A route, there are 22 active wells. However, Figure 3.8-A-9 ("Tunnel Construction RSA Detailed Map for E1/E1A") shows only 3 active wells in the Kagel Canyon area. Even though these wells are just outside of the demarcation limit of 1 mile from the center line of the E1/E1A build alternative, the fact that 3 active wells are listed indicates that this must be of some significance to CHSRA (otherwise they would not include the locations of any wells outside the 1-mile zone). There are over 50 active wells in Kagel Canyon, all of which fall just outside the 1-mile demarcation.

4494-9480 **Question:** Given that CHSRA has more unknown than known factors regarding the geology and hydrology of the area within the ANF, how can CHSRA be certain that the 50+ wells in Kagel Canyon will not be impacted by tunneling?

Question: Since CHSRA has not noted the locations of these wells and is not considering them to be within the 1-mile "danger zone," what will happen to homeowners in Kagel Canyon if they experience depletion of

4494-9480 their water supply? How will they prove to CHSRA that they have sustained damage if CHSRA did not mark baseline water levels in Kagel Canyon prior to commencement of tunneling?

4494-9481 **Question:** One of the proposed mitigation measures is to truck in water to homeowners whose wells were depleted as a result of tunneling. What type of resale value does a property have if it no longer has a water supply? Will CHSRA compensate homeowners who suffer an economic loss in resale value if the productivity of their wells was damaged or destroyed by tunneling? Will this decision also apply to homeowners in Kagel Canyon, who fall just outside the 1-mile zone, but who represent the highest concentration of wells within the RSA?

According to Section 3.8.5.6 of the DEIR ("Other Hydrologic Resources"), CHSRA mapped seeps within 2 miles of the proposed alignments, but wells only within 1 mile of the proposed alignments.

4494-9482 **Question:** Why were seeps mapped at a center line distance twice that of wells? Were wells to be mapped at the same distance of impact. all 50+ wells in Kagel Canyon would be included in the mapping. What was the criteria CHRSA utilized for determining the distance of potential impact on these various sources of water?

Page 3.8-28 of the DEIR explains connection between faults and water sources:

> The core samples illustrate broadly differing zones of fracturing, some with high density of fractures and other zones with virtually no fracturing. The wide variation of fracturing and the intersecting patterns of fracturing govern the direction and quantity of groundwater that is able to flow through the rock at those points. Generally, with greater and greater displacement along a fault, the fractured rock adjacent to a fault becomes a preferred path of groundwater flow.

According to a 2013 National Park Service study. "The San Gabriel Mountains are among the fastest growing mountains in the world. Forces from the San Andreas Fault to the north and a series of thrust faults on their south face are causing the San Gabriel Mountains to rise as much as 2 inches a year."[38]

4494-9483 **Question:** Given the rate at which the San Gabriel Mountains are growing, won't the fracturing in the rock along the alignments only grow over time? How will this growth and increased fracturing impact CHSRA's tunneling plans? How will this growth and increased fracturing impact the likelihood of disruption of the naturally occurring water sources in the San Gabriels as tunneling intersects the groundwater flow along fractured rock adjacent to a fault?

Question: If the San Gabriels continue to rise at approximately 2 inches per year. in the 10+ years that it will take CHSRA to construct this alignment, the concrete "ground" on which the track is laid within the may have risen nearly 2 feet. How will the growth of the San Gabriels impact the concrete tunnels? Will they not buckle as the mountains continue to grow? If and when the concrete tunnels buckle, will that not create cracks through which groundwater will flow into the tunnels?

On Page 3.8-29, CHSRA provides an example in which, "zones of completely intact rock could prevent groundwater flow. forming an impermeable barrier in the rock mass. whereas zones of more fractured rock facilitate storage and movement of groundwater."

4494-9484 **Question:** Will the introduction of 30-foot in diameter concrete tunnels not create an impermeable barrier preventing groundwater flow? How will the introduction of these large tunnels into the natural flow impact underground streams?

[38] https://www.kpcc.org/2013-04-11/national-park-service-protect-more-of-the-san-gabr

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4494-9484 Later on the same page, CHSRA explains that, "Faults have the potential to act both as groundwater conduits and as barriers that often result in substantial variations in groundwater pressures from one side of the fault to the other."

4494-9485 **Question:** If CHSRA tunnels through a fault (as it proposes to do a minimum of 7 times and as many as 20 times, per the data set forth in Table 3.8-6), will this not create the possibility of changing the fault from a conduit to a barrier? What will be the effects "downstream" if water that was previously freeflowing is suddenly blocked?

On Page 3.8-32 of the DEIR, CHSRA explains the importance of groundwater pressure vis a vis tunneling; with an increase in groundwater pressure (measured in bars) comes a corollary increase in the risk of both (1) inflow into the tunnel from surrounding rock, and (2) impacts to both groundwater and surface water resources. CHSRA goes on to state that it estimated groundwater pressures along the alignments based upon the data available for the 6 core holes and bore samples taken from the ANF – i.e, approximately 2 core samples from each of the proposed alignments.

According to geotechnical engineers with whom we made inquiries on the subject, 2 core samples for a section of tunneling in excess of 20 miles is a vastly insufficient data sample on which to make determinations. These engineers stated that CHSRA would need to conduct between 100 and 150 test borings within the ANF along the specific alignment in order to gather sufficient data necessary to plan its tunneling.

4494-9486 **Question:** Has CHSRA approached the USFS regarding the need to conduct additional test drilling within the ANF? Has CHSRA quoted to the USFS an estimated number of test bores in excess of 100? What has been the response of the USFS to this proposition?

4494-9487 **Question:** In other sections of the DEIR, CHSRA minimizes the impact that its alignments will have on the ANF, insisting that since the majority of the route through the ANF will be tunneled, surface impacts will be minimal. This assertion clearly does not include the need for CHSRA to conduct an additional 100 – 150 test bores on the Forest floor. Test boring is a loud and invasive process which will negatively impact wildlife within the Forest. Why were the impacts from these additional test bores not included in the applicable sections of the DEIR?

4494-9488 **Question:** For Routes E1, E1A, E2, and E2A, test bores will presumably also need to be conducted within the San Gabriel Mountains National Monument. What has the USFS stated will be the difference, if any, in policy regarding permission to drill test bore holes in the ANF vs. in the SGMNM?

4494-9489 **Question:** Presumably the additional 100 – 150 test bores will only be conducted along the Build Alternative that is selected as the actual alignment to connect Palmdale to Burbank. What results could the test bores yield that would render that chosen alignment to be impracticable? If such results are yielded in the test bores for the selected alignment, what happens next? Will the project not be completed in this Project Section? Or will a different alignment then be selected and test bores conducted along that alignment?

4494-9490 **Question:** Given the lack of data available from only 2 test borings conducted along the preferred alternative, how can CHSRA even provide a reasonably accurate cost estimate to build this project section?

In Table 3.8-8, CHSRA sets forth the estimated groundwater pressures beneath the Angeles National Forest. Later on Page 3.8-33, CHSRA states that:

> "Based on the limited data **and professional judgment**, the E1 and E1A, and the E2 and E2A Build Alternative alignments have three to five times the lengths of tunnel where the groundwater pressures are anticipated to exceed 25 bar, compared to the Refined SR14 and SR14A Build Alternative alignments. The highest anticipated groundwater pressures for portions of the Refined SR14, SR14A,

4494-9490 E1, E1A, E2, and E2A alignments are **anticipated to be as high as 50 bar for Refined SR14, SR14A, E1, and E1A, and greater than 60 bar for E2 and E2A.**"

4494-9491 **Question:** Given previous discussion in this section of comment letter regarding the ability (or lack thereof) of TBM machines to withstand >30 bars of pressure, wouldn't the same professional judgment that led to the estimation of groundwater pressures beneath the ANF also suggest that it is either imprudent, infeasible, or both to construct the tunnels as proposed?

4494-9492 In Section 3.8.6.3 ("Build Alternatives") of the DEIR, CHSRA sets forth the number of water features that will be impacted by each of the build alternatives. Below is a summary, culled from the information set forth in this section:

Build Alternative	Surface Water Crossings: At Grade	Surface Water Crossings: Viaduct	Surface Water Crossings: Tunnel	Surface Water Crossings: TOTAL
Refined SR14	48	12	29	89
SR14 A	43	3	32	78
E1	43	7	43	93
E1A	42	3	44	89
E2	34	8	44	86
E2A	39	3	40	82
No Project	0	0	0	0

CHSRA goes on to summarize the impacts that construction of the build alternatives will have on these water sources, including:

- Water diversion and/or dewatering of water channels to accommodate in-channel construction activities, including the placement of the following WITHIN surface water channels:
  - Trackway
  - Viaduct piers and abutments
  - Traction power substations
  - Roadway/railway modifications
  - Access roads
  - Station areas
  - Construction staging areas
  - Drainage facilities.
- Permanent modification of water channel capacity and flow to accommodate placement of fill material in surface water channels;
- Permanent modification of water channels due to placement of piers and abutments within surface waterbodies;
- Permanent modification of stormwater runoff patterns due to placement of permanent HSR infrastructure within surface water bodies, which may reduce the amount of water in the receiving waterbodies.

Despite these major impacts to significant sources of water within the RSA, CHSRA has concluded that the impacts, "would be less than significant" for the build alternatives, and therefore CEQA does not require mitigation.

4494-9493 **Question:** Has CHSRA made the Antelope Valley Watermaster aware of its plans to impact between 78 and 93 surface water crossings? What has been the response of the Antelope Valley Watermaster to the proposed alignments and their impact on hydrology? Does the Antelope Valley Watermaster agree with CHSRA's conclusion that these impacts would be "less than significant"? Will the Antelope Valley Watermaster allows

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4494-9493 CHSRA to proceed with its plans, either with or without conditions placed on the construction? Given the potential impacts to water within its jurisdiction, what reason would the Antelope Valley Watermaster have to select any alignment other than the No Project Alternative?

4494-9494 **Question:** Has CHSRA made the Upper Los Angeles River Area (ULARA) Watermaster aware of its plans to impact between 78 and 93 surface water crossings? What has been the response of the ULARA Watermaster to the proposed alignments and their impact on hydrology? Does the ULARA Watermaster agree with CHSRA's conclusion that these impacts would be "less than significant"? Will the ULARA Watermaster allows CHSRA to proceed with its plans, either with or without conditions placed on the construction? Given the potential impacts to water within its jurisdiction, what reason would the ULARA Watermaster have to select any alignment other than the No Project Alternative?

4494-9495 On Page 3.8-40 of the DEIR, CHSRA sets forth for each of the build alternatives what will be the total number of acres disturbed during and after construction. Below is a summary, culled from the information set forth in this section:

Build Alternative	Acres of construction-period ground disturbance footprint	Acres of permanent footprint	Acres of new impervious surface
Refined SR14	2,572 – 2,654	2,436 – 2,510	787
SR14 A	2,355 – 2,437	2,208 – 2,274	752
E1	2,249 – 2,263	2,156	742
E1A	2,022 – 2,159	1,898 – 2,021	700
E2	2,093 – 2,094	1,994 – 2,006	650
E2A	1,963 – 1,964	1,835 – 1,847	607
No Project	0	0	0

In conjunction with the thousands of acres that will be impacted during construction, CHSRA goes on to summarize the ways in which water resources may be impacted by construction, including the following:

- Contamination or pollution of surface waters due to use of construction-related chemicals;
- Water quality impacts from this contamination/pollution spread via stormwater runoff;
- Sedimentation and turbidity caused by erosion from soil disturbance during construction;
- Damage from activities within water courses related to the construction of infrastructure within the water channel;
- Dewatering, diversion, or disruption of streambeds during in-watercourse construction;
- Disposal of water that flowed into the tunnels during construction could release water contaminated with construction chemicals;
- Groundwater quality degradation due to TBMs (e.g., grouting, excavation, dewatering).

CHSRA concludes that with the implementation of mitigation measures that will "treat groundwater contamination," the Build Alternatives, "would not violate standards for groundwater quality or otherwise substantially degrade groundwater quality, and this impact would be less than significant for … the Build Alternatives."

Question: In contemplating a risk-reward analysis for this section of the DEIR, it seems that the risk is high, and the reward is low; the No Project Alternative is the only alternative that does not create thousands of acres of disturbance (some temporary, for those who define 10+ years as temporary, and some permanent) and myriad risks of contamination and disturbance to naturally occurring sources of groundwater. How would CHSRA present a risk-reward analysis that would justify the construction of any of the six proposed Build Alternatives?

4494-9496 On Page 3.8-46 of the DEIR, CHSRA sets forth Groundwater Recharge Impacts from New Impermeable Surfaces:

> Impermeable surfaces created by the Build Alternatives would disrupt the infiltration of water from the surface to groundwater basins, permanently affecting groundwater recharge. Reducing groundwater recharge could lead to groundwater reduction. Nearby groundwater wells could be affected by a reduction in groundwater availability.

CHSRA explains that groundwater may be depleted by tunneling, and this could impact water in the Antelope Valley Groundwater Basin, the Acton Valley Groundwater Basin, The Santa Clara River Groundwater Basin. the San Fernando Groundwater Basin. However, CSHRA minimizes the importance of these groundwater basins by explaining that they are not listed as "medium or high priority groundwater basins" and that no applicable groundwater sustainability plans have been adopted for these basins.

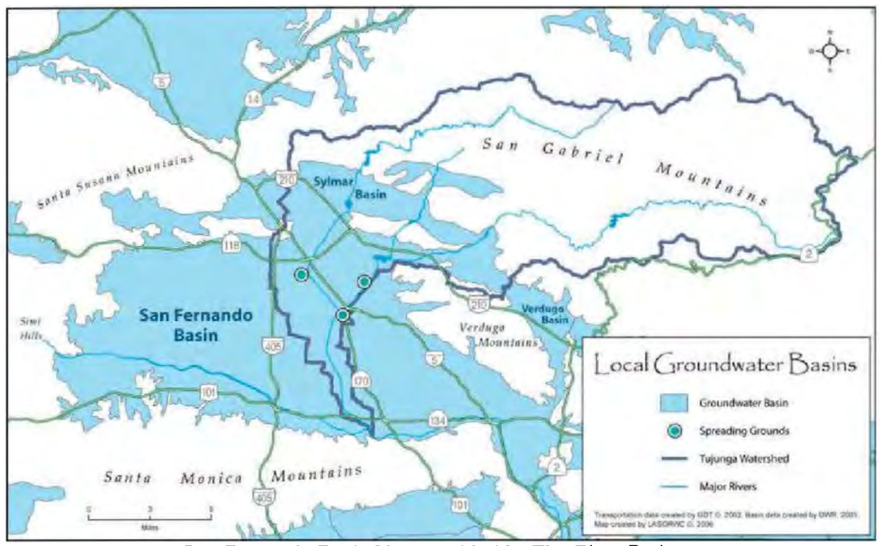
4494-9497 On Page 3.8-47, CHSRA goes on to state that within the San Fernando Basin, several of the Build Alternatives, "would cross the Hansen Spreading Grounds on fill or embankment. New impervious surfaces within the spreading ground could reduce its capacity for groundwater recharge."

Despite CHSRA's marginalization of the importance of our local groundwater basins, there is evidence to underscore their significance – particularly during this time of California's epic drought. The "History" section of Hansen Dam's Wikipedia entry explains the importance of this groundwater basin:

> During storms and flooding, the dam is intended to catch water within the reservoir. Provisions in the dam's standards of operations promote water conservation efforts coordinated with the Los Angeles County Department of Public Works. The provisions allow the dam to discharge water onto spreading grounds located south of the dam, which then percolates into groundwater recharge basins and is stored as part of the city's water supply.[39]

[39] https://en.wikipedia.org/wiki/Hansen_Dam

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San Fernando Basin Map provided by The River Project

4494-9498 In an article entitled, "Groundwater Recharge, Retention & Pollution," The Sierra Club explains the importance of our local water supply, quoting data from LADWP: "The local groundwater has historically provided approximately 11 to 15 percent of the city's total water supply. During times of drought and/or emergencies, the local groundwater has provided up to 30 percent of the total water supply."

This local groundwater is all the more important because of the current (and presumably future) issues with importing water to meet demand. The Sierra Club explains, "…we have to import water from northern California and, also, from the Colorado River. That is problematic because those places are not giving us the allotment they did even 10 years ago, and that means we need to rely more on our local water. We currently spend $1 billion a year to import 85 percent of our water supply from other regions whose ecosystems are seriously threatened by that loss."[40]

4494-9499 The issue of water is critically important to California. At the end of July, levels in Lake Mead, according to NASA, "stand at their lowest since April 1937, when the reservoir was still being filled for the first time."[41] In September 2022, several days after the release of this DEIR, cuts to the water from supply from the Colorado River were announced: "Officials in California are closing in on an agreement to give up a significant portion of the water the state gets from the Colorado River, bowing to an emergency demand made by the federal government earlier this summer."[42]

In order to balance the drought and the need for water, the Sierra Club recommends that in Los Angeles, we, "Need to have the most water absorbent & sensitive areas as 'no-build places'."[43]

[40] https://angeles.sierraclub.org/groundwater_recharge_retension_pollution
[41] https://thehill.com/changing-america/sustainability/climate-change/3573535-nasa-photos-show-dramatic-shrinking-of-lake-mead/
[42] https://grist.org/drought/colorado-river-water-california-imperial-irrigation-district/
[43] https://angeles.sierraclub.org/groundwater_recharge_retension_pollution

4494-9500 To take advantage of the wonderful resource of a highly absorbent aquifer we need to be able to use it when needed, so if there is a building placed on top of it then the aquifer can't do its job. Cities need to make those places "no build" and only used for such activities as recreation… In the past parks have not been a high priority but if they can be seen as a way of capturing water they might be seen as more important and, therefore, receive more funding. Other public rights-of-way crossing the watershed include 27.75 miles of channelized streams and five transmission line corridors. These interconnect with spreading grounds throughout the watershed, providing an ideal opportunity to create green infrastructure for stormwater capture, groundwater recharge, and habitat that can provide a network of trails, pocket parks, and community gardens. Prioritizing these areas for reclamation and restoration can have tremendous impact on our available amounts of local water supply. Along restored riparian (stream) corridors connecting the mountains and the washes, habitat for wildlife could be integrated with multiple-use parkland for people. **Permanent protection of open space is warranted, particularly along these corridors and in the urban fringe above Hansen Dam.**[44]

Question: Groundwater resources are more important to Los Angeles than ever before, yet CHSRA proposes polluting them, reducing them, and reducing their potential for recharge. all while claiming that these impacts are "less than significant." How can CHSRA's Board of Directors select in good faith any build alternative other than the No Project Alternative?

4494-9501 On Page 3.8-48 of the DEIR, CHSRA examines the impacts on Groundwater Recharge from Tunnel Construction, explaining,

> Within the Antelope Valley Groundwater Basin, tunneling activities required for each of the six Build Alternatives could encounter shallow groundwater south of the California Aqueduct and north of the ANF. Where each of the Build Alternative alignments passes through foothills of the San Gabriel Mountains, tunnels would likely be constructed above the groundwater table. **However, not enough groundwater information is available at this time to identify the extent to which the tunnels may be below the water table.** There may be perched groundwater or seasonal springs in the vicinity of these tunnels (Figure 3.8-A-21); therefore, local water inflows during portal and tunnel excavations are anticipated in this area.

Further, with respect to design features such as the tunneling methods to be employed, CHSRA states:

> The circumstances under which these approaches would be employed would be guided by site-specific geotechnical and hydrogeological characterizations that would be developed during the preconstruction phase of the selected Preferred Alternative. Such studies would include geotechnical investigations along the tunnel alignment for the selected Preferred Alternative to characterize the differing rock/soil types (e.g., strength, fracturing, in-situ stresses), groundwater pressures at tunnel depth, potential flow quantities, and structural geology, including faults and gouge zones.

Question: If not enough information on groundwater resources exists to know the relation of the tunnels to groundwater resources, how can we rely on CHSRA's admittedly limited analysis to know that its tunneling plans are even feasible?

4494-9502 **Question**: CHSRA is placing a great deal of emphasis on additional testing and studies that will need to be conducted after the Preferred Alignment is selected but before construction begins. These additional tests/studies will yield pretty important information that could determine whether or not an alignment is feasible. For example, if additional testing determines areas in which the water pressure exceeds 60 bars, what will happen then?

[44] https://angeles.sierraclub.org/groundwater_recharge_retension_pollution

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4494-9503 **Question:** Will these additional studies be conducted by CHSRA itself, or by a contractor bidding on the build contract for the Preferred Alignment?

4494-9504 **Question:** Other than water pressure, what other factors could be discovered during these additional tests that would render an alignment infeasible or impracticable? If any such factor(s) are discovered during the period of additional study, will the Preferred Alignment be abandoned and there will be no project in this Project Section? Or will a different alignment then be selected and additional studies conducted along that alignment?

4494-9505 **Question:** Given CHSRA's admitted lack of information available on groundwater resources, how can CHSRA even provide a reasonably accurate cost estimate to build this project section?

4494-9506 With respect to the inventory and monitoring of groundwater and surface water resources, on Pages 3.8-68 and 3.8-69 of the DEIR, CHSRA explains that it will conduct monitoring activities to evaluate the recovery of water resources that were depleted or otherwise damaged by tunnel construction. These monitoring/recovery plans include the following statements:

1. Over time, groundwater resources would recover from losses sustained during construction through recharge by natural precipitation. Such recharge may take months to years after the tunnel lining system is installed.
2. The Authority will prepare contingency plans to provide supplemental water as necessary to support springs and streams determined through modeling and monitoring to be adversely affected by groundwater reductions. For all features, supplemental water would provide minimum flows and periods of inundation to match baseline conditions.
3. Supplemental water would be supplied to affected springs or streams to approximate baseline levels until groundwater recharged naturally. The actual method of distribution of supplemental water would vary according to site-specific characteristics. For example, at some locations, a drip irrigation system may be more appropriate, whereas at other locations, it may be more appropriate to simply discharge water directly to a creek bed.

Question: It seems to contradict common sense for reasonable people to choose importing water and dumping it into streams in the Forest instead of choosing to not damage the naturally-occurring water sources in the first place. Given that recharge of water resources may take years, and given that CHSRA proposes importing water and dumping it into streams in order to achieve baseline water levels before they were depleted by tunneling, what are the reasons why it would not be preferable to simply not cause the damage in the first place?

4494-9507 On Page 3.8-79 of the DEIR, CHSRA begins a section entitled, "Incomplete or Unavailable Information Regarding Evaluation of the Effects of Tunnel Construction" with the following:

> Although preliminary assessments of subsurface conditions in the ANF have been conducted to date, many aspects of the hydrogeologic and hydrologic conditions that would be encountered during tunnel construction **have been defined only partially, and data gaps remain** regarding the surrounding bedrock, groundwater, soil, and surface hydrology conditions present in the vicinity of the proposed tunnels. The current data gaps include the following:
>
> - Geologic conditions, including spatial distribution of rock formations, rock structure types, rock orientation, extent and intensity of fractures and shear zones, and characteristics of the San Gabriel fault zones and Sierra Madre fault zones, including lengths, widths, depths, and alignment of the fault zones in the subsurface;
> - Hydrogeologic conditions, including aquifer boundaries, groundwater, and hydrostatic pressures, annual and interannual variation of groundwater conditions, responses to rainfall, conductivity, fault and fracture zone features, hydrologic connectivity with surface water resources and overlying alluvial aquifers, and groundwater chemistry;

4494-9507
> - Hydrologic conditions, including average productivity of existing groundwater wells and springs, and the annual and interannual variation in productivity, metrics describing average, peak, and low-flow conditions of streams, and hydroperiods of surface water resources.

CHSRA has proven in the Central Valley that the 15/85 design plan (i.e., only 15% of the project has to be designed before 100% of the project has been approved) is an abject failure. The failure of CHSRA to sufficiently research proposed alignments in advance of their approval led to significant cost overruns as well as waste, as houses were taken by eminent domain which turned out to not even be in the eventual path of the train, and rerouting was necessary for miles as CHSRA failed to realize that utilities were in the way.

4494-9508 **Question:** Instead of repeating the mistakes made in the Central Valley, would it not be preferable to research the necessary factors ahead of time in order to conclude whether or not the Preferred Alignment is even feasible?

4494-9509 **Question:** The fact that the "data gaps" are in some of the most serious issues facing the design and construction of the CHSRA proposed alignments – i.e., geologic conditions, hydrogeologic conditions, and hydrologic conditions – is worrisome at best. Considering that some of the most significant questions/concerns about the feasibility of this project stem from these issues (e.g., seismicity, potential for disruption of water sources), would it not be preferable to do the necessary research now to address these significant concerns?

4494-9510 **Question:** Considering how little CHSRA actually knows about the geologic, hydrogeologic, and hydrologic conditions through the most technically challenging portion of the proposed rail system, what would CHSRA say are the chances of success in actually completing these tunnels? Given that the unknowns outweigh the knowns, what would CHSRA say are the chances of successfully completing this project section within the projected $12B - $24B estimate set forth in the 2022 Business Plan?

4494-9511 On Page 3.8-82 of the DEIR, CHSRA states that, "The AMMP would address foreseeable and unforeseeable impacts associated with the Build Alternatives."

Question: How does a plan address "unforeseeable impacts"?

4494-9512 **Conclusion:** Some of CHRSA's proposed mitigation measures may help to either prevent or remediate damage to water resources on a case-by-case basis; however, when considered overall/cumulatively, these mitigation measures are vastly insufficient to address not only the risk, but also the overwhelming likelihood of damage to water resources that will be sustained during both the construction period and the operation of the train. Additionally, CHSRA's admitted lack of information about the geologic, hydrologic, and hydrogeologic conditions that exist along the project alignments is alarming. The proposition that these factors will be studied at a later date, and possibly by contractors bidding on the build of the project section, is unacceptable for a project of this cost and complexity. These concerns are exacerbated by the epic drought currently facing the State of California, when for the foreseeable future the significance of our naturally-occurring sources of water are at an all-time high – and the thought of jeopardizing these resources is unthinkable. With the information that CHSRA has presented in Chapter 3.08 and its appendices, the only acceptable alternative is the No Project Alternative.

APPENDIX 3.8-C: ADAPTIVE MANAGEMENT AND MONITORING PLAN FOR POTENTIAL HYDROLOGIC EFFECTS WITHIN THE ANGELES NATIONAL FOREST
APPENDIX 3.8-D: SUPPLEMENTAL WATER PLAN ANALYSIS FOR POTENTIAL IMPACTS WITHIN THE ANGELES NATIONAL FOREST/SAN GABRIEL MOUNTAINS NATIONAL MONUMENT

4494-9513 The high-speed train requires a substantial amount of water during and for construction as well as afterwards to ensure that the Angeles National Forest/San Gabriel National Monument's (hereinafter just referred to as "Angeles National Forest" or "ANF") habitat remains at its pre-construction condition. Therefore, the US Forest

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4494-9513

Service (USFS) provided CHSRA with several mandates to follow concerning the alarming effects that constructing and operating tunnels through the ANF could or would cause.

California, and the rest of the Western United States, are in yet another multi-year mega-drought with no end in sight.[45] The fact that CHSRA is even thinking about using any water for any use is a non-starter. Therefore, the only feasible alternative is the No Build Alternative.

CHSRA acknowledges that tunnel construction can cause loss of water to the ANF's ground floor. This temporary or permanent loss of water would destroy habitat resulting in death for fish, amphibians, reptiles, small mammals, apex predators, and birds. One area of great concern is the negative impact loss of water will have on oak trees and hardwood conifers. Further, CHSRA recognizes that after tunnels are completed, they may leak, resulting in continuous seepage and loss of water for plants and riparian areas.

4494-9516

CHSRA states they have ways to seal the tunnel if they leak, but it is disquietingly reminiscent of the Central Artery/Tunnel Project, commonly known as "the Big Dig" in Massachusetts. This tunnel project was plagued with massive construction flaws including thousands of leaks. This negligence led to criminal convictions and the death of a motorist. Unlike the high-speed rail tunnels, the "Big Dig" tunnel was not hundreds or thousands of feet underground, nor was it subject to high pressure. Yet, because of poor construction, the tunnel failed. If you think, "Surely, CHSRA wouldn't use substandard construction," please refer to the high-speed rail's Madera bridge failure in 2020[46]. High-strength steel strands supporting the 636-foot-long structure began to snap in October 2020, one after another. Ultimately, 23 of the strands, which are composed of seven individual wires each, broke unexpectedly, according to rail authority documents and officials. The order to stop work was issued in November 2020. Additionally, the same contractor that built this failed Madera bridge, Tutor-Perini, was ordered in October 2022 to shut down construction for two weeks on LA's Metro Purple Line due to massive worker injuries. Guess who is CHSRA's largest contractor? Yes, it's Tutor-Perini – which has a nearly $3 billion multi-year contract that expires in 2024.

4494-9514

On a side note, Tutor-Perini's business practices have earned Ron Tutor the title of "Change Order Artist." Officials in both San Francisco and Los Angeles are seeking to ban the company from bidding on contracts. Over 12 years, Tutor-Perini cost the San Francisco government $765 million more than expected (or 40% above initial bids) for contracted projects by fraudulently inflating costs from $626 million to $980 million, as determined in a 2002 lawsuit. The company paid only $19 million to settle the San Francisco based suit. Tutor-Perini filed a lawsuit against Los Angeles County for $16 million in "unanticipated costs." Two decades later, the county has spent over $32 million without a resolution to what the county refers to as a false reimbursement claim. With respect to the high-speed rail project, Tutor-Perini underbid the anticipated costs and then later made a change order and was given another $63 million by the CHSRA as a result.[47]

4494-9515

With respect to impact on groundwater, USFS has provided various standards. Appendix 3.8-C, Section 2.1 provides:

> *"Section 2.1 USFS Soil, Water, Riparian and Heritage Standard 45*
> *USFS Standard 45 establishes that activities on USFS land must minimize adverse effects on groundwater (USFS 2005). Standard 45 states: 'All construction, reconstruction, operation and maintenance of tunnels on National Forest System lands shall use practices that minimize adverse effects on groundwater aquifers and their surface expressions.'*

[45] https://www.earthisland.org/journal/index.php/articles/entry/us-west-megadrought-worst-1200-years-new-study?utm_source=google&utm_medium=paid&utm_campaign=tfd_dsa&gclid=Cj0KCQiAveebBhD_ARIsAFaAvrFBWFfl5_3Ma2ajZ-cWwdcwQAWg9knmFM09ZjYgHc4wkn1LGGVkFCsaAjxXEALw_wcB
[46] https://www.latimes.com/california/story/2020-08-10/california-bullet-train-bridge-snafu
[47] https://californiapolicycenter.org/horrible-history-state-contract-awards/

4494-9515

> *Authority Objectives Regarding Standard 45:*
> *–Maintain the minimum baseline range of flows of springs and streams and measured groundwater levels (i.e., measured pressures) within documented seasonal parameters.*
> *–Maintain minimum baseline spring and stream flows to maintain surface water conditions substantially similar to flows documented during monitoring that support existing habitats and wildlife species."*

Similar standards are stated for fish and wildlife. In short, construction cannot be allowed that results in damage to the ecological system.

Currently, there is monthly water monitoring. A baseline will be established through various tests prior to construction and will include streams and springs (inflow and quality), impact on riparian habitats, plants, birds, and bats. Monitoring will continue during construction and then for 10 years after construction.

If a variance is found, remedial steps will be taken. However, it is our belief based on the effects that dewatering has had on other parts of the state (e.g., the Central Valley, Runyon Canyon in Los Angeles) that when water is gone, it is gone, and any mitigation measure will be too little too late.

4494-9517

In addition to the timing and the amount of irreversible loss of water even if dewatering is discovered, the remedies are infeasible and untenable.

While CHSRA outlines in detail their mitigation remedies on several pages of this appendix, their "mitigation" remedies are simplistic and senseless:

1. Replace the water in streams and springs by 8,000 gallon water truck deliveries[48] from local water agencies (water would require aeration, circulation, exposure to ultraviolet light, or otherwise treated to reduce concentrations of chlorine and other byproducts of water treatment which suggests that the water is potable) to match the existing naturally occurring water chemistry that was lost: water would be added to streambeds or delivered through drip irrigation systems (CHSRA estimates that there will be 27 truck trips DAILY to supply the necessary amount of supplemental water and states that this is a rather infeasible solution); trucks would have to drive 48 or 62 miles round trip, with 16 miles on Forest Service roads and an additional 9 and 15 miles on paved or urban roads, respectively, per visit; or
2. Replace the water in streams and springs by pumps and 620 foot long pipeline(s) along existing roads; and/or
3. Install permanent water tanks and irrigation systems to lessen the amount of truck trips; and/or
4. Rehome species that are negatively impacted to another area.
5. For affected supply wells, actions could include modifying the well equipment, such as by lowering the pump within the well, cleaning the pump, or providing a larger pump. Other or additional actions may include providing potable water supplementation until water levels recover in the water supply well. A third grader knows that the replacement water must come from somewhere and California does not have that "somewhere"! (NOTE: California Central Valley's groundwater loss caused irreversible sinking.)[49]

It is obvious that these "remedies" are infeasible, untenable, and absurd. California has more drought years than not, and its climate is changing to a much drier climate. To say California is suffering from yet another drought is like stating that the Sahara Desert continues to have droughts.

[48] A 8,000 gallon water truck weighs 30,283 pounds loaded and runs on greenhouse gas-emitting diesel. CHSRA acknowledges that ANF roads are not built for heavy usage and heavy weight vehicles. The noise, fumes, and vibration from frequent truck trips will harm the ANF.

[49] https://news.stanford.edu/press-releases/2022/06/02/will-californiasley-stop-sinking/#:~:text=The%20floor%20of%20California's%20arid,water%20levels%20merely%20stop%20declining.

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4494-9518

CHSRA used precipitation data from 1932 to 2016 to determine how much water will be required to maintain the status quo. It excludes California's current predicament: October 2019 through September 2022 — the past three water years combined — was California's driest such period on record. In that time, much of northern California missed more than a year's worth of precipitation.[50] As each year of rainfall dwindles, the more supplemental water will be required. Further, the sources of this supplemental water also dwindle. Where is this water going to come from? It cannot come from California's current sources of water which includes reservoirs inside and outside of the state which are at a fraction of their normal capacity and whose agencies are draconianly cutting allocations.

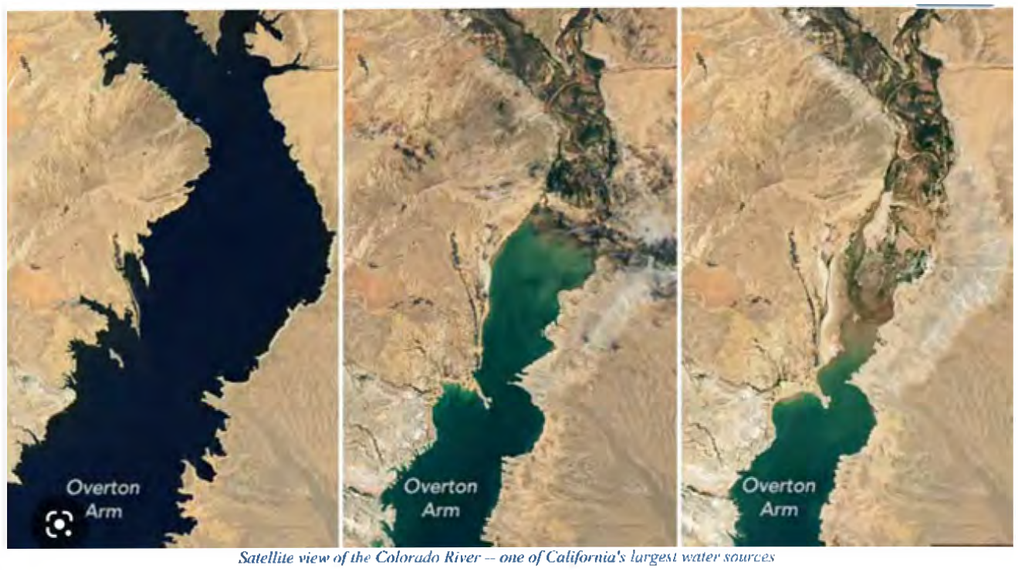
Photograph redacted at the request of SAFE.

The LA Times' headline on November 23, 2022 says it all, "*It's a disaster.' Drought dramatically shrinking California farmland, costing $1.7 billion.*" The article goes on to state that California has just gone through the state's driest three-year period on record, and this year the drought has pushed the fallowing of farmland to a new high. Further, scientists predict a fourth year of drought which puts California into uncharted territory.

Impacts of this current drought:

- California's irrigated farmland shrank by 752,000 acres, or nearly 10%, in 2022 compared with 2019 — the year prior to the drought. That was up from an estimated 563,000 acres of fallowed farmland last year.
- Gross crop revenues fell $1.7 billion, or 4.6%, this year. Revenues of the state's food processing and manufacturing industries declined nearly $3.5 billion, or 7.8%.
- An estimated 12,000 agricultural jobs were lost, representing a 2.8% decline.
- The amount of farmland left dry this year surpassed the peak of fallowed land during California's last drought from 2012 to 2016.
- With the Sacramento River watershed parched and Shasta Lake at low levels, wildlife officials dedicated some water to try to help the spawning of endangered winter-run Chinook salmon, which contributed to the cuts in water deliveries to farms. Very few fish survived.
- Lack of water now threatens millions of wetland-dependent birds, and could affect the migratory path along the Pacific Flyway.

[50] https://www.washingtonpost.com/climate-environment/2022/10/25/california-drought-forecast-record-dry/



Satellite view of the Colorado River – one of California's largest water sources

4494-9519

The following chart enumerates how much supplemental water will be required:

Table 3 Estimated Water Demand for Supplemental Water at Two High Risk Areas within the Angeles National Forest

Subsection	Estimated Water Demand	
	acre-feet/year	gallons/year
E1/E1A		
E1/E1A-4	215.00	70,053,892.00
With 10% contingency	236.50	77,059,281.20
E2/E2A (includes areas within the SGMNM)		
E2/E2A-4	1.98	646,651.00
With 10% contingency	2.18	711,316.10

70 to 77 MILLION GALLONS OF WATER PER YEAR!
PLUS 194 MILLION GALLONS OF WATER DURING CONSTRUCTION!
Assuming 7 years[51] of construction: 733 MILLION GALLONS OF WATER!

733 million gallons of water would provide water for 6,275 households in Los Angeles for an entire year assuming a generous use of 320 gallons of water use per day or could fill 1,110 Olympic-sized swimming pools.

[51] Can be 7 years, but will probably exceed 10 years.

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4494-9520 CHSRA states that water will be provided by agencies such as wholesale water and retail domestic potable water agencies that serve the area. While none of this water would be drawn from natural water sources in the ANF, it will divert water used by businesses, residences, farms, ranches, and commercial enterprises.

Without construction of the high-speed rail project, water providers predict that sufficient water supplies would be available to meet demands in 2020 (it is nearly 2023), assuming normal water year conditions. However, in the event of single or multiple dry year conditions, *which is the current situation with no end in sight*, demands would exceed supplies in 2020. Additional water supplies would be needed to meet demands under such conditions, with or without construction of the project. Without the allocation of additional water during dry years, there may not be water supplies available from these providers. Every day it seems like there is another piece of news about water cuts from the usual reliable water suppliers. In October 2022, it was announced that the southwestern states that rely on the Colorado River must implement further cuts because the water levels are so low (25% of normal) that there won't be enough water to generate hydro power. The risk of dead pooling[52] is real.

4494-9521 CHSRA states that 10-25% of construction water can be recycled, treated, and then also re-used again for supplemental water. Even if this were true, any water for this project is too much water, particularly when we have essential uses for growing food and raising livestock, for drinking, cooking, washing, and flushing one's toilet.

4494-9522 With respect to water access and consumption, California residents, businesses, and farms should take precedence. California is the world's 5th largest supplier of food, cotton fiber, and other agricultural commodities. In the U.S., California is the largest producer of food, despite having less than 4% of the farms in the country.[53] It is simply reckless and wasteful, not to mention unfair, to divert water from anywhere in the Western United States for this project.

4494-9523 Per CHSRA, water for construction would be simply provided and delivered by domestic and wholesale providers to construction sites (primarily portal and adit locations) via pipelines that would be constructed as part of the project. These pipelines have been incorporated into the project footprint and have been evaluated in the impact analysis. Many of the portal and adit locations where domestic and wholesale water supplies would be piped in for construction are either within or near the Angeles National Forest and San Gabriel National Monument. These pipelines are just another encroachment into the environmentally-sensitive forest.

4494-9524 It is not a simple process to produce water from underground water resources. A production well would need to produce several hundred gallons of water per minute. Most of the bedrock wells in the vicinity of the tunnel alignments are low-yield wells for private uses[54] and are not capable of producing the quantity of water needed for supplementing affected surface water resources. A large yielding well would need to be in an alluvial groundwater basin rather than in bedrock areas. This would likely result in wells being located outside the ANF in basins—the Santa Clara River Valley Groundwater Basin and the San Fernando Valley Groundwater Basin.

4494-9525 **Question**: Are these water pipelines permanent infrastructure?

Question: Are the water storage tanks permanent infrastructure?

4494-9526 **Question**: Who pays for the 10-years of post-construction monitoring?

[52] Dead pool occurs when water in a reservoir drops so low that it can't flow downstream from the dam. The biggest concerns are Lake Powell, behind Glen Canyon Dam on the Utah-Arizona border, and Lake Mead, behind Boulder Canyon Dam on the Nevada-Arizona border.
[53] https://blog.aghires.com/california-largest-food-producer-u-s/
[54] This statement is confusing because CHSRA has stated that they would not utilize water from the ANF. We assumed it was because the optics are terrible but apparently it is because the pumps are not robust enough.

4494-9527 **Question**: Who pays for the water during and after construction?

Question: Who pays for the replacement water delivery systems?

4494-9528 **Question**: Are the water agencies who are assumed to be supplying the replacement water aware of this plan?

4494-9529 **Question**: Why is CHSRA going to pump water themselves if they are planning on getting their water from local water agencies? Don't local water agencies also rely on this groundwater for their inventory? Isn't that larceny?

4494-9530 **Question**: With respect to water allocation, why should this project be given priority over everyone else?

CHAPTER 3.9: GEOLOGY, SOILS, SEISMICITY, PALEONTOLOGICAL RESOURCES

In this section, we will discuss the CEQA mandates and CHSRA's responsibilities as they relate to geology, soils, seismicity, and paleontological resources.

CEQA Mandates

1. "CEQA was enacted to advance four related purposes; to (1) inform the government and public about a proposed activity's potential environmental impacts; (2) identify ways to reduce, or avoid, environmental damage; (3) prevent environmental damage by requiring project changes via alternatives or mitigation measures when feasible; and (4) disclose to the public the rationale for governmental approval of a project that may significantly impact the environment." (*California Building Industry Assn. v. Bay Area Air Quality Management Dist.* (2015) 62 Cal.4th 369, 382.)

2. To further these goals, CEQA requires an agency to prepare an EIR for any proposed project that may have a significant effect on the environment. (Pub. Resources Code §§ 21100(a), 21151(a), 21080(d), 21080.2(d).)

3. "An [EIR] is the public document used by the governmental agency to analyze the significant environmental effects of a proposed project, to identify alternatives, and to disclose possible ways to reduce or avoid the possible environmental damage." (14 Cal. Code Regs. § 15002(f); Pub. Resources Code, § 21002.1) The EIR must clearly identify and describe the project's significant effects on the environment. (14 Cal. Code Regs. § 15126.2.)

4. "An accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR." (*County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185.) Failure to adequately describe a project undermines CEQA.

5. The EIR must "describe feasible measures which could minimize significant adverse impacts," and the "formulation of mitigation measures shall not be deferred until some future time." (14 Cal. Code Regs. § 15126.4.)

6. Under CEQA, an agency must solicit and respond to comments from the public and from other agencies concerned with the project." (14 Cal. Code Regs. § 15200(j).)

7. The agency must evaluate comments on environmental issues received from persons who reviewed the Draft EIR and prepare a written response. (14 Cal. Code Regs. § 15088.) The agency must address "in detail" objections raised in the comments, "giving reason why specific comments and suggestions were not accepted. Conclusory statements unsupported by factual information will not suffice." (14 Cal. Code Regs. § 15088.)

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Failure to Meet Mandates

The DEIR is 7,000 pages long (6 times the length of *War and Peace*) and yet still fails to meet the State Required Mandates on several levels as follows:

4494-9531 1. Seismicity. The DEIR proposes a design and build contract whereby the contractor, if one can be located, will somehow determine the subsurface features of the route. CHSRA only drilled 6 bore holes to cover the area of the 6 alternative routes. This is an insufficient number of bore holes for 28 miles of tunneling per alternative. Since earthquake faults that are not always "surface reflected," the subsurface conditions require the drilling of about 150 bore holes along each route. There is inadequate subsurface testing to allow a reasonably prudent contractor to enter into a design and build contract. More importantly, the CHSRA does not have enough information to make a rational decision about which route – if any – should be selected. The failure to test prior to issuing the DEIR violates Cal. Code Regs (14 Cal. Code Regs. § 15126.4.) You can't approve that which you do not know. Kicking the can down the road is an abrogation of the Authority's duties.

Questions:

4494-9532 1.1 Question: How many bore holes would a reasonable person making multi-billion-dollar decisions need along each proposed route to have sufficient information to make an "accurate stable and finite project description"?

4494-9533 1.2 Question: How can the Authority decide which route, if any, to approve if it has not conducted the tests (bore holes) needed to derive the requisite information?

4494-9534 1.3 Question: Has the authority approached any contractor about what information it will need to enter into a "design and build" contract for tunneling through the Angeles National Forest (ANF) or the Transverse Mountains?

4494-9535 1.4 Question: Is there an estimated cost for a design and build contract for tunneling through the ANF?

4494-9536 1.5 Question: What happens if the bore holes drilled along the preferred alternative confirm that preferred alternative is infeasible?

4494-9537 1.6 Question: What happens if the drilling of all bore holes yields results that render all the alternatives infeasible?

4494-9538 2. Track Misalignment: CHSRA proposes to mitigate the derailment damages likely to be caused by an earthquake event with the use of early earthquake warning (EEW) systems which will then contact the train to slow down.

Questions:

4494-9539 2.1 Question: At 200 miles per hour, how long (in miles and time) will it take a train to slow down and stop before derailing?

4494-9540 2.2 Question: Would restricting the train's speed to no more than 100 mph in a tunnel be a reasonable mitigation measure to decrease stopping distance and time?

4494-9541 2.3 Question: If the train were limited to traveling at 100 mph through the tunnel, wouldn't it be easier and less expensive to select the "no project" alternative and not tunnel under the ANF?

4494-9542 2.4 Question: The CHSRA talks about mitigating problems by using the Asian and European models but does not describe such models. What are those models?

4494-9543 3. Tunnel Boring Machines: In Seattle the tunnel boring machine (TBM) was named Big Bertha, after the first female mayor of Seattle. It got stuck in the hole and took about a year to extract. Portions of the geology of the Seattle tunnel can be similar to that found in the ANF. This is especially true around existing earthquakes that have pulverized the rock, and which will likely have excessive water pressure.

4494-9543 **Question**: How long would it take to extract the TBM at 2,000 feet from the ANF?

Question: What is the additional cost of extracting a TBM from the ANF?

4494-9544 4. Hydrology - High Pressure Water: The DEIR states that when rocks have been crushed by earthquakes, the water pressure can be in excess of 25 bars. Twenty-five bars equal 362 psi of water pressure. Water pressure from most fire hydrants is 50 psi to 100 psi. This makes 25 bars up to 6 times as strong as pressure from a fire hydrant.

Question: How will the tunnels be constructed to meet this high water pressure?

Question: Where will all the water be sent during construction?

Question: How will high water pressure affect using the second tunnel as an escape for passengers from the first tunnel during an earthquake or derailment?

Question: At what pressure (psi) will water seep into tunnels?

Question: What is effect of water seeping into the tunnel?

4494-9545 5. Hydrology - Surface Water: The tunneling will likely cause the dewatering of the surface water with the attendant adverse consequences to flora and fauna. This happened in the Runyon Canyon portion of the Hollywood Hills during the construction in the Metro Red Line.

4494-9546 **Question**: Will the US Forest Service have the authority to withdraw its permit allowing CHSRA to travel through the ANF during or after the completion of the tunneling because of dewatering?

4494-9547 **Question**: Where will the water come from to provide water to the surface to replace the dewatering effect of tunneling?

Question: How much replacement water is needed and how much will it cost?

4494-9548 6. Hydrology - Earthquakes: The addition to or removal of water from surface formations can cause earthquakes. There are a series of articles in the 2014 *Smithsonian* which discuss the possibility of earthquakes caused by inserting liquids into underground formations (Oklahoma fracking) or removing water from the formation (Central California).

Question: What studies have the Authority conducted on the effect of the removal of water (dewatering) on earthquakes in the Transverse Mountains?

4494-9549 7. Electricity: There is no analysis of who is going to provide the electrical infrastructure for this section of CHSR. Neither the Los Angeles Department of Water and Power (LADWP) nor Southern California Edison (SCE) have commented on the cost of infrastructure nor who will pay for it. This is a failure to describe the project. This failure is a system-wide failure which may make the entire project infeasible. The questions which the DEIR fail to address are as follows:

Question: If public or private utilities do not pay for the purchase and installation of the electrical infrastructure for Palmdale to Burbank, who will pay for it?

Question: Regardless of who pays for the electrical infrastructure for the Palmdale to Burbank section, what is the estimated cost in 2022 dollars?

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4494-9550 **Question**: Recently there have been flex alerts with threats of rolling blackouts of electricity. What priority of electrical usage does CHRSA have compared with residential and commercial users?

Question: Is the priority for usage consistent between all potential providers of electricity?

Question: What happens if electricity is not available on a portion of the CHRSA system?

4494-9551 **Question**: What agreements or memorandums of understanding does the Authority have with the utilities within the Palmdale to Burbank section to provide electricity or electrical infrastructure?

4494-9552 **Question**: Has CHSRA discussed these or similar issues with the LADWP?

4494-9553 8. Conclusion: "Substantial Evidence" is needed to sustain the approval of an EIR. In this matter there is no "substantial evidence" because there is no evidence at all. The use of a design and build standard means that all facts needed to determine if the project is feasible or what mitigation is appropriate will be made after the approval of the project. That is backwards and specifically prohibited under California law.

Additional Questions on this Chapter:

4494-9554 **Question**: Why isn't all the necessary/required and voluminous testing not being done PRIOR to approval of the preferred build alternative? As the many graphs included in this section include projections without the foundation of any previously proven results, what assurance does the public have that CHSRA can successfully complete this project?

4494-9555 **Question:** What is the reason that HSR has not already conducted the additional test bores necessary to evaluate the feasibility of the tunneled routes? Shouldn't that testing have occurred and the results been made available prior to the release of this DEIR?

4494-9556 **Question:** What are the dates of the graphs presented in this section?

4494-9557 **Question:** In what ways has CHSRA prepared for catastrophes (including but not limited to deaths of construction workers and/or eventual riders) that may occur as a result of tunneling through the San Gabriel Mountains?

4494-9558 **Question:** Is CHSRA prepared to reimburse the citizens that live in the Foothills for effects they may suffer as a result of construction and/or operation of the train, including but not limited to the depletion of water, landslides, deforestation, and construction impacts that disrupt everyday life?

4494-9559 **Question:** Why is CHSRA pursuing this project section when it knows that all 6 proposed build alternatives cross fault lines in many areas?

CHAPTER AND APPENDIX 3.11: SAFETY AND SECURITY

4494-9560 According to CHSRA, the high-speed train will be fully access controlled:

- Public to access train by platform only
- Access control barriers and railway/roadway barriers to prevent intrusion into the right of way, the fixed infrastructure and would employ the latest safety features and design to enable the trains to stay upright and in line in the event of a derailment
- Protect against collisions and derailments / outside hazards-intrusions into the right of way
- Earthquakes and severe weather conditions

4494-9560 The HSR guideway, stations and associated facilities would include:

- Fire and life safety infrastructure (including fire and smoke prevention and control)
- Security and communication systems
- Features to manage adjacent hazards from electrical and other utilities
- Hazardous materials facilities
- Oil and gas wells
- Wind and turbines

Appropriate setbacks and access controls for adjacent facilities or areas underneath elevated structures

- Based on existing regulations, guidance, or site-specific analysis, would maintain the safety and security of both the California HSR system operations and the adjacent communities.

The Authority will require the Safety and Security Management plan to be developed and implemented prior to project construction.

Regional and local safety plan analysis Summary shows:

- City of Lancaster, Palmdale, Los Angeles Burbank
- Los Angeles County
- Whiteman Airport, Hollywood Burbank Airport

These safety plans all together cover:

- Geology and seismicity. Flooding and drainage, noise, air installation land use compatibility, hazardous materials, crime prevention, fire prevention, disaster preparedness, emergency medical services, natural and human made hazardous materials, comprehensive risk management plans, public safety, safety and security in parking areas and commercial and residential areas, safety for pedestrians, bicyclists and equestrians, planned response to emergencies.

Question: What is the safety plan to prevent a derailment?

4494-9561 Emergency Response Plans

- City of Burbank, Lancaster, Palmdale, Santa Clarita, Los Angeles
- Los Angeles County, Southern California Association of Governments

These organizations cover: Prepare the district to respond to emergencies using the Standardized Emergency Management System, strategies to address multi hazard issue as well as hazard specific activities for windstorm, earthquakes, fires, flood, landslides and terrorism, ensure that the long-term values of the community are not compromised, strategies to ensure safety and mobility of the region's residents, including drivers and passengers, transit riders, pedestrians and bicyclists.

Question: What is the emergency response plan in the event there is a derailment?

4494-9562 Consistency with plans and Laws:

- The Authority reviewed 14 plans. Each of the 6 Building Alternatives is inconsistent with one policy from the Los Angeles County General Plan 2035.
  That policy is: The safety element of this plan addresses limited aspects of human-made disasters, such as hazardous waste and materials management, in particular, the plan addresses those aspects related to seismic events, fires and floods.

Inconsistent for all 6 alternatives

- Some features of the Palmdale to Burbank Project Section could introduce hazardous waste and materials to the project area.

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4494-9562

- Despite the inconsistency, the project is consistent with the majority of regional and local policies and plans.

Question: How can CHSRA claim to be "consistent" with local safety policies?

4494-9563

Safety and Security Resource Areas

- Right of ways and stations as well as landfills must be ½ mile from the project footprint
- Schools must be ¼ miles away from project footprint
- Airports and high-risk facilities must be 2 miles from the project footprint
- Oil and Gas wells must be 150-foot buffer from alignment centerline
- All sections above must be ½ mile away from the airport

Question: On what basis does CHSRA believe that 150 feet of clearance from a track to a gas line is safe?

4494-9564

The construction team is supposed to comply to all safety and security standards and present their plan to the Authority prior to breaking ground.

Question: Who is going to monitor the construction contractor to ensure they are meeting all the standards in their plan? How often will monitoring be done?

4494-9565

All fire departments along the Palmdale to Burbank project section will have a 2-to-5-minute response time.

All the police departments along the Palmdale to Burbank project section will have a 3.36-to-16-minute response time.

Question: How can CHSRA assert these time frames when a great portion of the alignment will run through the Angeles National Forest, and current emergency response times to locations in this area already exceed CHSRA's stated response times?

All Medical Emergency Facilities along the Palmdale to Burbank project section all respond to 911 calls

- At grade railroad crossings can hinder emergency response times when the train block the crossings.

4494-9566

Community Safety and Security

- This section covers safety and security in relation to vehicles, pedestrians, railroad operations, airport, schools, high-risk facilities, fall hazards. High winds, Valley Fever, geotechnical hazards, and landfills.
- High winds are an issue. There are some mountain areas of California where the wind was measured at 100mph and 130mph.

Question: How will CHSRA mitigate the inevitable spread of Valley Fever fungal spores arising from digging and transporting dirt? (Note: there were over 7,500 cases of Valley Fever in 2017.)

4494-9567

Geotechnical Hazards

- There is a history of earthquakes in Southern California.
- The response plan acknowledges that a large earthquake could exceed the response capabilities of the individual cities. Response and disaster relief would have to come from state and federal governments.
- There is a 1% annual chance of a flooding and high-risk flood zones along the Palmdale to Burbank Section.
- Even though there is a ¼ mile buffer from landfills to the project footprint, they have the potential to release methane gas, which may present an explosion risk.

4494-9567

- Due to Southern California's hot climate, wildfires have posed a threat to communities, some in the Fire Hazard Severity Zones in the Palmdale to Burbank section.
- Temporary Road Closures will be between 5 and 17.
- Permanent interference with emergency response times from construction activities. From the 6 build alternatives there will be between 5 and 13 permanent road closures

Question: How will CHSRA build for, and respond to, an earthquake in the event train(s) are in tunnels during the earthquake event?

4494-9568

Special measures are taken in response to:

- Temporary and permanent road closures, emergency response times, interference response from train and increased activity at stations and facilities, community safety and security, temporary exposure to criminal activity at construction sites, temporary exposure to construction site hazards, temporary exposure to traffic hazards, permanent exposure to traffic hazards, permanent interference with airport safety,
- Airport land use planning documents would represent navigation hazards to aircraft and hazards to people on the ground in areas exposed to aircraft overflight
- The central subsection of Agua Dulce Airport and Whiteman Airport are between 500 feet and 2 miles from the project footprint
- The Burbank subsection Hollywood Burbank Airport is 500 feet from the Project footprint
- Check rails, guard rails and derailment walls would be used in specific areas with a high risk or high impact from derailment areas

Question: Why would CHSRA build structures around airports that exceed the height limits established by the airports? Wouldn't doing so interfere with air traffic controls?

4494-9569

High-Speed Rail systems accidents

- Train to train accidents are minimized by the use of the ACT (automatic train control), which can slow down the train or stop it entirely. It controls the electricity.
- TSA would minimize the crime and terrorist threats to the train and passengers
- The train would be going through high fire risk areas and might encounter land or mudslides and flooding

NEPA concluded that before mitigation of ALL building alternatives there were no adverse effects in these areas

- Valley fever
- Exposure risk from High risk Facilities
- Permanent Operational safety impacts
- Exposure to high risk facilities and fall hazards
- Permanent criminal and terrorist activity
- Safety hazards to schools
- Permanent exposure to wildfire hazards
- Post wildfire flooding and landslide risks
- Exposure of passengers to pollutant concentrations due to wildfires
- Fire and wildfire hazards from operations and maintenance

The Angeles National Forest stated: Although the train would not contain flammable materials, the presence of electrical facilities and operation of cars and trucks on new access roads could increase fire risks.

Question: What safety precautions is CHSRA establishing when introducing construction equipment in the Angeles National Forest and other fire-prone areas since most of this area is in a designated High Fire Hazard Severity Zone?

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CHAPTER 3.12: SOCIO-ECONOMICS AND COMMUNITIES
APPENDICES 3.12-A, B, C

4494-9570 This section uses data that relies upon 1978 regulations, instead of the revised regulations issued in September, 2020. Census figures are from 2015. 2014-15 year figures are used for construction. Housing prices are dated from 2008 and 2017. Employment and unemployment rates are dated from 2016. Arleta, Pacoima, Sun Valley, La Tuna Canyon, North San Fernando Blvd., Sylmar, Palmdale, L. A. County, Santa Clarita, and the Antelope Valley area all have different General Plans dated from 1996 to 2016. The "peak year" of construction is 2023. 2040 is the date given for projected growth.

Question: Why does CHSRA use outdated data throughout the DEIR? How can accurate projections be made if CHSRA is relying on data from years ago?

4494-9571 In addition to Palmdale and Burbank displacement and relocation, study areas include Lake View Terrace, Shadow Hills, Pacoima, Sun Valley, Acton, Agua Dulce, and Little Tujunga Canyon. Each of the Build Alternatives includes displacement of businesses which lack nearby relocation areas. Displaced people in both residential and commercial areas can get assistance from relocation agents as required by the 1970 Uniform Relocation Asist and Real Property Acquisition Policies Act. CEQA does not consider displacement an environmental concern.

Question: For local businesses that will be taken by eminent domain, what is the methodology CHSRA will implement to calculate fair compensation for those who have no place to relocate within their current customer base?

4494-9572 "Economic changes caused by the project would not lead to physical deterioration of local including items such as Noise and Vibration, Fugitive Dust, Demolition Plans which are to be part of relocation mitigation plans."

Economic effects used include changes in property and sales tax, revenue, employment, and school district funding, and agriculture. However, CEQA 15064 (e) states "economic and social changes resulting from a project shall not be treated as significant effects on the environment." Nevertheless, IMAF's (Impact Avoidance Minimalization Features) are addressed and contractors must produce plans to minimalize effects on low-income and minority residents as well as provide relocation assistance for displaced residents. These plans include items such as noise and vibration, dust emissions, spill, safety, and transportation.

Several residential communities would be divided in Agua Dulce and Lake View Terrace.

Communities which will have physical and visual barriers will be able to give feedback for the High-Speed Rail Authority "to develop enhancements to ameliorate effects associated with community cohesion and community division." Contractors will supply plans for noise, dust and exhaust control that could affect schools and parks. The contractor submits a "yearly health assessment."

Question: How does CHSRA propose to mitigate communities that will lose their character and cohesiveness when physically divided by a train? How can CHSRA mitigate intangible losses such as those that will be suffered by these communities?

4494-9573 According to the Authority, the No Project Alternative would still result in other projects due to "anticipated growth" that would require CQUA and NEPA compliance that would also disrupt and divide communities.

Question: On what data is CHSRA relying to project this "anticipated growth," when, for the first time ever, California lost a Congressional seat as the result of the 2020 Census results? Our population is growing, but at a rate slower than the national average.

Questions:

4494-9574	**Page 3.12-1**	Why is the Draft EIR/EIS calling 2016 data, the "most recent available" for a document published in August, 2022? Why have a plan based upon obsolete figures?
4494-9575	**3.12-3**	How can the DEIR presented in 2022 justify using 1978 data when CEQ regulations were adjusted 42 years later in September, 2020?
4494-9576	**3.12-3**	How are people with Limited English Proficiency being made acquainted with the DEIR?
4494-9577	**3.12-3.**	How would inconsistencies with Community Plans be mitigated?
4494-9578	**3.12-8**	Are the listed General Plans the most recent ones? If not, why not?
4494-9579	**3.12-2**	How are growth projections of cities to 2040 determined?
4494-9580	**3.12-3,4,5,6**	In what ways are these tables from 2015 pertinent to the future time period for High-Speed Rail construction in these areas?
4494-9581	**Figure 3.12-8**	On Map 7 where does E1 come above ground from Little Tujunga Canyon?
4494-9582	**3.12-9-10**	E2 and E2A Build Alternatives are considered "inconsistent" due to a lack of available replacement units. Nevertheless, it is considered "consistent with the majority of regional and local policies and plans." Is this not a kind of double-speak? How can opposites be true?
4494-9583	**3.12-23**	Why are Sylmar and San Fernando not included in the Study Area?
4494-9584	**3.12.24**	When will the mitigation plans be released to the public? How much time before construction will the public learn of these plans? Who will be writing the mitigation plan?
4494-9585	**3.12-27**	In footnote #4, 2023 "is considered to be the peak year of construction." How is that date possible?
4494-9586	**3.12.5-37**	Why does the DEIR assume that the Courtship Ranch equestrian facility would be "an important element of community cohesions"? What evidence is there to support this claim?
4494-9587	**3.12.-37**	Since the Covid outbreak has resulted in closed and minimally attended recreational facilities, how can these activities be verified as taking place in Sun Valley?
4494-9588	**3.12.-38**	Housing figures from 2016 in this report have changed significantly when homeless populations, especially around Lake View Terrace and Hansen Dam have grown. What is the current homeless population for the area?
4494-9589	**3.12.46**	Although Burbank has a substantial number of employees in media, hospitals, and the Burbank Airport, how many of them live in Palmdale or Lancaster and could use High-Speed Rail to get to work?
4494-9590	**3.12.46.**	What is the purpose of depicting State and L.A. County employment and projected growth for 2015 and 2040? Is this growth projected to live by High-Speed Rail Stations? Have the exodus figures from the State in the last years been factored in?
4494-9591	**3.12-47**	How have property taxes changed for the area since 2015?

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4494-9592	**3.12-47**	Keeping in mind ADA changes in schools due to attrition, gaps in attendance after Covid, and decreases in population, how is table 3.12-15 useful?
4494-9593	**3.12-49**	Stating that the No Project Alternative "could" have similar effects as the train from other, later projects ignores the possibility of the land remaining in its natural, undisturbed form. Why is a disruptive project the only option for the mountains?
4494-9594	**3.12-50.**	Assuming that "188" was meant to be the 118 Freeway, how will the staging area where the two freeways join affect traffic when there is regular daily commuter backup going north on the 210 as well as west on the 118 to Simi Valley and east towards Pasadena?
4494-9595	**3.12-51**	Why is the CMP not in the EIR, rather than developed at the time of construction? How much water, during this period of drought-produced water restrictions would be used to reduce dust?
4494-9596		If shielding light glare during night work is not sufficient, what recourse would local residents have to correct the problem?
4494-9597	**3.12-52**	What mitigation measures will need to be addressed as the E2 Build Alternative emerges from Little Tujunga Canyon Road in Lake View Terrace?
4494-9598	**3.12-57**	How closely does the Authority work with agents from The Uniform Act? Is there back and forth communication regarding sites? To whom do the agents answer?
4494-9599	**3.12.6.2.**	How much of the No Project Alternative is speculation? How much is substantiated?
4494-9600	**3.12.6.3**	To what extent would construction of the staging area for SR-14-W2 affect students at Broadus Elementary School?
4494-9601		Although communities may not be disturbed after construction, how long will they be disrupted during construction?
4494-9602	**3.12-5.2**	Are the activities listed here since Covid still in place with participants?
4494-9603	**3.12-54**	What will be mitigation for the division of residential communities in Acton and Agua Dulce?
4494-9604	**3.12-56**	The E2 Build Alternative suggests that residential displacements in Lake View Terrace will not divide a neighborhood, but would affect it by reducing views and paths for walking. To what extent would paths be reduced? How is this not "social isolation"? What mitigation in addition to asking residents for solutions would be in place? How does that make the situation "less significant" as stated in the DEIR?
4494-9605	**3.12-57**	How could Burbank, a separate city, be considered as a replacement property for the Los Angeles County Department of Social Services?
4494-9606	**3.12-71**	How are 2017 housing figures pertinent to residential available units at the time of construction, especially since in 2022 at the time of the DEIR there is a housing shortage?
4494-9607	**3.12-76**	What is the required time period for outreach to communities regarding relocation? Who does the outreach?

4494-9608		How would property values of residences for neighbors of displaced homes be affected? Is there compensation for residences that remain but have lost revenue due to construction? Could property taxes be lowered as a result?
4494-9609	**3.12-77**	Since "The displacement of sensitive populations by itself, is not environmental impact under CEQA," is there any required assistance for displaced sensitive people? If not, how can The High-Speed Rail Authority morally justify removing peoples' housing?
	3.12-77	Specifically how will High Speed Rail Authority be communicating with sensitive displaced individuals?
4494-9610		What constitutes "substantial numbers of existing homes?" Why is this appraisal considered "less than significant" and not in need of mitigation when people and parts of communities will be uprooted?
4494-9611	**3.12-79**	Specialized businesses, especially those established 30 or more years ago, will have difficulty relocating, especially motion picture production businesses. What mitigation will be done to locate suitable sites and costs for needed relocation, including lost income and changes in taxes? Specifically, who will be in charge?
	3.12-79	How is it reasonable or even legitimate to assume that businesses can move to other areas? Has the DEIR actually measured the size and type of each business to be displaced and found comparable spaces in the other general locations named? For example, have similar sized locations been found for particular restaurants? How are businesses supposed to get assistance from the Rail Authority for rebuilding in different areas? Who determines the costs of losing the current locations and rebuilding in other locations?
	3.12-81	Is stating that businesses "could relocate" in other communities not a supposition? How can this statement be verified?
4494-9612	**3.12-82**	Are the "Expanded Commercial and Industrial Resource Areas " for the E1 Build Alternative accurate for the date of actual construction? If not, what merit do they have?
4494-9613	**3.12-85**	Has loss of revenue been considered, for example, for a business that would need to relocate from Shadow Hills to Pacoima as suggested for the E2 Build Alternative?
4494-9614	**3.12-88**	Once again CEQA does not consider displacement as an environment concern. Instead, the DEIR seems to focus upon the job market and regional growth. It states that. "...economic changes caused by the project would not lead to physical deterioration of local communities," making impacts "less than significant for all six Build Alternatives." What evidence is available to suggest that relocation would not result in community deterioration? How are individual owners and employees in dislocated businesses affected, especially since they are not likely to be the same people doing construction for High-Speed Rail since they are part of a different job market?
4494-9615	**3.12-88**	To what extent and how long will utilities be disrupted? Given current drought conditions leading to water shortages, what measures will be required to reduce water loss during construction? How often do routine shutdowns of the East Branch of the California Aqueduct occur? What are some ways that landowners will be helped to protect pipes and ditches when they are "worked with?"

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4494-9616 If project construction is to be done by local workers, what are some examples of those jobs? What contractors would be hired to oversee them? Will they be replacing current workers hired by the High-Speed Rail Authority?

4494-9617 **3.12-89** How long a period of time would 89 A-weighted decibels be evident? What grazing animals are in the vicinity of construction? What on-going decibel level is acceptable for grazing animals?

4494-9618 **3.12-90** The environmental effects from construction, including "fugitive dust and exhaust", and especially Valley Fever, can be life threatening, even for healthy construction workers. How are contractors experienced in this area? What exactly does "a fugitive dust control plan" consist of? What exactly is a "Valley Fever action plan"? How many workers have contracted Valley Fever during work in the Central Valley? This information is pertinent to future construction.

4494-9619 Who supervises the contractor to follow federal guidelines for noise reduction for neighborhoods, schools, parks, and construction workers?

4494-9620 If a vehicle carrying hazardous waste were to overturn on the 5 Freeway near a school, how would students and the surrounding community's health be protected?

4494-9621 Since only the health of adults is considered, as opposed to children ("…There is no specific requirement in California for an analysis of children's health impacts separate from environmental impacts that could affect other individuals"), is this not an example of begging the question of whether or not children are important people?

4494-9622 What recourse would schools and residents have when noise still exceeds minimal Federal requirement standards despite mitigation efforts?

4494-9623 **3.12-92** How can use of 2014-15 year figures be pertinent for real construction, which will take place in later years?

4494-9624 **3.12-94** Kagel Canyon (correctly spelled) does not have room for replacement housing of houses for sale. To what extent has High-Speed Rail found housing in Tujunga, Sunland, and Sylmar?

4494-9625 **3.12-96** How many utility poles would be placed on Agricultural land?

4494-9626 **3.12-97** What is the State's threshold quantity of hazardous substances? What hazardous substances are expected to be stored outside of .25 mile of a school?

Are there any schools within a .25 mile of above ground tracks? What degree magnitude earthquake might derail a train above ground?

4494-9627 **3.12-97** At what point in the construction process will **SO-MM#1** annual reports take place? Will they be available in written form to the parties affected?

4494-9628 **3.12-98** What exactly would a community workshop consist of? Along with input from the affected community, could community leaders be part of final decision making?

4494-9629 **3.12-99** After mitigation changes are developed by the Authority, is continued funding and maintenance of these changes expected to be done by local governments or through private funding? If so, how is that factored into the changes?

4494-9629 Explaining that mitigation measures may very well result in new environmental issues for neighborhoods is not particularly useful for affected communities. How are people to choose in favor of mitigations with little choice?

4494-9630 **3.12-101** What specific jobs are going to be filled by local workers? Have local workers been surveyed? How do these jobs differ from those for workers currently being trained and used by the Authority?

4494-9631 Repeatedly the DEIR calls 2023 the "Peak Year of construction." How is that possible?

4494-9632 **3.12-102** What is the cause of the increased sales tax? Is it from an influx of workers?

4494-9633 How can the Authority determine that there would be no long-term effects resulting from construction hazards upon children's health?

4494-9634 **3.12-111** If private land, for example in the forest, is sold and developed before construction of the chosen route, will new owners be displaced and referred to relocation assistance?

4494-9635

Appendix 3.12-A

The Uniform Act for relocation reimburses up to $2,500 for searching for replacement property, loss of personal property, and cost of moving. Business reestablishment expenses and operations may receive up to $20,000. Relocation Agents from the High-Speed Rail Authority will contact businesses. Examples of price differentials are provided in the 1970 Relocation brochure. Businesses, home owners, renters, mobile home owners and renters are eligible for assistance if they live in the U.S. They may choose their own replacement location if it meets required "decent, safe, and sanitary conditions." (DSS)

4494-9636

Appendix 3.12-B

This appendix reviews effects on school district funding and bus transportation routes. A reduction in student attendance would reduce school funding. There would be revenue losses to school districts from parcel acquisitions with the greatest percentage in the Action – Agua Dulce School District. Five different school districts are affected. No schools would be affected by the No Project Alternative.

During construction there will be traffic diversions. Penrose Street in Sun Valley will be closed.

4494-9637

Appendix 3.12-C

Maps in Appendix C show the .05 footprint of all Build Alternatives in addition to focusing upon children's health which can be affected by respiratory impacts, noise, chemical use, and safety risks. There are 50 schools within .05 miles of the Build Alternatives. There are 28 parks: 15 passive and 13 active. The Rim of the Valley Trail, the San Gabriel Mountains Monument, Vasquez Rocks, Hansen Dam, Tujunga Ponds, and the Pacific Crest Trail are among the passive group, while Roger Jessup Park in Pacoima, Stonehurst, and the Sun Valley Recreation Center as well as playgrounds connected to schools are in the active category. There are also 182-233 community facilities located in the Build Alternative.

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4494-9638

CHAPTER 3.14: AGRICULTURE, FARMLAND AND FOREST LAND
CHAPTER 3.15: PARKS, RECREATION AND OPEN SPACE
APPENDIX 3.1-B: USFS CONSISTENCY ANALYSIS

4494-9638

Section 3.14.2.1 of the DEIR references a number of federal laws, regulations, and orders which govern use of the land within the borders of the Angeles National Forest (the "Forest" or the "ANF") and the San Gabriel Mountains National Monument (the "Monument" or the "SGMNM"), including the following:

1. The San Gabriel Mountains National Monument Management Plan, the purpose of which is to provide guidance for the management of the Monument; and

2. The USFS's 2005 Land Management Plan (the "LMP") for the Pacific Southwest Region, including the Forest, which is comprised of the following:
   a. Part 1: Southern California National Forest Vision directs the long-term vision and strategic management of the ANF (USDA 2005a);
   b. Part 2: Angeles National Forest Strategy describes the implementing objectives to achieve the vision described in Part 1 (USDA 2005b); and
   c. Part 3: Design Criteria for the Southern California National Forests contains the guiding laws and standards during project planning and implementation (USDA 2005c).

Specifically, Part 3 of the LMP comprises the laws that the USFS will follow as the national forest implements projects and activities over time. "The rules include the laws, agency policy, standards, and the associated guidance that is referenced for use at the project level."[55] Part 3 includes two components: "The first component contains the forest plan standards and guidelines, and the second component contains the laws, policy or other direction that may be applicable to proposed activities. The standards are the fundamental requirements that define the parameters for the activities that the Forest Service anticipates."[56]

Section 3.14.3 ("Consistency with Plans and Laws") of the DEIR states that The Authority, "as the lead state and federal agency proposing to construct and operate the California HSR System, is required to comply with all federal and state laws and regulations and to secure all applicable federal and state permits prior to initiating construction on the selected Build Alternative. Therefore, **there would be no inconsistencies between the six Build Alternatives and these federal and state laws and regulations**."

In reviewing the applicable laws and regulations governing the Forest and the Monument in comparison with CHSRA's plans, we have concluded that there are a number of inconsistencies between the six proposed Build Alternatives and the federal and state laws and regulations.

First and foremost, Section 3.14.2.1 of the DEIR references the Federal Land Policy and Management Act of 1976, which makes it law that "public lands be retained in Federal Ownership." Section 102(a)(8) of the FLPMA states that it is the policy of the United States that, "the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, **will preserve and protect certain public lands in their natural condition**; that will provide food and habitat for fish and domestic animals; and that will provide for outdoor recreation and human occupancy and use."

4494-9640

Question: How are CHSRA's plans with respect to the Federally-owned/controlled lands of the Forest, the Monument, and the Hansen Dam Open Space/Recreation Area consistent with the federal directive to preserve and protect public lands in their natural condition?

[55] USDA Land Management Plan; Part 2 Angeles National Forest Strategy, Applicable to the San Gabriel Mountains National Monument, p. 1
[56] USDA Land Management Plan (2005); Part 3 Design Criteria for Southern California National Forests, p. 1

4494-9639

Question: If CHSRA has determined that the impacted areas of the Forest, the Monument, and the Hansen Dam Open Space/Recreation Area do not qualify as "certain" public lands, for what reasons has CHSRA determined that these areas are not worthy of preservation and protection? For what reasons should the USFS, the USDA, and the ACoE agree with this determination?

The Parks, Forestry, and Public Property chapter of the Code of Federal Regulations (Section 36 CFR, Chapter II of the Forest Service, Department of Agriculture) sets forth a two-tiered screening process by which the USFS shall determine whether or not it may consider a Special Use Permit application. The first tier of the screening criteria includes the following two (of six total) criteria for consideration:

> (iv) *The proposed use will not create an exclusive or perpetual right of use or occupancy.*
> (v) *The proposed use will not unreasonably conflict or interfere with administrative use by the Forest Service, other scheduled or authorized existing uses of the National Forest System, or use of adjacent non-National Forest lands.*[57]

If the USFS determines that an application meets the minimum six criteria set forth in the first-tier screening, it may proceed to the second-tier screening.

Question: CHSRA proposes to introduce significant infrastructure within the Forest and the Monument, including over 20 miles of concrete tunnels beneath the surface. Does CHSRA have a plan to remove these tunnels at the end of the train's life cycle? If not, how do the proposed tunnels not create perpetual occupancy of Forest land? How is the creation of these tunnels (in addition to corollary infrastructure) not in violation of (iv) of the 36 C.F.R. § 251.54 (e)(2)?

Question: CHSRA's proposed alignments and infrastructure create significant impacts and pose significant threats to authorized existing uses of the Forest, including but not limited to use by wildlife, use by flora, and use by humans of the water resources within the Forest. How has CHSRA determined that its proposed high-speed rail system within the Forest does not unreasonably conflict or interfere with these uses?

Question: CHRSA has proposed to place not only portals, but also significant infrastructure related to portals (e.g., Noise attenuation hoods, ventilation buildings, access roads, lighting, communication facilities, parking, and public utilities) immediately adjacent to Forest and Monument land (specifically near Aliso Canyon and the Big Tujunga Wash). How does the introduction of this significant infrastructure not unreasonably conflict or interfere with the use of adjacent non-National Forest lands?

Question: Based on the fact that CHSRA's proposed plans fail to meet the prerequisite conditions (iv) and (v) of the first-tier screening process, what leads CHSRA to believe that the USFS will allow it to move forward to the second tier of the screening process?

Per CHSRA's explanation on Page 3.1-B-5, "If USFS determines that an application meets the minimum requirements identified in the initial screening, then it proceeds to evaluate the application against the following five criteria, **any one of which would require rejection of the application**":

> (i) **The proposed use would be inconsistent or incompatible with the purposes for which the lands are managed**, or with other uses; or
> (ii) The proposed use would not be in the public interest; or
> (iii) The proponent is not qualified; or
> (iv) **The proponent does not or cannot demonstrate technical or economic feasibility of the proposed use or the financial or technical capability to undertake the use and to fully comply with the terms and conditions of the authorization**; or

[57] 36 C.F.R. § 251.54 (e)(2)

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4494-9640

(v) There is no person or entity authorized to sign a special use authorization and/or there is no person or entity willing to accept responsibility for adherence to the terms and conditions of the authorization.[58] 4494-9641

We contend that USFS should deny the special use permit as CHSRA's plans do not meet the requirements set forth in 3.1-B-5(i) above. Table 4.3 ("Suitable Uses for Selected ANF, including SGMNM, Land Use Categories") sets for the Land Use categories as designated by the USFS and the types of development/infrastructure that is permitted (or not permitted) in each zone. CHSRA plans to construct its High-Speed Rail system through USFS designated as Back Country Motorized Use Restricted, Back Country Non-Motorized, and Critical Biological. However, as set forth in Table 4-3, the USFS has designated these categories as NOT SUITABLE for Major Transportation Corridors. Therefore, each of the Build Alternatives (and CHSRA's plans overall) are both inconsistent and incompatible with the purposes for which the land is managed. Per the requirements of the second-tier of the screening process, the USFS must reject any application by CHSRA for a Special Use Authorization as it failed to meet the criteria set forth in 3.1-B-5(i). 4494-9642

We further contend that the USFS should deny a Special Use Authorization as CHSRA cannot meet the economic feasibility requirement as set forth in 3.1-B-5(iv). There is simply not enough funding available now or in the foreseeable future to complete any project section beyond the initial Fresno to Bakersfield line (which is iffy at best). The only guaranteed funding currently is $3.5 billion from the Federal Government (which must be and is being matched by California funds), plus $9.95 billion from the bond issue. Those funding sources provide a total of $17 billion, leaving a budget shortfall of $89 billion. While CHRSA does receive cap & trade monies, this is an unstable revenue stream and will terminate at some point in time. CHSRA had originally relied on private investors as "matching funds" for both the bond funding and the federal grant requirements. However, private investors have failed to materialize. It was supposedly these private investors who would likely be the train operator; without a train operator, there will be no running trains. Without running trains, there is no ridership. Without ridership, there is no ridership revenue. This clearly fails the economic feasibility test on every level. 4494-9643

Question: Given that CHSRA has a budget shortfall of $89 billion and no private investors in sight, on what grounds does CHSRA believe that it meets the economic feasibility requirement of the USFS to approve a special use permit?

Question: Given that if an applicant fails to meet any one of the five stated criteria, the USFS must reject the special use permit application, and further given that CHSRA fails to meet at least two of the five stated criteria, what leads CHSRA to believe that is will be able to secure a special use permit from the USFS? 4494-9644

4494-9641

President Obama's Proclamation designation of 346,177 acres of existing federal lands as the Monument underscored the significance of this land, which is a, "unique recreational and educational gateway to America's most urban national forest in the nation's most populous county."[59] While the Proclamation acknowledged that pre-existing uses for utilities and infrastructure would be permitted to continue, the intention of the proclamation is clearly to reduce the amount of infrastructure present in the Monument. This is evidenced by the fact that Federal lands and interests in lands within the boundaries of the Monument were withdrawn from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing. Additionally, in "Land Use Zones", the Monument Plan states that, "Mineral and energy resources exploration and development are not suitable within the Monument, except where valid rights already exist at the time of the Proclamation."[60] 4494-9645

Question: As many of the impacts of mining overlap with the impacts of tunneling for a high-speed train, and considering that new mining uses are not being permitted by the USFS within the Monument, what is the justification for allowing tunneling through the Monument?

[58] 36 C.F.R. § 251.54(e)(5)(i)-(v)
[59] San Gabriel Mountains National Monument Management Plan, p. 10
[60] San Gabriel Mountains National Monument Management Plan, p. 14

Question: Considering that mineral and energy resource exploration is less invasive than constructing a tunnel through the Monument, how can CHSRA not be in violation of the spirit of this federal directive?

The intention of the Presidential Proclamation is further underscored by the fact that, with respect to transportation, the stated goals of the Monument Plan are:

1. "Road density within the Monument remains stable or is decreasing;"[61] and
2. "Consider opportunities to reduce the size of the road system by decommissioning individual roads or converting them to non-motorized trails."[62]

Question: As the stated goal of the Monument Plan is to decrease road density within the Monument, how does CHSRA justify its plans to introduce access roads within the Monument?

The Presidential Proclamation (2014) states with respect to transportation that, "The Secretary shall limit all motor vehicle use to designated roads [and] trails."[63]

Question: If equipment such as bulldozers, scrapers, skid loaders, backhoe loaders, excavators, articulated haulers, motor graders, and similar vehicular pieces of construction equipment will be needed to create high-speed rail infrastructure in locations where there are no access roads now, how are CHSRA's plans not in violation of the Presidential Proclamation?

With respect to Biological Resources, there are only two stated desired conditions within the Monument Plan:

1. "Habitat conditions are stable or improving over time as indicated by the 2016 Angeles Land Management Plan Monitoring Strategy;" and
2. "Habitats of special status species (threatened and endangered and Forest Service sensitive) in the Monument are managed to preserve and protect these species."[64]

Question: How will habitat conditions stable or improving when construction is introduced within and immediately at the borders of the Monument? How are the proposed alignments within the Monument consistent with the federal guidelines set forth in the Monument plan?

With respect to "Designated Areas and Areas Recommended for Designation," the Monument Plan sets forth the following desired condition:

1. Designated Wilderness and Recommended Wilderness within the Monument are maintained as a naturally evolving and natural-appearing landscape that provides for ***primitive and unconfined recreation use. The sense of remoteness and solitude is maintained***.

Question: How are CHSRA's plans to stage 7+ years of construction adjacent to the Wilderness Areas of the Monument in keeping with USFS directive to maintaining a sense of remoteness and solitude?

Discussion of Water as it pertains to Fire in the Forest. 4494-9646

Any impacts to the groundwater caused by tunneling will remove the sources of water necessary to hydrate the Forest flora, thereby reducing their fuel moisture levels. This impact is all the more important during drought conditions like the ones we are currently experiencing. Dead and dying trees, chaparral, scrub, and other

[61] San Gabriel Mountains National Monument Management Plan, p. 11
[62] San Gabriel Mountains National Monument Management Plan, p. 24
[63] San Gabriel Mountains National Monument Management Plan, p. 22
[64] San Gabriel Mountains National Monument Management Plan, p. 12

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4494-9646

vegetation will contribute to forest fuels and will increase the intensity of wildland fires and the potential for spread to the urban-wildland interface. The LMP explains that, "Excessive fuel loading will increase the scale of forest fires. Drought-caused mortality, making montane conifer forests susceptible to widespread insect and disease outbreaks that, in combination with excessive fuel loading, has set the stage for more large-scale, stand replacing wildland fires."[65]

As described in the LMP, Goal 1.1 of the Southern California National Forests Vision is to: "*Improve the ability of southern California communities to limit loss of life and property and recover from the high intensity wildland fires that are a natural part of this state's ecosystem;*" and Goal 1.2 is to: "*Restore forest health where alteration of natural fire regimes have put human and natural resource values at risk.*"[66]

Question: How do the tunneling-associated risks of impact to groundwater sources within the Forest not contravene Goals 1.1 and 1.2 of the Southern California National Forests Vision as set forth by the USFS?

4494-9647

In **WL-1** of LMP2 which addresses Threatened, Endangered, Proposed, Candidate, and Sensitive Species Management, the USFS directive is to, "Use vegetation management practices to reduce the intensity of fires to reduce habitat loss due to catastrophic fires." On page 3.1-B-9 of the DEIR, CHSRA claims that its plans are consistent with this directive as, "Implementation of BIO-MM#54 involves preparation and implementation of an Annual Vegetation Control Plan (VCP). The Authority will prepare a VCP to address vegetation removal for the purpose of maintaining clear areas around HSR facilities and reducing the risk of fire."

Question: CHSRA's response is limited to "vegetation removal," but that only partially addresses vegetation management. Vegetation management includes ensuring that projects do not deplete natural water supplies within the Forest, which would decrease moisture content of the flora and increase fire fuels. Given that CHSRA is anticipating dewatering of Forest land as a result of tunneling, how are its plans consistent with directive WL-1?

4494-9648

In **FIRE-1** of the LMP2, the USFS sets forth directives with respect to Wildfire Prevention. One of those is to, "Reduce the number of human-caused wildland fires and associated human and environmental impacts." On Page 3.1-B-38, CHRSA claims that its actions are consistent with this directive as it plans to form a committee to "review issues that are critical to fire and life safety and security."

Question: CHSRA plans to introduce new electric lines within the Forest to power its adits and other facilities. Several of the proposed adits are near Gold Creek Road in Little Tujunga Canyon – an area that burned during the Creek Fire in 2017 (a fire that was caused by power lines). How will building new electric power lines in a high fire severity zone within the Forest serve to reduce the number of human-caused wildland fires?

4494-9649

In FIRE-2 of the LMP2, the USFS sets forth directives with respect to Direct Community Protection, including the following: "Reduce the number of high risk/high value, and high and moderate risk acres."

Question: Given that CHSRA plans to introduce new power lines into high fire severity zones within the Forest, it will be increasing, not reducing, the number of acres at high risk of fire. How can CHSRA maintain that its plans are consistent with the FIRE-2 directive?

4494-9650

Discussion of Water as it pertains to Watershed in the Forest.

The importance of the naturally-occurring water sources in the Forest cannot be overstated. The USDA explains that, "In drought-prone California, the quantity, quality, and timely provision of our water are dependent on the health of our national forests. The forests supply, filter, and regulate water from upper watersheds and meadows, providing clean water throughout the year to communities, homes, and wildland

[65] USFS 2005 Management Plan, Part 1, p23
[66] USFS 2005 Management Plan, Part 1, p20

4494-9650

habitats. About 384,000 acre-feet of water per year come from the Angeles National Forest, or over 125 billion gallons per year. That equates to:

- Over 180,000 Olympic-size swimming pools
- Enough drinking water for California's population for more than 10 years, or
- Enough water for over 940,000 households for a year."[67]

In the LMP1, the USFS explains the importance of the Angeles National Forest Watershed, which "serves as quality, low-cost, local source of water consumed by the urban population of southern California. The national forests continue to serve as a recharge area for numerous reservoirs and groundwater basins that provide water for numerous communities, and for agricultural and industrial uses."[68] In the section on Watershed Function, the USFS sets forth the goal to, "Protect, maintain, and restore natural watershed functions, including slope processes, surface water and groundwater flow and retention, and riparian area sustainability," and, further, to, "restore, maintain, and improve watershed functions."[69]

According to the LMP1, "Watershed conditions, or watershed health, of the national forests vary depending upon the amount of disturbance that has occurred within each watershed, and the effect of the disturbance on the natural integrity of the watershed as a whole."[70] The USFS explains that, "The potential for creating or exacerbating geologic hazards and risks can be affected by many different activities. Some of these include wildland fire, encroaching urbanization, increasing recreation uses, and disturbance from land management activities such as construction, reconstruction, operation or maintenance of roads and trails, mines, energy mineral developments, dams, reservoirs and **tunnels**."[71]

Question: Given the known risks to groundwater sources within the ANF, how does CHSRA's tunneling proposal protect and/or improve watershed functions?

4494-9651

In the section on Water Management, the USFS sets forth the goal to, "Conserve and protect high quality water sources in quantities adequate to meet national forest needs."[72]

Question: Given CHSRA's proposed mitigation measure HYD-MM#4 as set forth in Appendix 3.8-C which calls for importing water to meet forest needs and maintain baseline water levels established before tunneling, how do CHSRA's proposed tunneling plans conserve and protect water sources in quantities adequate to meet forest needs?

4494-9652

On Page 3.1-B-14, CHSRA asserts that its plans are consistent with this directive, despite admitting that, "Tunnel construction under the ANF has the potential to alter hydrogeological conditions, resulting in inflows of groundwater into the tunnel and the subsequent depletion of groundwater aquifers. Depletion of groundwater aquifers could affect the hydrology of groundwater-dependent ecosystems, resulting in effects on species." CHSRA has set forth proposed mitigation measures that would be employed following implementation of its Adaptive Management and Monitoring Program, including, "providing supplemental water where needed, and remediating adversely effected aquatic, riparian and upland resources identified during monitoring. If restoration of affected areas is not successful, compensatory mitigation to offset impacts would be provided."

Question: Per the United States Environmental Protection Agency, "The amount and quality of compensatory mitigation may not substitute for avoiding and minimizing impacts."[73] How is it not a preferable choice for

[67] https://www.fs.usda.gov/detail/angeles/about-forest/?cid=fseprd604146
[68] USFS 2005 Management Plan, Part 1, p8
[69] USDA Land Management Plan; Part 2 Angeles National Forest Strategy, Applicable to the San Gabriel Mountains National Monument, p. 102
[70] USFS 2005 Management Plan, Part 1, p40
[71] USFS 2005 Management Plan, Part 1, p41
[72] USDA Land Management Plan; Part 2 Angeles National Forest Strategy, Applicable to the San Gabriel Mountains National Monument, p. 103
[73] https://www.epa.gov/sites/default/files/2015-08/documents/compensatory_mitigation_factsheet.pdf

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4494-9652 CHSRA to simply avoid impacts by designing and selecting a route that does not tunnel through the Forest and jeopardize our natural water sources?

4494-9653 **Question**: The United States Environmental Protection Agency sets forth three distinct mechanisms for compensatory mitigation, the third and final of which is "In-Lieu Fee Mitigation." Under this scenario, the permittee (in this case, CHSRA) would provide funds to an in-lieu-fee sponsor (a public agency or non-profit organization; in this case, presumably the USFS) which will then build and maintain a mitigation site.[74] As CHSRA sets forth compensatory mitigation as a last resort in the event that its other mitigation measures have failed, the possibility exists that it will simply pay a fee to the USFS in the event that it is unable to restore adversely affected resources within the Forest. How will CHSRA calculate compensatory damages in this event? How is it not a preferable course of action to not cause unmitigatable damage in the first place?

4494-9654 **Question**: Given the myriad of mitigation measures proposed to address the very real possibility/likelihood of dewatering and the possibility/likelihood that wildlife, flora, and humans dependent upon the water sources in the Forest will be negatively impacted, and given the possibility that CHSRA will have to pay the USFS in the event that it cannot successfully restore the Forest to pre-tunneling conditions, how is it not a better plan to design and select a route that does not tunnel through the Forest and jeopardize our natural water sources?

4494-9655 On Page 3.1-B-15, CHSRA goes on to state that, "With implementation of IAMFs and mitigation measures, the Build Alternatives would not adversely affect aquatic, riparian or upland ecosystems as a result of indirect effects from tunnel construction."

Question: Given that one of the proposed mitigation measures is to pay financial remuneration to the USFS in the event that CHSRA's other mitigation measures fail to restore aquatic, riparian, or upland ecosystems to pre-tunneling conditions, how can CHSRA claim that the Build Alternatives will not adversely affect these ecosystems? Paying for damaged caused that can't be fixed does not mean that no damage was done.

4494-9656 **WAT-1** of LMP2 also sets forth the following directive with respect to Watershed Function: the USFS must, "Assess impacts of proposed groundwater extraction proposals to assure that developments will not adversely affect aquatic, riparian or upland ecosystems." On page 3.1-B-14 of the DEIR, CHSRA asserts that its plans are consistent with this directive, using the same justification as in previous sections – namely that because it plans to employ mitigation measures, "the Build Alternatives would not adversely affect aquatic, riparian or upland ecosystems as a result of indirect effects from tunnel construction."

Question: Some of CHSRA's proposed mitigation measures (e.g., grouting in the tunnels to minimize groundwater inflows) are pre-emptive measures that might enable CHSRA to avoid creating adverse impacts. However, most of CHSRA's proposed mitigation measures would be employed **because** it adversely affected Forest ecosystems. Habitat remediation as a mitigation measure would be employed **because** CHSRA had already adversely affected Forest ecosystems. "Providing supplemental water where needed" is a mitigation measure that would be employed because CHSRA had already depleted the natural water sources, thus adversely affecting Forest ecosystems. Providing "compensatory mitigation to offset impacts" in the event that its other mitigation measures failed is a mitigation measure that would be employed **because** CHSRA had already adversely affected Forest ecosystems to the point where they could not be otherwise restored. Why does CHSRA mistake "not adversely affecting" Forest resources with proposing mitigation measures that would be employed as a result of it causing these adverse impacts?

4494-9657 **WAT-1** of LMP2 also sets forth the following directive with respect to Watershed Function: the USFS must, "Manage Riparian Conservation Areas (RCA) to maintain or improve conditions for riparian dependent resources. Riparian Conservation Areas include aquatic and terrestrial ecosystems and lands adjacent to perennial, intermittent, and ephemeral streams, as well as around meadows, lakes, reservoirs, ponds,

[74] https://www.epa.gov/sites/default/files/2015-08/documents/compensatory_mitigation_factsheet.pdf

4494-9657 wetlands, vernal pools, seeps, and springs and other bodies of water. Riparian dependent resources are those natural resources that owe their existence to the area, such as fish, amphibians, reptiles, fairy shrimp, aquatic invertebrates, plants, birds, mammals, soil and water quality." The USFS notes that, "Some of the greatest threats to riparian and aquatic habitats are from diversion of surface water, removal of shallow groundwater, [and] the effects of prolonged drought conditions."[75]

On Page 3.1-B-16 of the DEIR, CHSRA claims that its actions are consistent with this federal directive because although, "the HSR Build Alternatives would impact riparian habitat, watersheds, streams, and other riparian-dependent upland ecosystems, these impacts would be minimized through implementation of compensatory mitigation for both temporary and permanent impacts to riparian habitat through habitat restoration and revegetation."

Question: The directive set forth in WAT-1 is to **maintain** or **improve** conditions for riparian dependent resources. CHSRA admits that its plans will negatively impact riparian-dependent resources. These impacts do not maintain (let alone improve) conditions; CHSRA proposes to damage conditions, then later set about to employ mitigation measures to restore the riparian- dependent resources to pre-tunneling conditions. During the time in between damage and restoration, the directive set forth in WAT-1 is violated, as conditions are not maintained. How can CHSRA claim that its actions are consistent with this directive?

4494-9658 Another directive of WAT-1 states that the USFS must, "Achieve and maintain natural stream channel conductivity, connectivity and function." In its response on Page 3.1-B-17 of the DEIR, CHSRA asserts that its actions are consistent with this directive, despite the fact that its first sentence admits that, "the HSR infrastructure could alter stream capacity, connectivity, and function." CHSRA then goes on to delineate a number of mitigation measures, including, for example, "augmenting water supplies for wells and surface water resources… to approximately match baseline conditions."

Again, CHRSA is mistaking implementing mitigation measures to correct damage with not causing the damage in the first place. On Page 3.1-B-18, CHSRA asserts that, "With implementation of these mitigation measures, the Build Alternatives would not result in a substantial adverse effect to the conductivity, connectivity, and function of natural streams as a result of indirect effects from tunnel construction."

Question: Trucking in water to replenish wells that CHSRA depleted does not mean that it has not created a substantial adverse effect on natural streams. In fact, exactly the opposite is true; if CHSRA needs to truck in water to replenish wells, it is **because** it has substantially adversely affected the function of natural streams. Given the foregoing, how can CHRSA assert that its plans are consistent with the directive set forth in WAT-1?

4494-9659 In **WAT-2** of the LMP2, the USFS sets forth the following directive with respect to Water Management: the USFS must, "Manage groundwater and surface water to **maintain or improve water quantity** and quality in ways that minimize adverse effects," including the requirement to, "Assess impacts of proposed groundwater and surface water extraction proposals to assure that developments will not adversely affect aquatic, riparian or upland ecosystems and other uses, resources or rights."

Question: On Page 3.1-B-20 of the DEIR, CHSRA asserts that its plans are consistent with this directive. Given that CHSRA is planning to truck in or pipe in water as a mitigation measure to restore baseline conditions in the Forest, then clearly the quantity of water will not have been maintained; it will have been depleted. How can CHSRA claim that its plans are consistent with the USFS directive to maintain or improve water quantity within the Forest?

4494-9660 Additionally, **WAT-2** of the LMP2 declares that the USFS must, "Promote water conservation at all national forest administrative and authorized facilities. When reviewing non-forest water-related projects that may affect

[75] USFS 2005 Management Plan, Part 1, p 42

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4494-9660 national forest resources, include appropriate conservation and water quality mitigation measures in the review response."

Question: Many of CHSRA's mitigation measures involve the application of water. For example, in order to mitigate fugitive dust at construction staging areas within ANF borders, CHSRA intends to continually spray water for a construction duration of 7+ years. In response to depleting the natural sources of water in the Forest by tunneling, CHSRA proposes to truck in tens of millions of gallons of water to bring the watershed back to baseline levels. How are these proposed mitigation measures consistent with the USFS directive to conserve water at authorized facilities (any infrastructure, construction staging area, or area of CHSRA action or activity being considered an "authorized facility")?

4494-9661 Another directive of WAT-2 establishes that the USFS must, "Conserve and protect high quality water sources in quantities adequate to meet national forest needs."

Question: Considering that CHRSA proposes, as mitigation for depleting the natural water supply, to truck in water to meet the needs of the oak trees within the Forest, clearly CHSRA's actions will create damage such that the water sources are no longer in sufficient quantities to meet Forest needs. How can CHSRA claim that its actions are consistent with the directive set forth in WAT-2?

4494-9662 In LMP3, in the section on "Soil, Water, Riparian, and Heritage Standards," **S45 states that: "**All construction, reconstruction, operation and maintenance of tunnels on National Forest System lands shall use practices that minimize adverse effects on groundwater aquifers and their surface expressions."[76]

Question: Given the litany of proposed "mitigation measures" CHSRA has planned to offset the damage to groundwater that is likely to be caused by its tunneling through the ANF, how is CHSRA using practices that minimize adverse effects on groundwater aquifers and their surface expressions?

4494-9663 In the same section, **S46 states that:** "Surface water diversions and groundwater extractions, including wells and spring developments will only be authorized when it is demonstrated by the user, and/or agreed to by the Forest Service, that the water extracted is excess to the current and reasonably foreseeable future needs of forest resources."[77]

Question: As the loss of groundwater due to CHSRA's interruption of naturally occurring springs and aquifers amounts to extraction, and as CHSRA proposes to import water to offset the loss due to its extraction, clearly the water extracted as a result of CHSRA's tunneling is not excess to the current and foreseeable needs of forest resources. How are CHSRA's tunneling proposals not in direct contradiction to the USFS policy directives?

Discussion of Land Uses within the Angeles National Forest.

4494-9664 In LMP2, the USFS declares that, "The legislative mandate for the management of national forests requires that public lands be ***conservatively used and managed*** in order to ensure their sustainability and to guarantee that future generations will continue to benefit from their many values."[78]

Question: How is CHSRA's proposal to tunnel through the ANF and build corollary infrastructure within the ANF to support a high-speed train system ***not*** a violation of the legislative mandate to use forest lands conservatively?

[76] USDA Land Management Plan (2005); Part 3 Design Criteria for Southern California National Forests, p. 10
[77] USDA Land Management Plan (2005); Part 3 Design Criteria for Southern California National Forests, p. 10
[78] USDA Land Management Plan; Part 2 Angeles National Forest Strategy, Applicable to the San Gabriel Mountains National Monument, p. 1

4494-9665 Pages 4, 5, and 6 of the LMP2 delineate what uses are considered suitable and unsuitable CHSRA plans for its train and supporting infrastructure to traverse the following categories of USFS land: Developed Areas Interface, Back Country, Back Country Motorized Use Restricted, Back Country Non-motorized, Critical Biological, and Experimental Forest. Table 2.1.3 states that Major Transportation Corridors are NOT A SUITABLE use in any of the following categories of USFS land: Back Country Motorized Use Restricted, Back Country Non-motorized, Critical Biological, and Experimental Forest.

Per the DEIR, CHSRA plans to install permanent infrastructure in portions of the ANF with the following land use designations: Back Country, Back Country/Non-Motorized, Back Country/Motorized Use Restricted, and Critical Biological.[79]

Question: How is CHSRA's proposal to tunnel through the ANF and build corollary infrastructure within the ANF to support a high-speed train system (i.e., creating a Major Transportation Corridor) ***not*** a violation the USFS "Suitable Uses" as delineated in Table 2.1.3.? Given the USFS's stated use guidelines, what leads CHSRA to believe that it will be granted a Special Use Permit by the USFS for the construction and operation of its high-speed rail system?

4494-9666 Much of CHSRA's footprint within the ANF is set within land designated by the USFS to be "Back Country." Per the LMP2, "although this zone generally allows a broad range of uses, the management intent is to retain the natural character inherent in this zone and limit the level and type of development."[80]

Question: If the stated intention of the USFS is to limit the level and type of development within the Back Country zones, how is CHSRA's proposal to tunnel through the ANF and build corollary infrastructure within the ANF to support a high-speed train system ***not*** a violation of the intent of the USFS?

4494-9667 In its chapter on "Commodity and Commercial Uses," the USFS states that, "[non-recreation] special uses are authorized ***only when they cannot be reasonably accommodated on non-National Forest System land.***"[81] CHRSA previously considered a number of alignments that did not traverse USFS lands, including routes following the 5 and 14 freeways. These alignments could have been reasonably accommodated, but were eliminated from consideration for political (not engineering or geotechnical) reasons.

Question: Given that high-speed rail alignments could be reasonably accommodated on non-National Forest System land, how is CHSRA's proposal to tunnel through the ANF and build corollary infrastructure within the ANF to support a high-speed train system ***not*** a violation of the intent of the USFS?

4494-9668 In **LANDS-2** of the LMP2, the USFS sets forth directives regarding Non-Recreation Special Use Authorizations, including the following: "Upon termination, restore special use authorization areas to a specified condition."

Question: In the event that CHSRA secures a special use authorization from the USFS to build its train through the ANF, upon expiration or termination of that SUA, how will CHSRA restore the impacted areas to a specified condition? Assuming that the condition is baseline, pre-tunneling, how will CHSRA remove its significant infrastructure from Forest lands?

4494-9669 The LMP2 describes that the high-speed rail resource study area covers four USFS-designated "Places":

1. Soledad Front Country;
2. Angeles Uplands West;

[79] Page 3.15-143
[80] USDA Land Management Plan; Part 2 Angeles National Forest Strategy, Applicable to the San Gabriel Mountains National Monument, p. 8
[81] USDA Land Management Plan; Part 2 Angeles National Forest Strategy, Applicable to the San Gabriel Mountains National Monument, p. 31

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4494-9669

3. The Front Country; and
4. Big Tujunga Canyon.

For the designated Angeles Uplands West, the LMP2 states that, "Protection and enhancement of threatened, endangered, proposed, candidate and sensitive species such as the arroyo toad, California red-legged frog, southwestern willow flycatcher, San Diego horned lizard, two-striped garter snake, western pond turtle and rare and sensitive plants will be emphasized in all activities."[82]

Question: How will 7+ years of construction at multiple locations within the Angeles Uplands West emphasize the protection and enhancement of these species?

4494-9670

For the designated Big Tujunga Canyon Place, the USFS has two stated Program Emphases. The first is: "Forest health in terms of water quality and water needs will be managed to provide for forest ecosystem needs and instream flows necessary to support surface and subsurface resources."[83]

Question: Given the anticipated impacts that tunneling will have on naturally occurring water sources within this area, and given CHSRA's proposed mitigation measure to truck in or pipe in water to restore the watershed to base level conditions pre-tunneling, how is CHSRA's proposal to tunnel through the ANF ***not*** a violation of the Program Emphasis for this area?

4494-9671

The second stated Program Emphasis for Big Tujunga Canyon Place is that, "Protection and enhancement of threatened, endangered, proposed, candidate and sensitive species such as the Santa Ana sucker, California red-legged frog, arroyo toad, southwestern willow flycatcher, least Bell's vireo, San Diego horned lizard, two-striped garter snake, slender horned spineflower and other rare and sensitive plants will be emphasized in all activities."

Question: How will 7+ years of construction at multiple locations within the Big Tujunga Canyon Place, and specifically the construction of a viaduct structure through the Big Tujunga Canyon Wash, emphasize the protection and enhancement of these species? How will ongoing operation of a train crossing the Big Tujunga Canyon Wash emphasize the protection and enhancement of these species?

4494-9672

The Program Emphasis for the Soledad Front Country states that the, "Protection and enhancement of threatened, endangered, proposed, candidate and sensitive species, such as the unarmored threespine stickleback, arroyo toad, southwestern willow flycatcher, least Bell's vireo, San Diego horned lizard, two-striped garter snake and sensitive plants will be emphasized in all activities."[84]

Question: How will 7+ years of construction at multiple locations within the Soledad Front Country Place, and specifically the construction of at-grade and elevated structures through the Soledad Front Country Place, emphasize the protection and enhancement of these species? How will ongoing operation of a train crossing the Soledad Front Country Place at grade emphasize the protection and enhancement of these species?

4494-9673

Appendix L, *Glossary*, of LMP3 defines "aesthetics" as: "The study of science, or philosophy dealing with beauty in nature with judgments concerning beauty. In scenery management, it describes landscapes that give visual and sensory pleasure." LMP1 dictates that, "Scenic resources will emphasize conserving or restoring

[82] USDA Land Management Plan; Part 2 Angeles National Forest Strategy, Applicable to the San Gabriel Mountains National Monument, p. 48
[83] USDA Land Management Plan; Part 2 Angeles National Forest Strategy, Applicable to the San Gabriel Mountains National Monument, p. 52
[84] USDA Land Management Plan; Part 2 Angeles National Forest Strategy, Applicable to the San Gabriel Mountains National Monument, p. 71

4494-9673

aesthetic, recreation, and open space values, especially those of high-valued scenery such as scenic backdrops for local communities and increasingly rare values such as solitude.[85]

Question: Please describe how CHSRA's plans for the following give visual and sensory pleasure:

1. Construction staging areas located within the Forest;
2. Portals and the significant infrastructure surrounding portals located at the borders of the Forest, the Monument, and the Big Tujunga Wash; and
3. Millions of truck trips hauling spoils out of the tunnels, a significant portion of which will be ultimately dumped within the Forest.

Question: The Foothills of the San Gabriel Mountains provide the scenic backdrop for the communities along the Big Tujunga Wash. As CHSRA's proposed viaduct structure across the Big Tujunga Wash will destroy this scenic backdrop, how are CHSRA's plans for this area supporting the directive set forth in LMP1?

4494-9674

In the Landscape Character section of LMP2, the USFS sets forth the directive to, "Maintain the character of key places to preserve their intact nature and valued attributes:

- Maintain the integrity of the expansive, unencumbered landscapes and traditional cultural features that provide the distinctive character of the place;
- Promote the planning and improvement of infrastructure along federal and state scenic travel routes; and
- Promote the consideration of key landscape character in other landscape analyses such as Fireshed."[86]

Question: Every bit of infrastructure that CHSRA is proposing to introduce to the Forest and the Monument seemingly violates the directive to maintain the integrity of unencumbered landscapes. How can CHSRA maintain that there is no inconsistency between its plans and the federal laws and regulations?

Question: Considering that CHSRA has designed its alignments to run through the Forest and the Monument (i.e., not along existing transportation corridors as is required by Prop 1A), how is the introduction of infrastructure as CHSRA has proposed not in contradiction to the directive provided in the Landscape Character section of LMP2?

Question: As CHSRA's tunneling is likely to negatively impact the naturally occurring water sources in the Forest, leading to a reduction in moisture content of the flora and a corollary increase in dead and dying fire fuels, how are CHSRA's plans not in contradiction of the Landscape Character directives set forth by the USFS?

Discussion of Other Applicable Federal Statutes.

4494-9675

In LMP3, the USFS delineates a number of federal statutes which also apply to the management of the ANF, including the following:

1. **Act of September 3, 1954, Permits for Public Buildings and Other Public Works.** This Act authorizes permits, term permits, leases, or easements at the fair market value (not to exceed 30-years duration) to states, counties, cities, municipalities, or other public agencies without acreage limitation for the construction and operation of public buildings or other public works, exclusive of rights-of-way.

Question: Is there a time limit/expiration date of 30 years (or less) on CHSRA's proposed Special Use Permit from the USFS?

[85] USDA Land Management Plan (2005); Part 1, p. 27
[86] USDA Land Management Plan (2005); Part 2, p.113

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4494-9676

2. **Clean Air Act of 1977, as amended.** The ANF is designated as a "Class I" area under the Clean Air Act of 1977. Class I "provides protection to designated wilderness lands by severely limiting the amount of additional human-caused air pollution from stationary sources that can be added to these areas."[87]

Question: CHSRA proposes 7+ years of construction at multiple locations within the Forest, and the extent of the pollution that will be generated during construction is extensive enough that it will require CHSRA to purchase offset credits. How is construction of this project within Forest lands not in violation of its Class I protection under the Clean Air Act?

4494-9677

3. **Federal Land Policy and Management Act (FLPMA) of 1976, as amended**.

This statute, "Requires that public land be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values.[88]"

Question: Given the pollution that will be created during construction for seven years at a multitude of locations within the Forest, how is CHSRA's proposed project protecting the quality of air and atmospheric values as required by this statute?

Question: Given the likely impacts to groundwater resources within the Forest, how is CHSRA's proposed project protecting the quality of water resource values as required by this statute?

4494-9678

This statute also requires that public land be managed in a manner that, "Where appropriate, will preserve and protect certain public lands in their natural condition."

Question: How has CHSRA made the determination that the impact areas within the Forest are not appropriate for preservation and protection?

4494-9679

This statute also requires that, "the United States shall receive fair market value of the use of the public land and their resources unless otherwise provided for by law."[89]

Question: How much is the CHSRA anticipating to pay for use of the Forest for housing of the high-speed rail system?

4494-9680

4. **Occupancy Permits Act of 1915, as amended.** This statute, "Authorizes term permits for structures or facilities on National Forest System land, and sets maximum limits of 80 acres and 30 years."[90]

Question: CHSRA's proposed alignments each plan to utilize more than 80 acres of NFS land. How are CHSRA's proposals not in violation of this statute?

4494-9681

Discussion of Wildlife.

In LMP1, the USFS explains the significance of the Angeles National Forest specifically with respect to wildlife. The Forest, "provides habitat preserves within one of the most highly urbanized landscapes in the United States, and contains areas that are the only remaining habitat refugia for species imperiled by the loss or degradation of habitat off-forest."[91]

[87] USDA Land Management Plan (2005); Part 3 Design Criteria for Southern California National Forests, p. 23
[88] http://www.blm.gov/flpma/FLPMA.pdf
[89] USDA Land Management Plan (2005); Part 3 Design Criteria for Southern California National Forests, p. 27
[90] USDA Land Management Plan (2005); Part 3 Design Criteria for Southern California National Forests, p. 34
[91] USFS 2005 Management Plan, Part 1, p8

4494-9681

Page 3.14-28 of the DEIR highlights the "permanent facility surface footprint(s)" within the ANF that would be required to be constructed as part of each of the Build Alternatives. These permanent facilities would include adit structures, electrical power lines, and, in several of the Build Alternatives, a temporary Construction Staging Area. CHSRA highlights the fact that these structures would be located on "private in-holding(s)" within the ANF and therefore CHSRA's permanent and temporary facilities "would not impact forest land."

CHSRA has very strategically located its surface facilities to be either on private in-holdings within the ANF (in the case of the adit options) or immediately outside the boundary of the ANF/SGMNM (in the case of the portals in the Aliso Canyon area). While it may help CHSRA to secure a permit from the USFS as these facilities are not located on land managed by the USFS, it is not correct to state that these facilities will not impact forest land.

Wildlife does not know the difference between a "private in-holding" within the ANF and the immediately surrounding land that is managed by the USFS. The sites selected as potential locations for adits and temporary Construction Staging Areas have recently had numerous sightings of California Black Bears and Mountain Lions, in addition to other wildlife that calls the area home. Seven+ years is a long time to be considered "temporary" in terms of wildlife habitat and patterns. Building a Construction Staging Area within habitat occupied by Black Bears and Mountain Lions — whether or not these facilities are technically located on "private in-holdings" will force these animals out of the area.

The ANF and the SGMNM lie within the "California Floristic Province," an area designated by Conservation International as a Biodiversity Hotspot — an area where, "exceptional concentrations of endemic species are undergoing exceptional loss of habitat."[92] For context, there are only 36 total Biodiversity Hotspots identified in the entire world. Conservation International lists "threats from human activities and development" as a primary risk to the California Floristic Province ecosystems.

The area around Gold Creek in Little Tujunga Canyon, where CHRSA intends to build and operate a construction staging area for 7+ years, is teeming with native wildlife. There are Black Bears, Mountain Lions, Mule Deer, Coyotes, Bobcats, Ringtails, Raccoons, Squirrels – everything lives there. The bigger animals, like Black Bears and Mountain Lions, require territory that spans many miles.

Right now, Los Angeles is at a critical point when it comes to our native wildlife, with Mountain Lions leading the way. The first incident of a Mountain Lion in Los Angeles born with a curled tail was evidence of a population that is beginning to lack the genetic diversity necessary to continue to survive here as a species. They are becoming inbred.

The freeways cut off wildlife corridors, and mountain lions are stuck on "islands" throughout the Los Angeles area. There, they are becoming genetically distinct from their cousins across the freeway. The resource study area of the high-speed rail project within the Angeles National Forest hemmed in by the 210 freeway, the 5 freeway, the 2 freeway, and the 14 freeway. These animals are running out of areas to live. The individual territory required to sustain one Mountain Lion ranges in size from 50 to 200 square miles; the size of the territory of one individual Black Bear is between 15 to 70 square miles.

If we look at a map of the Los Angeles area, we can see that there are very few pieces of land left that offer this size of space – let alone with a lack of infrastructure to impact their habitat and behavioral patterns. Mountain Lions are particularly sensitive to human infrastructure and try to avoid it at all costs. Our activity directly affects their activity. It has been noted by local researchers that our Mountain Lions are more nocturnal and exhibit fewer active hours (e.g., ours are active from 12am-4am instead of from 9pm-6am) than their more rural counterparts who are less affected by human activity.

[92] USDA Land Management Plan (2005); Part 1, p.7.

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4494-9681

Now is the time when Los Angeles is looking at critical wildlife habitats and corridors. Other State and Federally-funded programs are striving to build infrastructure to protect Mountain Lions. For example, construction of the Wallis Annenberg Wildlife Crossing is underway in the Santa Monica Mountains National Recreation Area. When completed, the crossing will be, "the largest of its kind anywhere in the world and the most ambitious in such a densely human-populated region."[93]

Question: Infrastructure improvements like the Wallis Annenberg Wildlife Crossing reflect the values of this region: to counter the negative human encroachments on wildlife habitat with infrastructure that connects parcels of open space to provide safe passage for Mountain Lions and other wildlife. Why do CHRSA's proposals intentionally contravene these values, placing Construction Staging Areas and tunnel portals within and immediately adjacent to the Forest, an area designated as wildlife habitat?

4494-9682

Question: How can CHRSA possibly mitigate the impacts to Mountain Lions and Black Bears who will be disproportionately affected by the introduction of CHSRA's infrastructure elements into their habitat? "Relocating them" as has been suggested by CHSRA is not an acceptable option; we want them to continue to live in the Angeles National Forest.

4494-9683

In the Land Use section of the Monument Plan, the USFS addresses the Magic Mountain Wilderness Zone, including the following description: "The Magic Mountain Wilderness's chaparral-covered hillsides and oak-studded canyons provide a scenic vista and suitable habitat for the California condor." In its consistency assessment on Page 3.1-B-58, CHSRA asserts that the Wilderness Zone requirements are "Not Applicable" as, "The Build Alternatives would not encounter the Magic Mountain Wilderness Area."

While we often see birds sitting atop power lines unharmed, power lines pose a unique threat to California Condors. It is safe for birds to touch one power line, but touching two lines at one time can prove fatal. As California Condors are the largest birds in the United States (with a wingspan of nearly 10 feet), their size makes them likely to touch two lines at one time, making them vulnerable to the risk of death by electrocution.[94]

Question: CHSRA plans to build a traction power facility adjacent to its portal near the Vulcan Mine, approximately half a mile from the border of the Magic Mountain Wilderness Zone. Doesn't the introduction of new power lines immediately adjacent to the Magic Mountain Wilderness Zone put condors at risk of electrocution? Given that we are talking about birds, isn't a distance of half a mile from the Wilderness Zone reason to observe the standards applicable to the Wilderness Zone? Shouldn't the Wilderness Zone requirements as they pertain to birds apply to the significant infrastructure CHRSA intends to introduce within half a mile of the Wilderness Zone?

Discussion of Impacts on Parks, Recreation, and Open Space Resources by Affected Build Alternatives as set forth by CHSRA in Section 3.15 of the DEIR.

4494-9684

Impact PK#1 delineates the ways in which the build alternatives will necessitate the acquisition of Parks, Recreation, and Open Space Resources in the Forest and the Monument. Each of the build alternatives includes tunnel portals (either one, two, or three twin tunnel portals, depending on the alignment) located immediately adjacent to Forest land. While CHSRA intentionally designed these portals to technically fall outside of Forest land, these portals exist at the borders of the Forest and the Monument, and these portals will impact these lands both during construction and operation of the train. The E1, E1A, E2, and E2A alignments each feature two twin sets of portals entering and exiting the Monument within half a mile of each other. Additionally, land within the Forest and the Monument will be utilized for construction staging, with the acreage commandeered for such use ranging between 28 and 38 acres, plus another 23 – 36 acres for construction

[93] https://www.curbed.com/2022/01/wildlife-crossing-liberty-canyon-los-angeles.html
[94] https://www.discovermagazine.com/planet-earth/shock-therapy-is-saving-endangered-california-condors

4494-9684

staging for the adit locations. Permanent use of ANF land includes acreage for adits, access roadways, and electrical utilities and facilities.

Question: CHSRA claims that the Build Alternatives', "tunnel beneath the ANF would not result in operations impacts such as noise and vibration at the surface." Whether or not the tunnel boring machine will be seen, heard, or felt once it is 2,000 feet beneath the surface, all of the spoils will come through the portals which are located at the borders of the Forest and the Monument. How will millions of trucks hauling spoils for 7+ years at the borders of the Forest not result in noise and vibration impacts to the Forest?

4494-9685

In Impact PK#3, "Changes to Park Character," CHSRA asserts that operations and maintenance of permanent surface improvements within the Forest and the Monument, "would not result in a substantive change in character during project operations." The reasons given for this conclusion are that tunneling does not result in surface impacts; permanent surface impacts occupy a small percentage of the total land area of the Forest; and utilities will largely follow existing roadways and utility easements within the Forest.

Question: CHSRA is using the total acreage of the Forest as justification that overall impacts caused by its high-speed rail are negligible. The Forest is nearly the size of the State of Rhode Island. A project can have serious, irreparable impacts in one area, but not necessarily affect another. In determining impacts such as change of character, CHSRA should be considering the immediate area (i.e., most often the Resource Study Area), not the Forest as a whole. Considering the cumulative impacts of 7+ years of construction within the Forest and immediately at its borders, plus the permanent surface improvements, what is the rationale for stating that these manmade encroachments will not result in a change in character to the area of the Forest along/in proximity to the alignment?

4494-9686

In Impact PK#2, "Construction-Related Access, Noise, Vibration, Air Quality, and Visual Changes to Parks, Recreation, and Open Space Resources," CHSRA asserts that, "Visitors to the ANF, including the SGMNM, would have unobstructed views of the construction activities taking place at the… Build Alternative adits within the ANF. Temporary construction staging areas associated with adits would be visible, depending on the location and surrounding topography. Construction staging areas would introduce major visual changes to the immediate surroundings. However, these impacts would be temporary." Further, these staging areas, "would temporarily create a barrier for access or inhibit use of the trail."

Question: LM1 (Landscape Aesthetics) and LM3 (Landscape Character) of the USFS LMP Part 3 set forth the law and agency standards regarding management of landscapes to achieve scenic integrity objectives and maintaining the character and integrity of unencumbered landscapes. How does forcing visitors to the Forest to have unobstructed views of construction activities for 7+ years not violate LM1 and LM3 of the USFS LMP Part 3?

Hansen Dam Open Space:

4494-9687

In Impact PK#1, "Acquisition of Parks, Recreation, and Open Space Resources," CHSRA describes the viaduct that would be constructed in the Hansen Dam Open Space. CHSRA plans to take (permanently) 13 acres of the Hansen Dam Open Space to accommodate this structure. Further, CHSRA states that, "Compensation, replacement, or enhancement would be granted as deemed necessary."

Question: How is compensation determined for the taking of a public resource like Hansen Dam Open Space? How would replacement be proposed considering the lack of available open space within the City of Los Angeles?

4494-9688

In Impact PK#3, "Changes to Park Character," CHSRA describes the permanent impacts to the Hansen Dam Open Space, including the viaduct, piers, and tunnel portals, each of which would be, "highly visible and would contrast with the existing visual setting. Patrons of the open space area would be highly sensitive to these

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4494-9688 visual changes, as the changes would impinge upon the natural harmony of the views in this area." Policy LU 6.3 of the Los Angeles County General Plan 2035 states that planning shall, "Encourage low density and low intensity development in rural areas that is consistent with rural community character, preserves open space, and conserves agricultural land."

Question: CHSRA has stated that as a state agency, it is not required to comply with County laws and ordinances. That being said, the introduction of the viaduct into the Big Tujunga Wash is an extremely egregious example of CHSRA's proposed alignments and infrastructure features completely contravening the LA County General Plan. Other than simply saying, "We aren't required to comply with county ordinances," what is CHRSA's justification of proposing alignments and infrastructure that are so out of sync with the County's laws and vision for land management?

4494-9689 **WL-1** of the LMP addresses Threatened, Endangered, Proposed, Candidate, and Sensitive Species Management. One directive is to, "Implement priority conservation strategies (see table 528 Angeles NF Conservation Strategy)." On page 3.1-B-9 of the DEIR, CHSRA states that its actions are consistent with this directive as, "The Authority designed the Build Alternatives such that they avoid significant wash and open space areas within the ANF to protect sensitive species." This is another example in which CHSRA is splitting hairs. It has designed two alignments such that portals are located on Forest land, and an elevated viaduct structure requiring a series of concrete pillars will be constructed to cross significant wash and open space areas immediately adjacent to the ANF. This particular wash area is known to house the endangered Santa Ana Suckerfish, among other sensitive species.

Question: How are CHSRA's alignments that introduce significant infrastructure into the Big Tujunga Wash not a violation of the spirit of WL-1?

4494-9690 In **LINK-1** of the LMP2, the USFS sets forth directives regarding Habitat Linkage Planning, including the following: "Actively participate with local government, developers, and other entities to protect national forest values at intermix and interface zones." On Page 3.1-B-26 of the DEIR, CHRSA maintains that its plans are consistent with this directive, "because the Build Alternatives would be located underground as they traverse the ANF."

Question: The emergence of the train through the portals at the border of the ANF and its continuation on an elevated viaduct across the Big Tujunga Wash is exactly the geographic setting described as being an intermix/interface zone. How is the introduction of portals and the significant infrastructure that they require, plus the construction of a viaduct atop a series of concrete pillars, a demonstration that CHSRA is protecting National Forest values at intermix and interface zones?

4494-9691 Impact PK#3 goes on to describe that despite the acquisition of 13 acres of land, "The resource would remain accessible in the long term, and users would be able to pass under the viaduct to move from one area of the open space to another. Noise from passing trains would be perceptible to patrons of the open space area."

The majority of the recreational use of the area described as being "under the viaduct" is comprised of equestrians. In addition to trail riders utilizing the trail system in the wash, also impacted will be the entirety of the Hansen Dam Horse Park. The Horse Park is a 38-acre facility at the eastern edge of the Hansen Dam Recreation Area, and immediately adjacent to the proposed viaduct. The Horse Park features boarding for up to 200 horses and 350 show stalls. Per HDHP, the facility offers, "turnouts, numerous riding rings, and access to miles of trails. Many different disciplines are represented by top trainers, including reining, dressage, and hunter/jumper. The facility is spacious, shaded, **and peaceful.** HDHP is the preferred location for a number of horse shows and clinics. There are six "A" rated hunter/jumper shows, five "B" hunter/jumper shows, ETI Coral #101, IEL, and a variety of other shows and clinics."[95]

[95] https://hansendamhorsepark.com

4494-9691 **Question**: As horses are flight animals, they will not respond well to the noise and visual impacts of a train moving at 200mph toward them, potentially posing a safety hazard to themselves and their riders. How will you mitigate the impacts that the train will have on equestrians in this area, both trail riders and riders utilizing the area's premiere horse park?

4494-9692 Further, CHSRA goes on to state that, "The changes described under Impact PK#3 would not inhibit the desirability of the resource to the extent that use would decrease."

Question: If the area closest to the viaducts is primarily used by equestrians, and knowing that horses will react negatively to the audio and visual impacts caused by a 200+mph train to the point where it becomes a safety concern for both horses and their riders, how can CHSRA conclude that use of the resource would not decrease?

4494-9693 In Impact PK#2, "Construction-Related Access, Noise, Vibration, Air Quality, and Visual Changes to Parks, Recreation, and Open Space Resources," CHSRA describes as a mitigation measure that, "the contractor will prepare a fugitive dust control plan and a noise and vibration technical memorandum documenting the pertinent federal guidance for controlling construction fugitive dust, noise, and vibration effects… the measures developed as part of the construction plans will ensure that temporary increases in dust, noise, and vibration would be reduced to a level that would allow the park to continue to operate."

Question: Please describe what mitigation measures might possibly be implemented that would allow Hansen Dam Horse Park to continue to operate during 7+ years of construction immediately adjacent to its facility?

Tujunga Ponds Wildlife Sanctuary.

4494-9694 In Impact PK#2, CHSRA notes that because the elevated viaduct will be located .8 mile to the west of the Ponds, construction, "would not result in temporary noise, vibration, air quality, or visual changes to this area." and, therefore, no mitigation measures are necessary.

Per LA County Parks, which manages the site, "The 13-acre Tujunga Ponds site in Sunland was acquired by the Department in 1978, following the CalTrans completion of the 210 (Foothill) Freeway through Tujunga wash, requiring CalTrans to create the pond site in mitigation for loss of similar habitat under the freeway. It was agreed that the site could be accessed by permit from the Department (Natural Areas) and existing trails around the ponds could be used by visiting groups for nature study, photography and similar passive recreation. The site contains 2 small lakes (ponds) and surrounding dense willow riparian woodlands and cottonwood riparian woodlands."[96]

Birdwatching is a primary passive recreational activity at this site, as the freshwater cattail marshes make the Tujunga Ponds a destination for not only small, sensitive bird species including the Least Bell's Vireo and the Southwestern Willow Flycatcher, but also large wading birds such as egrets and herons.

In, Chapter 8 of the book *Railway Ecology*, authors Juan Malo, Garcia de la Morena, Israel Hervas, Christina Mata, and Jesus Herranz examine, "*Cross-scale Changes in Bird Behavior Around a High Speed Railway: From Landscape Occupation to Infrastructure Use and Collision Risk*." In their study, Malo et al. noted that, "Regarding changes potentially introduced by the railway, it is noteworthy that total bird densities were reduced from approximately 550 birds/km^2 in 2010–2011 to values in the range 360–390 birds/km^2 range in the following years. This change occurred shortly after the trains began running…"[97] They further concluded that,

[96] https://parks.lacounty.gov/tujunga-ponds-wildlife-sanctuary/
[97] Borda-de-Agua, Luis; Barrientos, Rafael; Beja, Pedro; and Pereira, Henrique M., eds. *Railway Ecology* (2017): p. 121.

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4494-9694

"the construction of the HSR resulted in a general decrease in bird density in the area, and modified the small-scale spatial patterns of the avian community."[98]

Question: Aren't birds going to be deterred from safe harboring at the Tujunga Ponds Wildlife Sanctuary during both 7+ years of construction immediately adjacent to the sanctuary and during operation of the train? What does an independent ornithologist say will be the impacts to birds resulting from construction and operation of the train immediately adjacent to the Tujunga Ponds sanctuary?

4494-9695

With respect to bird mortality resulting from the introduction of high-speed trains into their habitat, Malo et al. noted the following:

> "The mortality of birds depends on the extent to which they are exposed to the risk of being over-run while flying, or being electrocuted by the HSR poles or catenary."[99]
>
> "The potential relevance of the HSR is conditioned by the fact that the great speed of the trains, in most cases, precludes birds from avoiding train collisions. Additionally, it is hazardous for birds to fly above the train collision risk area where they may come in contact with the catenary, suspenders, power wire, feeder, earth cable, and tensors (5.3–8.5 m above the ground). Although there is a constant risk of collision with these elements even when trains are not running, the risk of collision with the catenary may be increased by the passage of trains due to the potential for turbulence generated by the moving train to destabilize the normal flight of birds. Thus, it is reasonable to assume that birds that cross the railway by flying between or below the catenary wires face the mortality risk from train-kill."[100]
>
> "These data suggest that train speed determines mortality risk independent of particular species' characteristics, with the risk being a result of the fact that birds are not adapted to avoiding objects approaching at such high velocities."[101]
>
> "…bird mortality may have a significant impact on the populations of some species, given the fact that birds cross the collision risk area frequently."[102]

Question: What mitigation measures will CHSRA employ to warn birds of an oncoming train to avoid avian mortality due to collision? What mitigation measures will CHRSA employ to deter birds from collision with the catenaries? In an effort to reduce overall avian mortality, what methods will CHSRA use to repel birds from its infrastructure elements, and what systems will it employ to decrease the frequency with which birds will fly through the viaduct area which CHSRA intends to introduce immediately adjacent to a sanctuary for birds and specifically waterfowl?

4494-9696

Pacific Crest Trail.

With respect to CHSRA's plans near the Pacific Crest Trail, CHSRA stipulates that, "PCT users would have unobstructed views of the construction activities. Staging areas would introduce major visual changes to the immediate surroundings with visually intrusive accumulations of stored material and equipment."

The Monument Plan specifically addresses the USFS goals for the PCT:

[98] Borda-de-Agua, Luis; Barrientos, Rafael; Beja, Pedro; and Pereira, Henrique M., eds. *Railway Ecology* (2017); p. 122.
[99] Borda-de-Agua, Luis; Barrientos, Rafael; Beja, Pedro; and Pereira, Henrique M., eds. *Railway Ecology* (2017); p. 123.
[100] Borda-de-Agua, Luis; Barrientos, Rafael; Beja, Pedro; and Pereira, Henrique M., eds. *Railway Ecology* (2017); p. 125-126.
[101] Borda-de-Agua, Luis; Barrientos, Rafael; Beja, Pedro; and Pereira, Henrique M., eds. *Railway Ecology* (2017); p. 129.
[102] Borda-de-Agua, Luis; Barrientos, Rafael; Beja, Pedro; and Pereira, Henrique M., eds. *Railway Ecology* (2017); p. 131.

4494-9696

1. "The nature and purpose of the Pacific Crest National Scenic Trail (PCT) are to provide for outstanding journeys on foot or on horseback in the spectacularly wild landscapes of high Pacific mountain ridges. ***Tranquility and closeness with nature can be found consistently along the trail, evoking a feeling of extended retreat from civilization, even if only venturing out for a day.***"[103]

Question: How can tranquility and a feeling of extended retreat from civilization be maintained during 7+ years of construction within sight of the PCT? How are CHSRA's plans not in violation of the directive expressed in the Monument Plan?

4494-9697

The Monument Plan further sets forth the guidelines for recreation near the PCT:

1. "New recreation events, such as foot races or horseback endurance events and fundraising events should be limited to designated crossings only on the Pacific Crest National Scenic Trail (PCT) within the Monument. Existing recreation events may be allowed to continue at current levels;" and
2. "Within the Monument, new trails that are proposed to cross the PCT or to be built within the foreground of the PCT, should be designed to minimize conflicting uses and to minimize the scenic, aural, and resource impacts to the PCT."[104]

Question: The spirit of the law in these sections is clearly to minimize human impacts on the Monument and specifically on the PCT. If the USFS is restricting low-impact, one-day events such as horseback riding and foot races, why should they allow a highly invasive construction project that will go on for 7+ years?

4494-9698

The Monument Plan also sets forth the following restriction on activity within the foreground of the PCT:

1. "Within the Monument, the PCT foreground is not suitable for special-use authorizations for new communication sites and wind generation sites."[105]

Question: If the PCT foreground is not suitable for new communication sites and wind generation sites, how is placing a construction staging area within sight of the PCT not in violation of the spirit of the Monument Plan?

4494-9699

The USFS also sets forth guidelines for the PCT within the ANF Strategy. ANF S1 stipulates that it must:

1. "Protect scenic integrity of foreground views as well as from designated viewpoints. Where practicable, avoid establishing nonconforming land uses within the viewshed of the [Pacific Crest] Trail."[106]

Question: How do CHSRA's alignments and construction staging areas protect the scenic integrity of views from the Pacific Crest Trail? How do CHSRA's alignments and construction staging areas avoid the establishment of a non-conforming land use within the viewshed of the trail?

Rim of the Valley Trail Extension.

4494-9700

Not only do CHSRA's proposed routes intersect/cross the Rim of the Valley Trail Extension in several places, but Impact PK#1, "Acquisition of Parks, Recreation, and Open Space Resources," describes how CHSRA intends to commandeer 300 – 400 feet of the Rim of the Valley Trail Extension for use as a construction staging area.

[103] San Gabriel Mountains National Monument Management Plan, p. 13
[104] San Gabriel Mountains National Monument Management Plan, p. 13
[105] San Gabriel Mountains National Monument Management Plan, p. 13
[106] USDA Land Management Plan; Part 2 Angeles National Forest Strategy, Applicable to the San Gabriel Mountains National Monument, p. 76

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4494-9700

Question: In ANF S1, the USFS sets forth the goals of the management of the Pacific Crest Trail. As the Rim of the Valley Trail extension will also fall within ANF boundaries, we can assume it will be managed by the same standards. S1 states that management of this resource will, "Protect scenic integrity of foreground views as well as from designated viewpoints. Where practicable, avoid establishing nonconforming land uses within the viewshed of the trail."[107] How does utilizing 300 – 400 feet of the Rim of the Valley Trail Extension as a construction staging area for 7+ years comply with the terms of S1?

4494-9701

In Impact PK#4, CHSRA asserts that the use of the Rim of the Valley Trail Extension, "would not increase or decrease with implementation of the… Build Alternatives."

Question: This conclusion is misleading as it does not take into account the impacts during construction. How will use of the Rim of the Valley Trail Extension not decrease when a section of the Trail will be commandeered for use as a construction staging area for 7+ years?

4494-9702

In Impact PK#1, "Acquisition of Parks, Recreation, and Open Space Resources," CHSRA states that, "Compensation, replacement, or enhancement would be granted as deemed necessary. These mitigation measures will ensure that each resource acquired would be accessible during construction. If construction would result in a permanent loss. the Authority will provide necessary compensation."

Question: How is compensation determined for a public resource like the Rim of the Valley Trail?

Discussion of CEQA Conclusions:

4494-9703

With respect to ***Impact PK#1: Acquisition of Parks, Recreation, and Open Space Resources,*** CHSRA concluded that acquisition of park/recreational resources would create a significant impact for the following resources in the study area:

- Palmdale Hills Trail (Proposed Extension)
- Vasquez Loop Trail (Proposed Extension)
- Littlerock Trail (Proposed Extension)
- Acton Community Trail (Proposed Extension)
- Santa Clara River Trail (Proposed Extension)
- Rim of the Valley Trail (Proposed Extension)
- Hansen Dam Open Space (Proposed Extension)

With respect to ***Impact PK#2: Construction-Related Access, Noise, Vibration, Air Quality, and Visual Changes to Parks, Recreation, and Open Space Resources,*** CHSRA concluded that project-related construction activities would create a significant impact for the following resources in the study area:

- Tejon Equestrian Park
- Palmdale Hills Trail (Proposed Extension)
- Vasquez Loop Trail (Proposed Extension)
- Acton Community Trail (Proposed Extension)
- Pacific Crest Trail
- Santa Clara River Trail (Proposed Extension)
- Rim of the Valley Trail (Proposed Extension)
- Hansen Dam Open Space (Proposed Extension)

[107] USDA Land Management Plan; Part 2 Angeles National Forest Strategy, Applicable to the San Gabriel Mountains National Monument. p. 76

4494-9703

With respect to ***Impact PK#3: Changes to Park, Recreation, and Open Space Resource Character,*** CHSRA concluded that the following resources would suffer a significant impact because operations of the build alternatives would alter park character by preventing its use or by creating physical or perceived barrier:

- Tejon Equestrian Park
- Palmdale Hills Trail (Proposed Extension)
- Vasquez Loop Trail (Proposed Extension)
- Acton Community Trail (Proposed Extension)
- Hansen Dam Open Space

It is worth noting that CHSRA concluded that with respect to Impact PK#3, the ANF, including the SGMNM, would experience "less than significant impact." We disagree with this conclusion as CHSRA is considering the entirety of the Forest in its analysis, concluding that the area impacted represents a small percentage of the overall resource. It is not reasonable to consider the Forest as a whole, as it is nearly the size of the State of Rhode Island. The only reason that CHSRA is considering the Forest as a whole is to dilute the impacts of its construction across 700,000 acres.

Considering solely the areas of the Forest that are impacted by CHSRA (i.e., in most respects, the Resource Study Areas), we maintain that those areas will suffer a significant impact with respect to Impact PK#1. Impact PK#2, and Impact PK#3.

Los Angeles County is the most populated county in the United States, with a population of over 10 million people; and the City of Los Angeles is the second most populated city in the United States, with a population of nearly 4 million people.[108] It is in this most urban of settings that the preservation of our National Forests, parkland, and open space is of the utmost importance.

There are a total of 28 parks, recreation areas, and open space resources within the resource study area that will be impacted by the construction and operation of a high-speed rail system. On page 3.15-120. CHSRA concludes that, "*With the inclusion of the applicable IAMFs and implementation of the mitigation measures identified in Section 3.15.7, all six Build Alternatives would avoid, minimize, reduce, or compensate for impacts on these resources.*"

Per CEQA guidelines, CHSRA is required to address the cumulative impacts of a project," when the cumulative impacts are expected to be significant and when the project's incremental effect is cumulatively considerable."[109]

Taking into account the **cumulative impacts** on the 28 parks, recreation areas, and open space resources in the resource study area, including but not limited to the impacts studied in Chapter 3.15 (i.e., acquisition; construction-related access, noise, vibration, air quality, and visual changes: and changes to character), the impacts created by CHSRA outweigh any possible benefits that could result from the implementation of a high-speed rail system in the RSA.

As such, the only reasonable conclusion is that CHSRA – as well as all Officials with Jurisdiction – must support the NO PROJECT ALTERNATIVE.

[108] April 1, 2020 Census figures.
[109] State CEQA Guidelines Section 15130[a]

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CHAPTER 3.16: AESTHETICS AND VISUAL QUALITY

4494-9704

3.16.4.4 Method for Evaluating Impacts under NEPA
Page 3.16-13/Footnote 1

The CEQA issued new regulations, effective September 14, 2020, updating the NEPA implementing procedures at 40C.F.R. 1500-1508. However, because this project initiated the NEPA process before September 14, 2020, it is not subject to the new regulations. The Authority is relying on the regulations as they existed prior to September 14, 2020. Therefore, all citations to CEQ regulations in this environmental document refer to the 1978 regulations, pursuant to 40 C.F.R.1506.13 (2020) and the preamble at 85 Fed. Reg. 43340.

Question: Are there elements in this Project Section that would have had to be drastically modified/rerouted or even deleted if CHSRA followed the 2020 NEPA procedures considering that the ones that are being followed are almost 45 years old and so many environmental regulations have changed drastically during that time?

4494-9705

Page 3.16 -39, 40
Tunnel Portals: Tunnel portal access roads would follow existing drainage courses or existing roads to the extent possible.

Question: Where is the map for all the access roads that need to be built near the portals? Are they paved/will they be paved? Has the adverse impact of these roads been considered?

4494-9706

Lighting: like all of these Project Component parts, CHSRA states something will be done, but there is no way of knowing if it can be as there is not a mitigation plan, such as lighting pollution from the train, train construction, etc.

Question: How will CHSRA mitigate the lighting pollution and train lights?

4494-9707

Sound Walls: "Noise walls can be made from transparent materials or include surface design enhancements to blend with the area's visual context."

Question: How do you keep transparent materials clean day to day? How do you keep them from getting scratched and damaged?

4494-9708

Traction Power Substations (TPSS)

Question: Where will the TPSSs be located? If we don't know the locations, how can we be certain that they will not cause harm to our community? How will we know which property(ies)/asset(s) will be taken by CHSRA for the TPSS's location?

4494-9709

Switching Stations:

Question: Where will the switching stations be located? If we don't know the locations, how can we be certain that they will not cause harm to our community? How will we know which property(ies)/asset(s) will be taken by CHSRA to house the switching station(s)?

4494-9710

Communications Towers:

Question: Where will these 100-foot towers be located? If we don't know the locations, how can we be certain that they will not cause harm to our community? How will we know which property(ies)/asset(s) will be taken by CHSRA to house the communications towers? Would these be located near the Burbank Airport? It seems this

4494-9710

would cause interference with the airport's operations. Has the Burbank Airport been contacted regarding CHSRA-planned facilities that may interfere with its operations? What has been their response?

4494-9711

3.16.6.4 Temporary Construction Impacts
Page 3.16-40
SR14

"During construction, spoils would be transported to both the Vulcan Mine and Boulevard Mine via conveyor belt systems installed along and within the Palmdale to Burbank Project Section alignment. The conveyor belt systems would appear highly industrial in nature; however, they would be visually compatible with the other industrial features in the area. Short-term aesthetic impacts would occur during construction as tunnel spoils would at times be visible traveling along the conveyor belt to the Vulcan and Boulevard Mines."

Question: CHSRA believes that Sun Valley is so industrial that making it worse is not important, despite the best efforts of the community and the Sun Valley Area Neighborhood Council to rectify this? Do you believe the added conveyors to haul dirt would be acceptable to the community in addition to the noise, vibrations and pollution that will be occurring in their area?

Question: What happens to the Vulcan Mine and the Boulevard Mine once they are filled? The Boulevard Mine is in the heart of Sun Valley, which is in great need of a recreational park, especially since so many folks live in apartments. Would the land be usable for that purpose? Is there money in the budget to turn that land, which it is assumed the State will then own, into a first rate park with great facilities? Giving back to this underserved community would be the right thing to do.

4494-9712

3.16.6.5 Permanent Construction and Operations Impacts
Page 3.16-48

Table 3.16-14 Change in Visual Quality of Landscape Unit 1 Key Viewpoints, Refined SR14 Build Alternative (also Appendix 3.16-A: Photographs of Existing Conditions and Visual Simulations with the Project, Page 3.16-A-15: https://hsr.ca.gov/wp-content/uploads/2022/08/PB_03.16-AppxA_PhotosExistingConditions_a11y.pdf)

Question: KVP 1.14: Pacific Crest Trail – For this famous trail, the destruction of the scenic view called out in Landscape Unit 1b: Central State Route 14 Corridor, is High for Viewer Sensitivity, and Adverse to the Degree of Change to Visual Quality. What will be done to remediate this condition for this important California asset, and what has the Pacific Crest Trail Association had to say about the impact?

4494-9713

Page 3.16-82/83
AVQMM#4 – Permanent Construction Impacts on Visual Quality

"Prior to operation and maintenance of HSR, the contractor shall plant trees (minimum 24-inch box and 8 feet in height) along the edges of the HSR rights-of-way in locations adjacent to residential areas to visually screen the elevated guideway and the residential area. The species of trees to be installed will be selected based on their mature size and shape, growth rate, hardiness, and drought tolerance. No species on the Invasive Species Council of California's list (ISCC 2010) would be planted. Upon maturity, the crowns of trees used would be tall enough to partially, or fully, screen views of the elevated guideway from adjacent at-grade areas. Upon maturity, trees would allow ground-level views under the crowns (with pruning if necessary) and will not interfere with the 15-foot clearance requirement for the guideway. The trees will be maintained. *Irrigation systems would be installed within the tree planting areas…*"

Question: Where is CHSRA going to get all of these mature trees? Where is the water coming from to irrigate all of these trees used to screen the HSR? We don't have enough water for the needs of California as it is and by needing to plant trees (which of course is important but especially in urban areas), that is an additional

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demand for water, besides all the water needed for the construction, that will be additional to California's needs.

4494-9714

Page 3.16-102

KVP 1.22: Lake View Terrace (E2 and E2A Build Alternatives) As shown in Figure 3.16-A-22a (in Appendix 3.16-A), KVP 1.22 shows the view from Kurt Street at Nadina Street in unincorporated Los Angeles County, looking northeast from the Lake View Terrace neighborhood toward scenic hills located within the ANF. The view features an open, grassy field surrounded by scenic hills. Electrical transmission towers and lines descend from the hills into the adjacent neighborhood, revealing the interface of wildlands and development. Natural harmony is moderately high and cultural order is high; hence, overall visual quality is moderately high. As shown in Figure 3.16-A-22b (in Appendix 3.16-A), the E2 and E2A Build Alternative alignments would emerge from a tunnel beneath the hills at a currently vacant field. The introduction of these project elements would be highly visible and contrast with the natural harmony of the view. Residential neighbors adjacent to this area would be highly sensitive to these visual changes, as they would impinge upon the natural harmony of the view from their foothill community, shifting the scene toward a more industrial character. Overall, the degree of change to visual quality would be adverse for the E2 and E2A Build Alternatives.
(*also: Appendix 3.16-A: Photographs of Existing Conditions and Visual Simulations with the Project, Page 3.16-A-24* https://hsr.ca.gov/wp-content/uploads/2022/08/PB_03.16-AppxA_PhotosExistingConditions_a11y.pdf)

This area that is so crucial to the Los Angeles equestrian community would be forever forfeited as the motion of a train much less the noise would not allow its use. Horses are flight animals, and despite the very uninformed study done years ago by the Mineta Transportation Institute dated Dec. 2015, (http://static.politico.com/64/b3/d4e3ea7449e08a70005d2caf6ebd/mineta-transportation-institute-report-high-speed-rail-and-equine-issues.pdf), horses and their riders could not safely coexist with a high-speed train. The wildlife in this area is vast and diverse, and no doubt the HSR would cause the rapid disappearance of most species. It is also a migratory route for countless birds where they stop off right where the train would be located, again, changing a centuries old flight path. The Tujunga Wash is a treasured area for Los Angeles. Its scenic vista provides breathtaking views especially during sunrises and sunsets. It is a go-to location for our local photographers, as is so beautifully showcased in this website: https://www.tompulaphotography.com/gallery.html. With so many wild, pristine areas being destroyed by ongoing development, losing this area to the HSR would be a tremendous, heart-breaking disaster.

APPENDIX 3.16-A: PHOTOGRAPHS OF EXISTING CONDITIONS AND VISUAL SIMULATIONS WITH THE PROJECT

4494-9715

Page 3.16 – A-31

The top photo on this page shows the NW viewpoint from Hollywood Way, but taken years ago. CHSRA's document is dated August 2022, so there is no reason why you should not be addressing the current condition of that land. What occupies that 61 acres now is the huge megaplex called Avion. It is made up of warehouses (such as Amazon), office buildings, stores, restaurants, condos, and apartment buildings. The *LA Times* stated that this project would cost over $900 Billion to buy out, though we are unsure if that figure includes demolition costs – and, of course, added to that figure would be the costs of inevitable lawsuits. The land was purchased for $75 million, so essentially CHSRA upped the overall budget by over one billion dollars by not buying the land when it was available. Are you really thinking that you can (and should) turn that land into what is depicted in the second photo, which is a complete demolition of the Avion complex, turning it into a parking lot with trees? And your description is priceless (but insulting):

4494-9715

Simulated View: The project would add a parking lot and transit center along North Hollywood Way, as well as enhanced landscaping throughout, which would increase cultural order and natural harmony. Overall, the degree of change to visual quality would be beneficial.

4494-9716

Question: How you are going to address the following when you demolish the Avion project?

- Paying for the endless and inevitable lawsuits that will occur when taking their land when you had the opportunity to purchase it but declined to do so. Is that amount in the current business plan? We were told at a meeting with CHSRA that you declined to purchase it at the time believing it was "too expensive." You admitted you knew about it being available, you turned it down, pushing a very expensive problem down the road. How does this demonstrate responsible planning and a responsible use of resources?
- Besides paying for the buyout and demolition, will the taxpayers also have to pay for the relocation and rebuilding of all of these businesses?
- Avion submitted a comprehensive document to CHSRA for the Burbank-Los Angeles Project Section (Submission 696, Timur Tecimer, OVERTON MOORE PROPERTIES, July 21, 2020), with one of your replies dated Sept. 2021:
  696-781: "Once the design is final and the exact nature of impacts to the Burbank Avion Development is defined, the Authority will coordinate with the property owner and follow the procedures described in the Right-of-Way." Again, you are resorting simply to the "Right of Way." It is unbelievable that you allowed this property to be sold, developed, and completed, and yet you cite the Right of Way to solve this extremely expensive malfeasance on your part.

4494-9717

Question: Though the building materials are green, it is improbable that after demolishing, they could be repurposed, which means thousands of tons of materials will have to go into land fill. Where will all of the tons of materials go? Demolition of a newly built multi-million dollar project is not a green, carbon-neutral action.

The fact you have this "old" photo in your 2022 DEIR does not give us a feeling that you are being "transparent."

Since you are addressing this land in this report, you are violating CEQA as you are NOT dealing with how you plan to handle the situation of this mega complex which, with its demolition, will have wide-ranging consequences environmentally: air pollution, materials disposal, and of course the relocation of all the residents and businesses in the complex.

The above questions regarding the Burbank Station also apply to Vol 3: PEPD Record Set REV01, Burbank Station Area Plans.

APPENDIX 2.0-I: SPOILS DISPOSAL ASSUMPTIONS USED FOR ENVIRONMENTAL ANALYSIS

4494-9718

Page 2.0-I-3
Refined SR14: Portal 10 - Spreading grounds (& other locations)

50% of the spoils from this tunnel would be contaminated and require disposal at a facility licensed to accept potentially hazardous materials. Spoils disposal in existing mine pits would require a project design, which would include geotechnical investigation of the site, identification of disposal technology, site preparation, spoils transportation to an offsite treatment facility if spoils are hazardous, fill and compaction procedures, slope stability, monitoring, water treatment, and surface and vegetation restoration among other elements.

Question: What happens to the contamination itself? How is that disposed of? Is there a local company already set up to handle the decontamination process, or does one have to be created?

Page 2.0-I-3

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4494-9719 **Refined SR14: Burbank Airport Station SEM Tunnel**

Spoils would be off-hauled by truck. 100% of the spoils from the tunnel excavation would be contaminated and would need to be off-hauled to a suitable treatment site.

Question: In many of the conditions where the DEIR states that the spoils are contaminated and will be off-hauled by truck, are those closed trucks so none of the spoils can become windborne during transit? With thousands of tons of contaminated dirt needing transporting, how do you protect the community when loading and transporting? If the load shifts and the truck tips, how is the contamination contained?

4494-9720 **Page 2.0-I-4**
Refined SR14: Burbank Airport Station

Spoils can be stockpiled in an area adjacent to cut-and-cover (within station footprint), to separate the spoils volume into layers to be hauled to disposal site daily (about 20 acres available during construction within the station area footprint). 100% of the spoils from the station cut-and-cover excavation would be contaminated and would need to be off-hauled to a suitable treatment site.

Question: It states that the contaminated spoils would be stockpiled over a period of 5.4 years. Where does that stockpiling occur? This is where the current Avion Project is located? If so, there does not appear to be 20 available acres without demolishing this project. Also, considering the soils under this project are no doubt very contaminated since it previously was the Lockheed Skunk Works and a Superfund site, how would the contaminated dirt be "sorted" so it does not float out to the community while it is being stockpiled, a community that has Santa Ana wind conditions?

4494-9721 **Page 2.0-I-15**
E2: Portal 4 (Tujunga Wash)

1 year to excavate for Portal 4, and 5.1 years to excavate for the Tunnel.
The damage to this pristine area of Los Angeles would be impossible to correct. The Tujunga Wash should not be considered a transportation route. The price is just too high.

4494-9722 **Page 2.0-I-19**
E2A: Intermediate window at Calmat Mine

Question: Where is the Calmat Mine? It doesn't show up on this map (https://geografika.maps.arcgis.com/apps/MapJournal/index.html?appid=ccac46af003e4a2da4528b2a7595141b), nor on Google Maps, or Google. Is this the Cal Mat Pit? Where exactly is this located?

4494-9723 **Page 2.0-I-20/ Footnote 4**

Hazardous materials would be trucked/shipped to a classified/permitted disposal site.

Question: Why is the hazardous materials disposal site classified? How much tonnage from SR14 (including the Burbank Airport site) do you expect to dispose of in a hazardous materials site? How are these hazardous materials disposal sites protected?

General Questions:

Regarding this map:
https://geografika.maps.arcgis.com/apps/MapJournal/index.html?appid=ccac46af003e4a2da4528b2a7595141b

4494-9724 **Question**: Is it an adit at Little Tujunga Canyon Rd. for SR14? What is Sand Canyon Rd going to be used for? Are you closing Sand Canyon Rd near Baker St. & Abe St to Little Tujunga Canyon Rd, then closing Little Tujunga Canyon Rd to the end of the blue line on the map?

4494-9725 **Question**: The bike path along San Fernando Road has cost a great deal of money and taken a great deal of time to plan and construct. Once CHSRA demolishes the bike path, will it be rebuilt to the exact design as it was before demolition?

4494-9726 **Question**: How are we to know just what is occurring with the properties depicted in the above map in orange that are tagged as being "partial acquisition?" Is there a document that we can obtain that outlines the intent for each property as it will be dealt with by CHSRA?

4494-9727 **Question**: How are you dealing with the schools and hospitals during construction with the noise, vibration, road closures and pollution? How will their comfort and safety be assured during this long process?

4494-9728 **Question**: Who will own the properties if they are no longer needed by CHSRA? Will they be cleaned up and put up for sale, or will they be given to the community for their use?

Electrical:

4494-9729 **Question**: How will CHSRA protect the Angeles National Forest and other combustible elements from sparks from the catenaries, especially during high winds? (please refer to this study: https://ietresearch.onlinelibrary.wiley.com/doi/full/10.1049/els2.12043)

Question: Will the trains be stopped and the power shut down?

4494-9730 **Question**: Is the power coming from DWP and PG&E to run the trains?

- If so, how can that be considered "clean energy" which is one of CHSRA's biggest talking points? DWP's goal is to reach 100% clean energy in the year 2035, years after CHSRA intends to commence construction on this project section.
- During flex alerts, will the trains be stopped so that residential customers receive the power they need?

4494-9731 By 2035, the governor has mandated that all new cars are to be electric. If someone can drive from Los Angeles to San Francisco with 5 people in the car, isn't that a lot cheaper than 5 people buying round-trip tickets on high-speed rail? How will the cost of over $105 billion for a high-speed train make sense in 10 to 15 years? No matter the intent of trying mightily to install public transportation, San Francisco, Palmdale and Los Angeles are still car towns, and folks still need a car when they reach their destination, whether it is a taxi, car service, or rental.

PB 3.09 – GeoPaleo

4494-9732 **Question**: If a large discovery is made relating to Paleontology, such as a discovery of dinosaur bones, extinct mammals, ancient civilization artifacts, etc., is HSR willing to pause the project in order to do proper retrieval/excavation, or will they reroute? This condition has occurred in countless projects around the world when building infrastructure. How will HSR handle it?

CHAPTER 3.17: CULTURAL RESOURCES

4494-9733 This section details the archaeological, historical (pre and modern) sites, including locations currently or potentially eligible to be included on the National Register of Historic Places (NRHP), or the California Register

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4494-9733

of Historic Places (CRHP). Pre-historic sites are places that were inhabited or used by Native Americans prior to 1769 (the date of European contact). Relevant terms include APE, Area of Potential Effect, and PA, Programmatic Agreement (to be determine after the DEIR is accepted and actual work plans are determined). This document is full of acronyms, so it is necessary to refer constantly to the guide at the end of the document.

Section 106 of the National Historic Preservation Act (NHPA) contains the rules for dealing with locations of historical importance to be taken into consideration in any Federal undertaking. Apparently, the State Historic Preservation Officer, Federal Railroad Administration and Advisory Council on Historic Preservation have agreed to modify some portions of Sec. 106 as follows:

1. Exempt certain properties deemed to have little or no potential to be eligible for NRPH protection;
2. Streamline documentation if significantly altered properties that have reached 50 years of age project section and prep a Memorandum of Understanding (MOU) for each project section that may adversely affect or has the potential to affect historic properties;
3. Prepare treatment plans for Historic Built properties and Archaeologic sites that tier off the MOU.

The next few sections detail the laws, interested parties (including Native American tribes), stakeholders, etc. Many of the interested parties did not respond to HSR's letters or communications. Included were regional and local entities, county, municipal, general and community planners.

Regarding historic properties, per the DEIR, if Refined SR14 or SR14A are not in accordance with Los Angeles Zoning Code LU-6.4, CHSRA will try to mitigate building which does not conform to this section, but no promises are made. The general consensus of this section of the DEIR is "we'll figure it out as we go along." The MOU for each section will be determined by HSR.

The exact location of non-historic sites may not be revealed per Federal and State laws. The build zone along the tracks will be 150 feet on each side.

There are only one or two historic locations along the Refined SR14 and SR14A routes. Several others are scattered around the other alternative routes.

Environmental Consequences
Due to the unavailability of access for archaeological surveys (likely from property owners refusing access to their properties after receipt of Permit to Enter letters), these surveys will be conducted in phases (Phased Evaluation).

Question: If there are no surveys granted by property owners, what is CHSRA's plan as construction moves forward?

4494-9734

No Project Alternative
Assumes Palmdale to Burbank section will not be built. CHSRA states that long-term plans for traffic improvements will cost the state increased overtime. There is nothing in this section to support that claim. CHSRA claims that Alternate Transportations Systems would need to be developed to carry the increased population and housing/retail/school needs. There is nothing in this section to support that claim.

Question: Is CHSRA saying that building the High-Speed train will have a lower impact on the region than not building it?

4494-9735

MOU signatories, concurring parties, and Tribal consulting parties will meet to determine preferred treatment and mitigation archaeological resources that cannot be avoided. Construction will be halted should there be an unanticipated arch discovery. If human remains are found, CHSRA will exercise caution when encountering

4494-9735

these sites. CHSRA will develop a geospatial layer to identify locations of burial sites. There will be sensitivity mapping, and the impact should be minimal per CHSRA.

Question: In the event that archaeological discoveries are found, how long does CHSRA anticipate it will take to remediate the situation?

If SR14 is chosen, there will be excavation under and around the CA Aqueduct, but no temporary or permanent damage is expected.

4494-9736

Grubbing and grading. These terms are used frequently but these is no definition in the DEIR for grubbing.

Question: What is the definition of grubbing and grading?

CHAPTER 3.18: REGIONAL GROWTH

4494-9737

In the context of transportation projects, a Regional Growth Analysis (RGA) examines whether the Palmdale to Burbank project section could directly and/or indirectly cause employment or population grown that exceeds projected population and job growth in a given area.

Per the DEIR, all 6 build alternatives have similar long-term regional construction costs and ridership projections and would result in similar near and long-term growth, and would not result in substantial increased land use consumption due to long-term population growth.

Employment growth refers to temporary or permanent jobs that would be created either directly or indirectly by the HSR build alternatives during construction or operation.

Population growth is the number of residents in the RSA, which analysis presents projections out to 2040 for the 6 alternatives and the No Project Alternative.

Housing considers available units of housing under the 6 alternatives and the No Project Alternative to determine if sufficient housing is available to meet projected demand from population growth.

It must not be assumed that growth in any area is necessarily beneficial, detrimental or of little significance to the environment. HSR is a war on cars. SCAG (Southern California Association of Governments) must put funding to projects that will reduce emissions and away from those that don't.

Alternate Planning Strategy (APS) will reduce emissions, but it is not a required component of the regional transportation plan and is less likely to be implemented.

The Palmdale to Burbank Project Section is projected to take 8-9 years to complete. Considering how long this project has taken so far with no track laid, it is difficult to have a high degree of confidence in this timeline.

Long-term employment growth is projected to be 102,000 jobs with 4,900 in Los Angeles County and 49% of the jobs in the Palmdale to Burbank Project Section.

Long-term Induced population growth. For every long-term job created on the Palmdale to Burbank route, a population growth of 2.17 people is assumed. People may move to exurban communities with lower housing costs.

Question: The figure of 2.17 implies that the long-term jobs created by CHSRA will be provided to people who live outside the area who will be moving themselves and family members into the area in order to accept the

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4494-9737

CHSRA job opportunity. What benefit is there to the local population if the jobs created by CHSRA are given to people who reside outside the county?

Question: Who is building all this new housing and when?

4494-9738

City of Los Angeles population size only grew by 277,000 between 2000 and 2015.

Question: What about the census results from 2020 and the effects of Covid-related population changes?

4494-9739

Overview – No Build and Build Alternatives. Future projects aren't even in the early planning stage. Impacts cannot be determined, but the DEIR says it will be in compliance with CEQA and NEPA.

If the No Build Alternative is selected, there would be no need for outside employees to move to the region. No Build would have the lowest impact and would not cause the excessive greenhouse gas emissions that would be caused by any of the 6 alternatives.

4494-9740

HSR claims that jobs will be created in low-income communities.

Long-Term employment impacts compare 2040 employment estimates and projections of the 6 build alternatives and the No Build Alternative. Operations & Maintenance (O&M) of each alternative would be very similar, therefore all 6 alternatives would have similar direct effects on employment. Direct, indirect and induced employment would add 500 O&M jobs in Los Angeles County.

Question: Where are they getting this number?

Total Project Induced Employment .1% over the No Build Alternative.

4494-9741

First and Last Mile Connectivity. Starts when passenger boards HSR and ends when they reach their destination (might be by bus or van). There will be no reduction in station-to-station travel time until the project is completed to Union Station. Taking Antelope Valley residents off the streets will have no appreciable effect.

US Forest Service. There are few residences and employment opportunities on USFS lands or adjacent. Policies don't address regional employment or population growth trends on USFS lands. Regional employment and population growth would not cause inconsistencies within the National Forest Management Plans. All 6 build alternatives are considered consistent with the policies in the ANF system. As a rule, only housing for USFS employees is permitted on ANF and SGMNM lands.

Conclusion – The population of Los Angeles County is sufficient to meet employment demand during project construction. Construction employees are not expected to move to the RSA.

In reviewing this section, it looks like employment and population numbers will only be slightly higher, regardless of choosing one of the six alternatives or the No Build Alternative. Non HSR long-term plans will not be much higher than expected regardless of the direction chosen.

Questions:

4494-9742

3.18-11 If workers are needed from other regions and local housing is not available, where will new workers be housed?

4494-9743

3.18-12. Since 2023, the "Peak Year" for construction, is already upon us, and since construction is estimated to take 8-9 years, what years are now projected for construction?

4494-9744

3.18-14 Why confine the RSA to the current DEIR regional information and at the same time predict substantial environmental changes from growth resulting from construction of the project?

4494-9745

3.18-28 How is HSR an environmental advantage over the No Project Alternative, when the 8 – 9 year construction environmental effects for building HSR are factored in?

4494-9746

3.18-29 Wouldn't use of High-Speed Rail, even using current figures, be cost prohibitive at $15,800 a year for most workers taking HSR trains from Palmdale to Los Angeles?

4494-9747

3.18-30 Although CEQA cannot affect housing that has not been built, the growth cited as a result of housing needs connected with HSR use could indirectly affect the environment. How can those effects be ignored when future train use and operation is being counted?

CHAPTER 4

CHAPTER 4: SECTION 4(F) AND 6(F) EVALUATIONS SUMMARIZES IMPACTS TO PARKS, WILDLIFE REFUGES, AND HISTORIC PROPERTIES IN ACCORDANCE WITH SECTION 4(F) OF THE DEPARTMENT OF TRANSPORTATION ACT OF 1966 AND SECTION 6(F) OF THE LAND AND WATER CONSERVATION FUND ACT

4494-9748

Under Section 4(f), an operating administration of the U.S. Department of Transportation may not approve a project that uses protected resources, unless one of the following conditions is met:

- There is a finding of *de minimis* impact for use of a resource; or
- If there are no prudent or feasible alternatives to such use, and the project includes all possible planning to minimize harm to such resources.

Question: CHSRA previously considered numerous other alignments to connect the Palmdale and Burbank Stations, but eliminated them from consideration for political reasons (i.e., not geotechnical reasons). Given that there exist numerous prudent and feasible alternatives, why should the U.S. DOT approve the high-speed rail project?

4494-9749

On Page 4-2 of the DEIR, CHRSA states that it, "proposes to classify identified property uses as *de minimis*; therefore, further analysis of feasible and prudent Build Alternatives and measures to minimize harm and a least harm analysis have not been prepared."

What is a de minimis *impact?*

The Illinois Department of Transportation defines it as follows: "A *de minimis* impact means that the activities, features, or attributes of the property under protection of section 4(f) (for this project, Pyramid Park) **will not be adversely affected** by the transportation project."[110]

The U.S. Department of Transportation Federal Highway Administration defines de minimis as follows: "For publicly owned public parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact is one that **will not adversely affect** the activities, features, or attributes of the Section 4(f) property."[111]

Question: Given that at least portions of the Angeles National Forest, the San Gabriel Mountains National Monument, the Pacific Crest Trail, the Rim of the Valley Trail Extension, and the Hansen Dam Open Space

[110] https://idot.illinois.gov/Assets/uploads/files/IDOT-Projects/District-9/IL-37-to-IL-148/Section%204(f).pdf
[111] https://www.environment.fhwa.dot.gov/env_topics/4f_tutorial/overview.aspx?b=e

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4494-9749 qualify as properties under the protection of Section 4(f), how can CHSRA state that it will not adversely affect these resources? CHSRA has proposed myriad mitigation measures in order to offset the adverse effects that it will be causing to these resources.

4494-9750 On Page 4-3 of the DEIR, CHSRA states that it is released the following draft Section 4(f) statement for comment pursuant to 3 U.S.C. 237, 23 C.F.R. Part 774, and the NEPA Assignment MOU:

> The Authority may not approve the use of a Section 4(f) property, as described in 49 U.S.C. 303(c), unless it determines that **there is no feasible and prudent alternative to avoid the use of the property** and the action includes all possible planning to minimize harm resulting from such use, or the project has a *de minimis* impact consistent with the requirements of 49 U.S.C. 303(d) (see Section 4.1.4.4 for a definition of *de minimis* impacts). An alternative is not feasible if it cannot be built as a matter of sound engineering judgment. In determining whether an alternative is prudent, the Authority may consider if the alternative would result in any of the following:
>
> i. The alternative does not meet the project's stated Purpose and Need;
> ii. The alternative would entail unacceptable safety or operational problems;
> iii. After reasonable mitigation, the alternative would result in severe social, economic, or environmental impacts; severe disruption to established communities; severe disproportionate impacts on minority or low-income populations; or severe impacts on environmental resources protected under other federal statutes;
> iv. The alternative would require additional construction, maintenance, or operational costs of an extraordinary magnitude;
> v. The alternative would pose other unique problems or unusual factors;
> vi. The project would entail multiple factors that, while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

Question: As stated previously, CHSRA considered, studied, and rejected numerous alignments. Under what reasoning can CHSRA conclude that there is no feasible and prudent alternative to avoid the use of Section 4(f) properties?

Question: Considering the six Build Alternatives CHSRA has presented in the DEIR, each of the six entails unacceptable safety and operational problems due to crossing numerous faults in a tunnel. The magnitude of these problems has not been sufficiently studied, as CHSRA has placed the burden of such research on contractors yet to be hired. Using its own guideline (ii) as set forth above, how can CHSRA **not** eliminate the six Build Alternatives from consideration?

Question: Considering the previous examinations of the impacts on the Angeles National Forest, the San Gabriel Mountains National Monument, the Pacific Crest Trail, the Rim of the Valley Trail Extension, and the Hansen Dam Open Space, it follows that the six Build Alternatives will cause severe impacts on environmental resources protected under other federal statutes. Using its own guideline (iii) as set forth above, how can CHSRA **not** eliminate the six Build Alternatives from consideration?

Question: Considering that the costs of tunneling through the San Gabriel Mountains are multiple times the cost of building a train system at grade to follow existing freeways, each of the six Build Alternatives would require additional construction costs of an extraordinary magnitude. Using its own guideline (iv) as set forth above, how can CHSRA **not** eliminate the six Build Alternatives from consideration?

Question: Considering the cumulative impacts of the six Build Alignments as detailed in 7,000 pages of this DEIR, the project cumulatively causes impacts of extraordinary magnitude. Using its own guideline (vi) as set forth above, how can CHSRA **not** eliminate the six Build Alternatives from consideration?

4494-9751 In a footnote on Page 4-3 of the DEIR, CHSRA states that:

4494-9751

> "The Authority cannot make any determination that an action constitutes a constructive use of a publicly owned park, public recreation area, wildlife refuge, waterfowl refuge, or historic site under Section 4(f) without first consulting with FRA and obtaining FRA's views on such determination. Thus, any determinations of a constructive use by the Authority would be preliminary only. The Authority will provide FRA written notice of any proposed constructive use determination, and FRA will have thirty (30) calendar days to review and provide comment. If FRA objects to the constructive use determination, the Authority will not proceed with the determination."

Question: What is a constructive use?

According to 23 Code of Federal Regulation § 774.15 (Constructive Use Determinations):

> "A constructive use occurs when the transportation project does not incorporate land from a Section 4(f) property, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the property are substantially diminished."

Although CHSRA has presented justifications as to why certain sections of the Angeles National Forest, the San Gabriel Mountains National Monument, the Pacific Crest Trail, the Rim of the Valley Trail Extension, and the Hansen Dam Open Space do not qualify for Section 4(f) protection, surely these areas then fall under the category of constructive use.

4494-9752 **Question**: Given the six Build Alternatives and CHSRA's evaluation of the various resources as being applicable or not applicable for protection under Section 4(f), in what locations does CHSRA intend to notify the FRA of proposed constructive use determinations?

4494-9753 On Page 4-4 of the DEIR, CHSRA explains that, "the FRA must also compare the alternatives to determine which alternative has the potential to cause the least overall harm in light of the preservationist purpose of the statute."

Question: Given that the No Project Alternative is the only one of the seven alternatives studied in the DEIR that will NOT cause harm to Section 4(f) resources, on what grounds would the FRA select any of the six Build Alternatives instead of selecting the No Project Alternative?

4494-9754 On Page 4-45 of the DEIR, CHSRA lays out its rationale for why it believes the majority of the Angeles National Forest should not qualify for protection under Section 4(f). Table 4-3 summarizes the Land Use Categories within the ANF and whether or not certain Land Uses are suitable or not suitable within each Category. Table 4-3, reviewed in conjunction with CHSRA's rationale on Page 4-45, highlights CHSRA's hypocrisy with respect to land use.

On Page 4-45, CHSRA asserts that because Back Country/Motorized Use Restricted zones and Back-Country/Non-Motorized zones allow for "communication sites by exception," they would not qualify for protection under Section 4(f). Table 4-3 demonstrates that in both Back Country/Motorized Use Restricted zones and Back Country/Non-Motorized zones, Major Transportation Corridors are NOT SUITABLE. Additionally, the USFS has determined that Back-Country/Non-Motorized zones are also NOT SUITABLE for the following land uses: Major Utility Corridors, Road Construction, and Developed Facilities.

Figure 4-7 is an overlay map that demonstrates the six Build Alternatives and their geographical relation to the various Land Use Categories within the ANF and the Monument. The six Build Alternatives go through many Land Use Categories, including Back Country/Non-Motorized and Back Country/Motorized Use Restricted.

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4494-9754

Question: If CHSRA is relying on the designations set forth in Table 4-3 as a rationalization for why major portions of the Forest are not protected under Section 4(f), by the same logic, shouldn't the high-speed rail system not be permitted within the Forest as the six Build Alternatives each go through the two Back Country zones which do not permit transportation corridors as an acceptable land use?

4494-9755

Beginning on Page 4-75 of the DEIR, CHSRA catalogues the various Section 4(f) resources and sets forth its rationale for concluding that both Permanent Use (i.e., when a portion of the resource will be permanently incorporated into a transportation project) and Temporary Occupancy (i.e., the resource will only be impacted during a temporary period of time, such as during construction) of these resources is *de minimis*.

At the outset of these evaluations, it is worth noting that we do not believe that any of the CHSRA proposed uses qualify as "Temporary Occupancy." Per CHSRA's definition as set forth in Section 4.1.4.2 of the DEIR:

> A temporary occupancy of a Section 4(f) resource occurs when a Section 4(f) property is required for construction-related activities. Temporary occupancy would be considered use if the property is not permanently incorporated into a transportation facility, but the activity is considered adverse in terms of the preservationist purposes of the Section 4(f) statute. However, a temporary occupancy of property does not constitute a use of a Section 4(f) resource when the following conditions are satisfied:
>
> i. The occupancy must be of temporary duration (i.e., shorter than the period of construction) and must not involve a change in ownership of the property.
> ii. The scope of work must be minor, with only minimal changes to the protected resource.
> iii. There must be no permanent adverse physical impacts on the protected resource or temporary or permanent interference with activities or purpose of the resource.
> iv. The property being used must be fully restored to a condition that is at least as good as existed before project construction.
> v. There must be documented agreement of the appropriate OWJ over the resource regarding the foregoing requirements.

Given that CHSRA proposes to construct the largest infrastructure project in the State of California (and one of the largest in the United States), it is not reasonable for CHSRA to assert that its scope of work will be minor, with only minimal changes to the protected resource. In this DEIR, CHSRA includes thousands of pages of proposed mitigation measures intended to address the vast scope of changes/impacts that will be inflicted on the Section 4(f) resources.

Question: Given the foregoing, how can CHSRA assert that any of its uses qualify as Temporary Occupancy of Section 4(f) resources?

4494-9756

In evaluating the resources, it is worth restating the definition of *de minimis:*

> A *de minimis* impact means that the activities, features, or attributes of the property under protection of section 4(f) (for this project, Pyramid Park) **will not be adversely affected** by the transportation project. [112]

On Page 4-75 of the DEIR, CHSRA describes the impacts/changes to the Pacific Crest Trail. Figure 4-21 shows the geographical relation of the Build Alternatives vis a vis the proposed realignment of the Pacific Crest Trail as well as the existing Pacific Crest Trail. In both cases, the Build Alignments introduce significant infrastructure that literally crosses the Pacific Crest Trail – specifically, an elevated/aerial structure which will carry a high-speed train, which hikers will presumably have to cross underneath in order to continue on the

[112] https://idot.illinois.gov/Assets/uploads/files/IDOT-Projects/District-9/IL-37-to-IL-148/Section%204(f).pdf

4494-9756

trail. This infrastructure represents a change in character to the portion of the project in proximity to the train. Yet somehow, CHSRA concludes that its Permanent Use of the Pacific Crest Trail is *de minimis*.

Question: How can the introduction of major infrastructure crossing the Pacific Crest Trail not be considered an adverse effect?

4494-9757

On Page 4-78, CHSRA describes its uses of the San Gabriel Mountains National Monument, including: an at-grade covered tunnel and portal which would be constructed within the Monument boundary (in/around the Vulcan Mine); construction activities, grading, utility installation, and roadway work (in/around Aliso Canyon); the construction of tunnel portals along with an elevated viaduct across the creek (in/around Aliso Canyon). CHRSA has concluded that the impacts on the Monument are *de minimis* on the grounds that effects, "would not substantially change the attributes or functions of the SGMNM."

Again, CHSRA is relying on the sheer acreage of the Monument and of the Forest to claim that because its activities are limited to a small percentage of acreage of the total, its impacts are *de minimis*.

Question: What would be the reasoning why the Officials with Jurisdiction for each resource should not consider impacts to the area immediately affected by the high-speed rail (i.e., the resource study area) as opposed to considering impacts to the entirety of the Monument and/or the ANF?

4494-9758

In Figures 4-22 and 4-23, CHSRA sets forth the following temporary and permanent improvements that would be constructed as part of its Build Alignments within the ANF and/or the Monument:

1. Permanent adit(s) within the ANF boundary
2. Construction staging area(s) ranging from 28-33 acres associated with the adit(s)
3. Permanent utility easements and the installation of overhead utility lines and electrical utility poles
4. Temporary water lines
5. Permanent ventilation/access building

CHRSA has again concluded that its impacts are *de minimis*. One factor is the categorization of areas within the ANF as not qualifying for protection under Section 4(f). The problem with this determination is that CSHRA's infrastructure elements are inextricably linked. CHSRAs tunnels all go through areas that qualify for Section 4(f) protection. Those tunnels necessitate infrastructure, which CHSRA has intentionally placed either at the borders of protected areas or immediately outside the borders of protected areas. At minimum, this would place those areas under the jurisdiction for protection under Constructive Use.

Question: When considering impacts within Section 4(f) resources, if the high-speed train tunnels through a Section 4(f) resource, shouldn't the Officials with Jurisdiction also consider the related infrastructure when determining whether or not an impact is *de minimis?*

4494-9759

On Page 4-92 of the DEIR, CHSRA addresses Temporary Occupancy of the Rim of the Valley Trail (Proposed Extension). Impacts include the following:

1. Two temporary construction areas of approximately 500 feet and 250 feet; and
2. A temporary construction area of approximately 23 acres; noting that
3. All six Build Alternatives would require construction activities adjacent to and within segments of the Trail extension.

CHSRA goes on to say that: "For the purposes of Section 4(f), such temporary occupancy of a Section 4(f) resource does not constitute use if each of the five conditions listed in 23 C.F.R. 774.13(d) are met (listed in Section 4.1.4.2)."

The second of the five conditions is as follows: "ii. The scope of work must be minor, with only minimal changes to the protected resource."

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4494-9759

On Page 4-92, CHSRA somehow maintains that the scope of work in proximity to the Rim of the Valley Trail Extension is minor. Construction staging areas occupying >20 acres, combined with construction activities generating noise, dust, vibration, etc. for a period of 7 or more years cannot be considered "minor" according to any reasonable evaluation.

Question: On what grounds should the Officials with Jurisdiction conclude that the five conditions listed in 23 C.F.R. 774.13 have been met, when any reasonable person would conclude that CHRSA has failed to meet the second of the five conditions?

4494-9760

On Page 4-93 of the DEIR, CHRSA asserts that its Permanent Use of the Hansen Dam Open Space area would be *de minimis*. CHRSA's justification for this decision is comprised of the following factors: (i) CHRSA will be permanently taking "only" 13 acres of the resource; despite visual and noise-related impacts from the elevated viaduct structure, the open space would "remain open and available to the public."

As explained in our evaluation of Chapter 3.15, equestrians (both those utilizing the trail system and those utilizing the Hansen Dam Horse Park) will be significantly impacted by the introduction of an elevated structure carrying a high-speed train – to the point that we expect use of these facilities to decrease, both during construction and operation of the train.

Question: Recalling that a *de minimis* impact means that, "the activities, features, or attributes of the property under protection of section 4(f) **will not be adversely affected** by the transportation project," how can CHRSA claim that (i) the taking of 13 acres of land is not an adverse impact; and (ii) the ability of the resource to be utilized and enjoyed by equestrians will not be adversely impacted?

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4494-9763

CHAPTER 5

CHAPTER 5 AND APPENDIX 5-A: ENVIRONMENTAL JUSTICE

4494-9761

"Minority includes persons who are American Indian, Alaskan Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian and Other Pacific Islander and other individuals who are one other or two or more races." Low Income constitutes "a person whose median household income is at or below the Department of Health and Human Services' poverty guidelines." General Plans of areas involved date from 1993 (Palmdale) to 2035 (Burbank). After reviewing 10 plans and 20 policies, the Authority found only health impacts, displacement and unavailable replacement units in L.A. City inconsistent with requirements.

Census block groups with the highest minority populations include Sylmar, Pacoima, and Sun Valley for the SR14, 14A, E1A, and E1 routes while E2 and E2 A have fewer EJ residents. Lake View Terrace has two low-income census groups. Census block groups are defined as EJ or non-EJ blocks. Census figures are used from 2010-2014 instead of 2020 figures.

The case against the No Project Alternative argues that by 2040 other projects requiring environmental authentication would have been built in the RSA. These unknown projects could have negative effects upon citizens. Meanwhile, the only adverse effects upon Environmental Justice communities in the Build Alternatives would be from transporting spoils, displacements of businesses aesthetics and visual quality and, in several cases, community cohesion.

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4494-9765

Chapter 5 proceeds to skim through most of the Chapter 3 sections with each of the Build Alternatives and a statement at the end of each: "Construction of each of the six Build Alternatives would not result in any adverse fill in blank (hydrology and water resources, hazardous materials and waste, safety and security, Parks, Recreation, and Open Space, Cultural Resources) effects." Since mitigations from these areas would be implemented, there would be no effects. Because there is a plan, there is an assumption that there would be

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4494-9761

no adverse results. Most business displacements (70-80%) would take place in environmental justice communities. Many Pacoima and Sun Valley environmental justice displaced businesses would need to relocate out of their area. Much of this is also covered in Section 3.12: Socioeconomics and communities. Only one EJ community in Lake View Terrace would lose cohesion. There are permanent adverse Aesthetic and Visual effects in all six Build Alternatives. Adverse effects in EJ and non-EJ communities vary from four in the SR14 to eight in E2A. There would be adverse cumulative effects from spoils hauling for all Build Alternatives.

The High-Speed Rail Authority would see that EJ workers receive training through union programs and public assistance. 30% of construction dollars would come to small businesses. Resource topics with adverse effects on EJ communities are summarized with mitigation solutions: transportation (provide a management plan, widen intersections, provide turn lanes), air quality and global climate change (future reduction of intercity trips), safety and security (signals and ATC systems), and socio/economics (job training).

Despite the mitigation attempts, the Authority states that they have preliminarily concluded that, "…even after applying these measures, there remains a disproportionately high and adverse effect on minority and/or low-income populations from business displacements (all six Build Alternatives), and community cohesion (E2, and E2A Build Alternatives)."

Questions:

4494-9762

Page 5-14 If "All determinations are preliminary and subject to revision after any new information, public comment, or EJ input received after the release of the Draft EIR/EIS" as stated is correct, then how is the EIR/EIS to become final? How is the public to continue to provide more input?

4494-9763

Page 5-15 If "meetings have already been held "with representatives affecting the low-income population along the Build Alternatives, when, where, and with whom were those meetings conducted?

Page 5-41 How many meetings that included low-income residents took place since 2014? Specifically what outreach efforts have taken place in EJ communities since 2019? How many of these meetings have been in-person as opposed to virtual meetings?

Page 5-48 Although the document references six meetings taking place in 2019 in six different areas, has any additional personal contact occurred since the DEIR became public?

4494-9764

5.7.1 How can suppositions about the No Project Alternative be made about the unknown?

Page 5.50 Where in the No Project Alternative RSA would there be population growth when there is lack of land for moving displaced people with the other Build Alternatives?

5.7.1.3 Considering the anticipated high-speed noise and vibration during the 8-9 years of construction that could impact low-income RSA, with traffic carrying spoils on the 5 Freeway and then later noise and vibration at grade from trains in operation, how can the No Project Alternative be more problematic?

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5.50 What specific projects affecting EJ are expected with the No Project Alternative? Are the projects purely speculative?

4494-9766

5.51 Considering the goal of California vehicles to be electric by 2035, how would traffic likely to be different from that predicted from each of the six Build Alternatives?

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4494-9767 **5.7.1.5** How would water resources, drainage, erosion, and storm water run-off for any future development for the No Project Alternative compare to water used for construction in Build alternatives?

4494-9768 **Page 5-51** What hazardous materials could be used for development affecting the No Project Alternative by 2040 in the RSA? Given the limited space for rebuilding for displaced businesses, how could a quantity of possible No Project Alternative materials compare with high-speed rail construction? What specific "lands with existing environmental concerns" are present in the area?

4494-9769 **Page 5-52** The DEIR states, "Given that extensive tunneling would likely not be required, the No Project Alternative would be unlikely to generate similar quantities of hazardous spoils." Could this statement be an argument in favor of the No Project Alternative?

4494-9770 **5.7.1.7** What are the current delays in emergency responders that would continue with the No Project Alternative?

4494-9771 **5.7.1.8** According to the 3.12 Socio/Economic of the DEIR, several communities would become divided. What evidence is there that this would happen with the No Project Alternative?

4494-9772 **5.7.1.11** What are examples of proposed projects for the No Project Alternative?

4494-9773 **Page 5-55** What effect will extra lanes in roads and added quantity of trucks have upon the roads themselves? What kinds of repairs will likely be needed as a result of weighted truck traffic?

4494-9774 **Page 5-56-61** What are several specific examples from several block groups with EJ population where roadwork affected by high-speed train spoils would change traffic circulation as opposed to the No Project Alternative? How temporary would these spoils-related traffic effects be?

4494-9775 **Page 5-62** Do pollution offsets purchased through the Cap & Trade program by the Authority decrease pollution affecting the local population? If offsets are not available, what difference does that make as far as air quality is concerned?

4494-9776 **Page 5-63** Does a fugitive dust plan further deplete California's water resources? Will trucks be powered by batteries rather than gas to reduce air pollution? How realistic is utilizing this new technology of EV trucks since it's unknown if contractors will be able to purchase a large enough fleet?

4494-9777 **Page 5-64** How can truck traffic be routed away from residential streets? What are at least 5 examples from 5 different neighborhoods? For how many years will noise and vibration persist during construction? How will workers be protected from noise and vibration?

During operation what "further analysis" of from N&V-MM#6 might be made for validity? If mitigations are in place, yet are not meeting federal and state regulations, what will follow for public protection? How can a contractor know the effectiveness of mitigations before production?

4494-9778 **5-7.2.4** Would people with medical implants and equipment be screened in the same manner as airline screening?

4494-9779 **Page 5-65** Where will groundwater basins be constructed? Have floodplains been identified? How many replacement groundwater recharge areas will be provided? How much water will be used for the tunnel construction?

4494-9780 **5.7.2.6** Where will hazardous materials be stored? At what point during construction will hazardous waste be identified? What is the State threshold for hazardous substances in the Health and Safety Code?

What kinds of hazardous substances could arise during operation?

4494-9781 **Page 5-66** What kinds of injuries/deaths have occurred during construction so far?

What are examples of accidents possible during tunnel construction?

Would contractors be providing Safety and Security Management Plan for each site?

4494-9782 **Page 5-67** Is Valley Fever airborne? If so, how far could it be carried, especially during Santa Ana winds? How are workers protected from Valley Fever? How many workers have gotten Valley Fever during High-Speed Rail construction? How can residents and facilities more than 0.25 mile avoid Valley Fever?

Will there be detours on the 14, 5, or 210 Freeways?

Since wildfire, earthquakes, flood, and landslides are considered local, how will the Authority be interfacing with local regions during emergencies?

4494-9783 **Page 5-68** Is there any special funding to assist displaced businesses who fall in the EJ category?

4494-9784 **Page 5-72** Would the Community Benefits Agreement be geared at all to EJ job seekers? How would it work? Are there other programs to help EJ displaced workers?

4494-9785 **Page 5-77** Where would the new jobholders of "5,400 direct, indirect, and induced jobs in Los Angeles County" live?

4494-9786 **Page 5-78** What is a "trail facilities plan?" What are examples of "permanent changes" to parks?

If adverse effects to parks are not sufficiently mitigated and new parks are necessary, who will locate land and pay for new parks?

4494-9787 **Page 5-86** What makes a "physical change severe?" Wouldn't viewers' "sensitivities" vary?

4494-9788 **Page 5-87** In addition to architectural resources with history, could cultural objects be found during excavation? If so, how will they be recognized and preserved? In addition to noise and vibration effects on the Blum Ranch farmhouse, how would produce farmed on the property be affected?

4494-9789 **Page 5-88** Stating that because displacement, visual effects, and loss of community cohesion, which are adverse effects, are localized and not seen in "foreseeable projects," discounts their importance and severity. How can that thinking be justified?

4494-9790 **Page 5-93** If a "disproportionately high and adverse" effect can be addressed further in the final EIR, why can it not be addressed in the draft version? What further mitigation measures are possible?

4494-9791 How is it possible to predict future transportation needs without knowing and taking into consideration current Los Angeles City light rail and Metrolink plans for the northeast San Fernando Valley?

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4494-9792 **Page 5-96** What are several specific examples of how local intercity vehicle trips would be reduced along freeways through the High-Speed Rail system, especially with commuter traffic with destinations other than High-Speed Rail stations?

4494-9793 To what extent can anyone predict real ridership of High-Speed trains, keeping in account needed destinations and ridership costs?

4494-9794 How would EJ communities in Sun Valley, especially those being displaced, benefit from the Burbank Airport Station?

4494-9795 Where specifically would training for new workers take place? After training, how long might a specific job last?

4494-9796 What construction packages were awarded in 2013? How many EJ workers were hired? How many workers does a contractor of a construction package oversee?

4494-9797 **Page 5-97** How many years would spoils-related traffic continue through construction?

4494-9798 **Page 5-98** Since new locations for EJ displaced business can't be mitigated and workers from the area are to be trained for jobs, where can former businesses and training be found?

4494-9799 How will the Authority advertise SO-MM#2 to receive input from residents in Lake View Terrace who have lost community cohesion?

4494-9800 **Page 5-99** Mitigations for aesthetic impairment suggest planting, screening stations and towers, and minimizing noise. Who would be responsible for permanent preservation and upkeep of plants? What materials would be provided for screening stations and towers? How would the screens be protected from graffiti? What noise, in particular, would need minimizing? Would it come from train operation as well as construction?

4494-9801 Does saying that adverse, unmitigable effects affect both EJ and non-EJ groups suggest that these effects are less adverse?

4494-9802 **Page 5-101** Should the DEIR be subject to change also due to population changes in the years between dates used for the DEIR and actual construction, especially since these dates may differ more than 10 years in addition to climate changes?

4494-9803 How much current congestion is caused by traffic between Palmdale and Burbank?

APPENDIX 5-A: ENVIRONMENTAL JUSTICE OUTREACH PLAN

4494-9804 As required by Title VI of the amended Civil Rights Act of 1964 and Executive Order 12898, "each Federal agency shall make achieving EJ part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States." In response, the Authority states that it, "*recognizes how important provisions of existing environmental, civil rights, civil, and criminal laws may be used to help reduce environmental impacts in all communities and environmental justice on the human element. The Authority has included environmental justice considerations in its planning for the statewide high-speed rail system since 2000, when it commenced a programmatic environmental review process." (California High-Speed Rail Authority, Title VI Annual Accomplishments Report, 2015).* Under Executive Order 13166 (August 11, 2000) services must be provided to Limited English speakers.

4494-9804 Tables using 2010-2014 census figures give demographics, age, population, Limited English Proficiency, linguistic isolation, and median household income are given for each Build Alternative. A list containing national, state, and/or County and City organizations that serve Environmental Justice communities follows with the statement that they will be "regularly tracked." An Outreach Team is to coordinate community events, take notes, and share feedback.

Questions:

4494-9805 **5-A-2** Beginning with 2016 and continuing through 2022. what specific dates and locations involved low income and EJ populations, including meeting community organizations; publishing information in local newspapers; contacting religious leaders and business groups?

What was the attendance at each meeting?

What additional groups were then contacted as a result of the above meetings?

Should this outreach not have already occurred before drafting an EIR that chooses a final route?

Who conducts these meetings?

Is there a list of documents to be prepared? What is on the list?

4494-9806 **5-A-3** What part in the decision-making process do EJ participants have?

How does the decision-making work?

How can communities be engaged in changing air quality?

What are examples of "tools, training, and resources" that CHSRA is using with LEP people?

4494-9807 **5-A-6** If "Many of these communities are experiencing rapid change," why is the DEIR using census figures from 2010-2014 when census data from 2020 is available in 2022?

4494-9808 **5-A-9** What area are the L. A. City figures encompassing? Shouldn't they be for the area along each Build Alternative?

4494-9809 **5-A-12** What is meant by "tracked and updated to the master Project Section database?" Is each organization to be contacted, or is it just part of a list? Will representatives from the Authority bring the groups to the community affected and, if so, at what point in the build process will this occur?

4494-9810 **5-A-15** What is expected from the list of organizations? What kinds of services are the EJ communities most likely to need? Which organizations do not look useful for the residents in each EJ Build Alterative?

4494-9811 **5-A-16** At what point in the construction process will EJ residents be informed of meetings?

Where will meetings occur?

What are examples of feedback expected from them?

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4494-9811

What specifically EJ advocacy groups will be contacted? What is expected from them?

How can activities be included in the DEIR with its current deadline of 12/1/22?

Is there a specific Dept. of Justice guideline intended to be used?

4494-9812

5-A-17

Will directors be documenting attendance at gatherings? Is there a percentage of the populace that is considered healthy for attendance levels?

What methods would be used for follow-through? Are there examples from previous High-Speed Rail interfacing in other areas?

In reality, how many meetings might actually occur? Will construction have begun before these meetings take place?

5-A-19

How much advance notice will EJ communities receive before meetings?

Will schools be used for meetings?

How many translators will be at meetings?

Will residents be able to meet in small groups to express opinions?

Will contractors be present?

How will the summaries be used?

What is an example of a Project Section milestone?

Will attendees at meetings be personally notified before subsequent meetings?

4494-9813

5-A-20

How well attended and successful have webinars been in the past with EJ groups?

4494-9814

To what extent is the Authority aware of Native American locations of importance, in particular near Little Tujunga Road, for example?

4494-9815

How will contractors instruct workers to recognize artifacts from Native tribes during digging?

4494-9816

How often will Titleholder Working Group meetings be held?

4494-9817

How well has this system worked in other HSR areas, the Central Valley, for example? What has been learned from previous meetings there?

CHAPTER 6

CHAPTER 6: PROJECT COSTS AND OPERATIONS
APPENDIX 6-A: HIGH-SPEED RAIL OPERATING AND MAINTENANCE COST FOR USE IN EIR/EIS PROJECT-LEVEL ANALYSIS

4494-9818

Capital Costs

There are a multitude of problems with this document, the most pervasive being CHSRA's use of different years' estimates ranging from 2015 to 2018. This is further exacerbated by their inconsistent use of stated year versus a "year of expenditure" year. For example, if 2018 is listed, that means the estimate is in 2018 dollars as if it were to be constructed in 2018. 2018$YOE means that the cost includes estimated cost escalations and inflation. The DEIR sometimes uses the year and sometimes uses the YOE, so that it's profoundly difficult to compare apples to apples.

Although the most recent business plan was approved for 2022, no current estimates are used from this latest business plan. Instead, the Authority relies on stale numbers which do not include inflation at the highest rate in decades due to the pandemic's effect on supply chain problems. In addition, the cost of fuel is at its highest point in recent history, and fuel cost is the main driver of price increases across-the-board. 2018, the most recent year for any projection contained in the DEIR, was an entire year prior to the pandemic that threw the entire world into economic chaos which is still being experienced worldwide today. Russia's ongoing war on Ukraine is disrupting the global energy market, resulting in worldwide inflation with an unknown outcome. These drivers alone will increase the capital cost if and when the project is built.

If confronted with this obvious outdated estimate, CHSRA will state that they will rely on their contingencies contained in each cost category to allegedly remedy escalations or inflationary components. However, their contingencies range from 10% to 25%, which as we know today, will probably not be sufficient. Currently, annual inflation is nearly 10% -- in just one year. With no relief from escalating oil prices due to the Russian invasion of Ukraine and OPEC's cut in oil production, compounded inflation will probably be an issue for the next few years.

On page 1, this section states:

> *"The sections below discuss both capital costs and O&M costs estimating methodology, assumptions, and costs. Additionally, vehicle and O&M[113] costs are based on the Authority's 2016 Business Plan for consistency with the environmental impact analysis."*

A footnote states there were few changes from the 2016 business plan compared to the 2018 and the 2020 business plans. But what about the 2022 business plan? The DEIR should rely on the latest available data, especially financial, for a DEIR which, when approved, will govern the project in its entirety. The lack of effort in updating the DEIR with the most updated information is a symptom of being lazy or deceitful or possibly both, especially in light of the fact that this project will be one of the most, if not the most, expensive infrastructure project in the history of the United States.

Depending on the cost category, CHSRA cherry picks which financial data they use. For example, O&M utilizes 2016 data, while just a few pages later, 2018 dollars are used for capital expenditures.

[113] O&M means operations and maintenance and are not part of the capital costs

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4494-9818

There are three components of costs for this project:

1. Construction-Capital costs
2. Operations and Maintenance-Long term, ongoing costs
3. Finance charges

Table 6-1 Estimated Capital Costs of the Palmdale to Burbank Project Section Build Alternatives (2018$ in millions)

Authority Cost Category	Refined SR14 Build Alternative	SR14A Build Alternative	E1 Build Alternative	E1A Build Alternative	E2 Build Alternative	E2A Build Alternative
10 Track structures and track	$12,723	$13,568	$13,267	$13,667	$13,525	$14,086
20 Stations, terminal, intermodal[1,2]	$636	$640	$573	$637	$661	$624
30 Support facilities: yards, shops, administration buildings[3]	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
40 Sitework, right-of-way, land, existing improvements	$4,846	$5,472	$4,459	$4,867	$4,074	$4,139
50 Communications and signaling	$175	$189	$173	$182	$184	$159
60 Electric traction	$249	$256	$237	$238	$213	$214
70 Vehicles	Considered a systemwide cost and not included as part of the Build Alternatives within individual project sections					
80 Professional services	$2,950	$3,189	$2,985	$3,110	$3,036	$3,138
90 Unallocated contingency[4]	$801	$861	$803	$834	$799	$824
100 Finance charges	Estimate to be developed prior to project construction.					
Total[5]	$22,400	$24,075	$22,497	$23,370	$22,473	$23,184

The total of $24,075 in 2018$ (not YOE) in Table 6-1 is more than the 2020 and 2022 YOE$ $16,775 in Table 22 below (from the 2022 Business Plan Capital Cost Basis of Estimate).

Table 22 Palmdale to Burbank Cost Estimate

Palmdale to Burbank	2020 Business Plan (YOE$, Millions)	2022 Business Plan (YOE$, Millions)
TOTAL:	16,775	16,775

Question: How can the 2018 cost be more than the Year of Expenditure 2022? (since the YOE should be higher because it includes inflation and escalations.)

Capital Cost Comparison Between CHSRA Source Documents
Palmdale to Burbank SR14A

	DEIR (2018 Bus Plan)	2020 and 2022 Bus Plan YOE
$ in Millions	$24,075	$16,775
$ Difference from DEIR		-$7,300
% Difference		-30%

4494-9819

Chapter 6 and its appendices address only the capital costs and exclude finance charges. It can be argued that finance charges are indeed a component of capital costs and must be included in the total. When one takes out a vehicle loan, the finance charges are a line item, and are definitely part of the total liability. They cannot simply be excluded. For example, the $9.95 billion bond liability alone will generate interest charges of around $9.5 billion, bringing the total for principal and interest to $19.9 billion.

Another mind-boggling exclusion from capital costs are:

> *"Support facilities associated with the project, including equipment yards, shops, and administration buildings, are not included in the capital cost estimates."* (Emphasis added.)

We do know that Business Plans exclude finance charges, so the $105 billion budget (originally $33 billion in 2008) is grossly understated. If a station is included in project section EIRs (which they are), then equipment yards, shops, and administration buildings within each project section should also be included.

Question: Why are these equipment yards, shops, and administration buildings excluded?

Question: Does that mean that the $105 billion is project cost contained in the 2022 Business Plan is understated?

Question: Are those costs excluded from project sections and included in another budget similar to the rolling train stock?

Question: What else is excluded?

4494-9820

CHSRA's numbers are suspect. They pick and choose which year(s) to include in the DEIR thinking that no one will check. Then, they mix that confusion with excluding billions in real, tangible costs from the overall budget. In some documents, they use 2029 as a Phase I operational base year. In others they use 2033 as a Phase 1 operational base year. Because of the mountain of delays of this project, 2033 (another published year) is likely the most accurate base year. Further, their use of dollars in a stated year in one document, and then using the Year of Expenditure in another document is inconsistent and confusing.

Question: Why did CHSRA not bother to use the most recent cost estimates since they were readily available (from the 2022 Business Plan)?

Question: Why did CHSRA not use consistent cost bases?

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4494-9821

APPENDIX 6-A – O&M COSTS

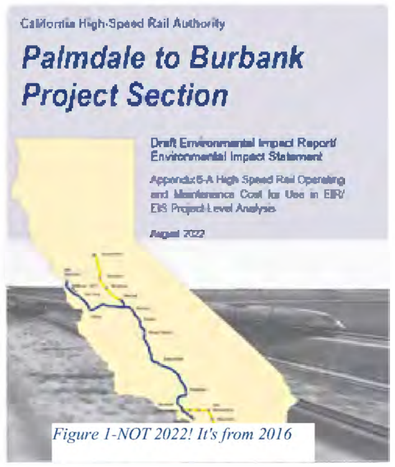


Figure 1-NOT 2022! It's from 2016

CHSRA presented differing document names making it confusing to identify the most recent pertinent document. For example, the document entitled, "High-Speed Rail Operating and Maintenance Cost for Use in EIR/EIS Project Level Analysis Memorandum (2017)" was cited in another chapter as a document for "more information." A Public Records Request was initiated for this document but the document provided was actually already part of the DEIR but listed under a new name, "Appendix 6-A High-Speed Rail Operating and Maintenance Cost for Use in EIR/EIS Project Level Analysis." When questioned, CHSRA responded via email, "They are actually the same document. If you scroll past the cover page, which says August 2022, and get to page three of the PDF, you will see it is a four-page memorandum dated February 2017."

This four-page memorandum states:

"This memo summarizes the assumptions used to estimate full system high-speed rail (HSR) operations and maintenance (O&M) costs published in the California High-Speed Rail Authority's 2016 Business Plan." (Emphasis added.)

So, it's not from August 2022. It's not even from 2017. It's from the 2016 Business Plan. They merely slapped a new cover on an old document to make it appear current even though the data is six years old.

Question: Is this laziness, sloppiness, or deception?

4494-9822 As bad as it is for CHSRA to state their costs based on 2016 business plan dollars, it's even more atrocious that for most of the remainder of the O&M document, CHSRA relies on 2015 dollars. *2015 dollars*. Barack Obama was still President. The pandemic was still 4 years in the future, and inflation was low. What cost $100 in 2015 now costs $122.49—so how can anyone believe the stated costs in this DEIR are even close to accurate?

4494-9823 Then, there's the inability to compare apples to apples. When stale numbers are drawn upon and included in DEIR, a reasonable person would want to know what these same items cost pursuant to a more recent business plan. However, in most cases, that is impossible because they present items through just enough of a different lens that it is unachievable. For example, in one document they may use the years 2029 and 2040. In another document (the 2022 Business Plan), it looks like the following chart:

Table 5.6.1: Phase 1 High, Medium and Low O&M Costs by Year (YOE $ in Millions)

O&M Levels	2033	2034	2035	2040	2045	2050	2055	2060
High Operations and Maintenance Cost	842	1,690	1,828	2,226	2,588	3,039	3,521	4,125
Medium Operations and Maintenance Cost	770	1,545	1,671	2,035	2,366	2,779	3,219	3,771
Low Operations and Maintenance Cost	742	1,489	1,611	1,962	2,282	2,679	3,104	3,636

Because full funding for the system has not been identified, the phasing assumptions used for developing the forecasts and estimates are for illustrative purposes.

2022 BUSINESS PLAN // CALIFORNIA HIGH-SPEED RAIL AUTHORITY

4494-9823

From the start, CHSRA has stated that once the infrastructure is built, an independent/private contractor would take over operation of the train. An analogy that CHSRA offered years ago is our freeway system i.e., the government built and maintains the infrastructure, but it is used by the public.

Question: Why are estimates in the 2022 DEIR based on 2015 data (7-year-old cost assumptions)?

Question: Why are documents in different years' data presented in different manners (including line items and years of operation) so that an apple-to-apple comparison is nearly impossible?

Question: Why is maintenance (presumably to be the State of California's ongoing responsibility) lumped together with operations (presumably to be part of the train operator's obligation)?

4494-9824 From the Appendix 6.A, p. 3. Note that the Total Cost for 2029 High Scenario is $798 million.

Question: If the operator is an independent private company, why is CHSRA including cost estimates for operations, dispatching, maintenance of equipment, station and train cleaning? Wouldn't these items presumably be the train operator's responsibility as operating costs?

Question: For comparison, Amtrak is a for profit company, but is government-owned because the federal government owns most of the stock. Is that what CHSRA envisions?

Question: Or, is it the "freeway model" where the government builds and maintains the tracks and other infrastructure but the public (in this case the operator is the "public")?

Table 2 below outlines high scenario O&M costs.

Table 2: Annual Operations and Maintenance High Scenario Cost Forecast ($2015 millions)

Cost Category	2025 High Scenario Cost	2029 High Scenario Cost	2040 High Scenario Cost
Train Operations	$31	$263	$311
Dispatching	$14	$32	$33
Maintenance of Equipment	$24	$101	$146
Maintenance of Infrastructure	$58	$131	$133
Station and Train Cleaning	$23	$74	$77
Commercial	$46	$56	$103
General and Administrative	$15	$53	$58
Insurance	$29	$57	$57
Unallocated Contingency	$10	$32	$38
Total Cost	$249	$798	$956

Note: Numbers may not add due to rounding

CHAPTER 7

CHAPTER 7: OTHER CEQA

4494-9825 This Chapter presents environmental adverse unavoidable effects of the Palmdale to Burbank Project Section. They include: nitric oxide, carbon monoxide, particulate matter in the air during construction and along haul routes, excessive operational train noise minus noise barriers, paleontological destruction from tunneling, visual aesthetics, and impacts on historic built resources.

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4494-9825

The Chapter also attempts to show benefits to Los Angeles County from High-Speed Rail: less than 3 hour travel time between Los Angeles and San Francisco, decreased air pollutants once the train is operating, job creations, and improvements to local transit.

"Short-term Use of the Environment and the Enhancement of Long-term Productivity" points out investment of materials, consumption of fossil fuels, and conversion of land necessary for construction. However, without High-Speed Rail, air quality will continue to deteriorate and travel time and congestion will increase. With High-Speed Rail greenhouse gases will be reduced and there will be more construction for workers to provide new services and housing.

In summation, there are "irreversible environmental changes" with the project: procurement of land, materials, and fossil fuels both above and below ground.

Question: This chapter lists environmental detriments to people during the project's construction and uses the same list as positive influences on people during the train's operation: acquirement of land and housing construction as examples. How can the same factors be both adverse and beneficial?

4494-9826

Question: This chapter shows that encroachment on land, destruction of natural resources, and interruptions and damage to peoples' lives from impacts of the construction of High-Speed Rail are neglectable when compared with hypothetical gains to people later during the train's operation. Is travel convenience for people superior to environmental destruction?

APPENDICES NOT BUNDLED WITH CHAPTERS

APPENDIX 3.2-A: VEHICLE MILES TRAVELED METHODOLOGY

General Discussion

4494-9827

CHSRA asserts that it will divert trips from auto, air, and conventional rail (CVR)[114] thus cutting greenhouse gas emissions. The problem is that there is no verifiable nor truly accurate way to project this data. California's population grew only slightly from the 2010 census; in fact, it lost a Congressional seat. Further, the data that HSR cites was from 2015 and/or 2016, over 6 years prior to the release of this DEIR. It is also peculiar as to why HSR pulled data from its 2016 Business Plan when there has been a 2018 business plan, a 2020 business plan, and a 2022 business plan submitted and approved by the CHSRA board. CHSRA's main and recurring "selling" point, whether it is true or not, is that it is a clean energy mode of transportation and will not contribute to greenhouse gasses from its operations, while further reducing greenhouse gas emissions by replacing miles traveled by vehicles, airplanes, and conventional rail.

Even if the high-speed train does indeed supplant other greenhouse gas-emitting modes of transportation when it becomes operational, the amount of greenhouse gasses it produces during construction is greater than any savings:

The non-partisan California Legislative Analyst's Office states:

> *"High–Speed Rail Would Initially Increase GHG[115] Emissions for Many Years.* As mentioned above, in order to be a valid use of cap–and–trade revenues, programs will need to reduce GHG emissions. While the HSRA has not conducted an analysis to determine the impact that the high–speed rail system will have on GHG emissions in the state, an independent study found that—*if the high–speed rail system met its ridership targets and renewable electricity commitments—*

[114] Not covered in this comment letter.
[115] Greenhouse Gas (GHG)

4494-9827

> *construction and operation of the system would emit more GHG emissions than it would reduce for approximately the first 30 years.* While high–speed rail could reduce GHG emissions in the very long run, given the previously mentioned legal constraints, the fact that it would initially be a net emitter of GHG emissions could raise legal risks."[116] [emphasis added]

The Reason Foundation's findings are even more dire:

> "In a 2010 UC Berkeley study, Professors Mikhail Chester and Arpad Horvath estimated that the entire California high-speed rail project would generate 9.7 million metric tons of carbon dioxide during construction. Chester and Horvath estimated that it would take high-speed rail *71 years of operation at medium occupancy to offset its own construction-related greenhouse-gas emissions.* Given the project's delays and carbon reductions being achieved by new technology, like electric vehicles, it is possible that, if built, the rail system will never pay back the carbon investment required to build it."[117] [emphasis added]

4494-9828

Question: How can CHSRA claim that this project is a clean energy project when it is emitting massive amounts of greenhouse gas emissions over a period of well over a decade?

There are three reasons people use transportation: Commuting, business, and pleasure. The three motorized modes currently utilized are vehicles, air travel, and conventional rail (CVR). The CHSRA claims that it can divert a substantial amount of usage to the high-speed train resulting in greenhouse gas emissions.

High-Speed Train v. Vehicles for Commuting

The high-speed train is an expensive and therefore infeasible choice for commuters. The majority of greenhouse gasses are emitted from vehicles for commuting purposes. Driving from Palmdale to Burbank takes about 93 minutes and costs about $24 round trip for fuel[118]. A hybrid would do much better at $13.53[119]. The Antelope Valley Metrolink line running from Palmdale to Burbank takes 97 minutes at a round trip cost of $19. The proposed high-speed train would take 13 minutes at a round trip cost of $72.[120] Over the course of 48 weeks (assumes 2 weeks' vacation and 10 paid holidays), the high-speed train "commuter" would spend $17,280 for commute costs, while the Metrolink commuter would spend $4,560, or $12,720 less. A gasoline vehicle would cost about $5,683 annually and a hybrid $3,248, resulting in savings compared to the high-speed train of $12,608 and $14,043, respectively. An electric vehicle costs a mere $1,102 annually, with a whopping savings of $16,178. Because the commute cost of the high-speed train is prohibitive, it cannot be considered a feasible contender for replacing either an automobile or the existing Metrolink as a commute alternative.

COMMUTE COST BETWEEN PALMDALE TO BURBANK		
Mode	Annual Cost for Commuting	Commute Time 1-Way
High Speed Train	$17,280	13 minutes
Metrolink AVL	$4,560	97 minutes
Gasoline Vehicle	$5,683	93 minutes
Hybrid Vehicle	$3,248	93 minutes
Electric Vehicle	$1,102	93 minutes

[116] http://www.lao.ca.gov/analysis/2012/transportation/high-speed-rail-041712.pdf. "Legal risks" refers to the fact that the California "cap & trade" program requires that beneficiaries of the generated revenue be "green." The high-speed train currently is a beneficiary of 25% of these funds so if it's legally challenged as to its standing, it is at risk for losing such funding from this revenue stream.
[117] https://reason.org/commentary/california-overstates-bullet-trains-climate-benefits/
[118] 51 miles each way at 28 mpg, gas cost per gallon of $6.50
[119] 51 miles each way at 49 mpg, gas cost per gallon of $6.50
[120] 2020 Business Plan Ridership Revenue Technical Document, p. 2-6

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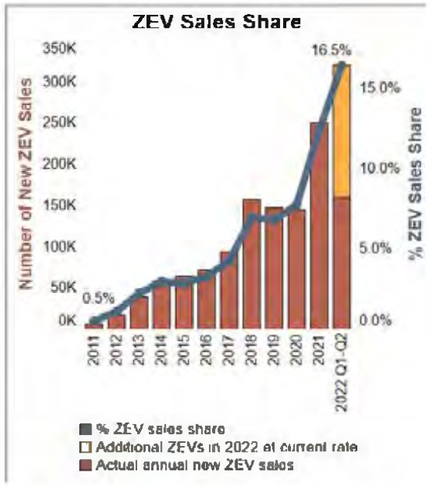
4494-9828

Other sample city-to-city commutes are equally expensive using the High-Speed Train:

Route	Daily Round Trip	Annual
San Francisco to San Jose	$52	$12,480
San Jose to Gilroy	$42	$10,080
San Jose to Fresno	$142	$6,816

However, much has happened since 2016, the year that HSR relies on as its source:

1. Due to the pandemic, employers and employees discovered that working from home is a workable, practical, and successful way to conduct business. According to Ogletree Deakins, currently 22 percent of Californians work exclusively remotely and 15 percent have a mix of working remotely and working outside the home. Additionally, institutions of higher learning are increasing their online classes, thus saving professors and students fuel costs.
2. Gavin Newsom issued a mandate that all new vehicles sold in California commencing in 2035 must be electric (EV).
3. Even without a mandate, hybrid and EV vehicles continue to grow in popularity due to the lower maintenance costs and obvious fuel savings. The following automobile manufacturers are already producing, plan on producing, and/or are expanding their line of EVs: American Honda, BMW North America, Ford Motor Company, Jaguar Land Rover Limited, Kia Motors America, Mazda Motor Company, Mercedes-Ben USA, Mitsubishi Motors North America, Nissan North America, Stellantis North America, Subaru of America, Tesla Motors, Toyota Motor Sales, Volkswagen Group of America, and Volvo Group North America.



From 2011 to 2022, California's zero-emission vehicles' (ZEV) market share increased by a factor of 33–from .5% to 16.5% in only 11 years.[121] With the anticipated and funded major rollout of electric charging stations, consumer rebates, and other incentives, by the time the high-speed train becomes operational, this market share will likely eclipse fossil fuel burning vehicles thus rendering the high-speed train obsolete. Newsom's mandate that all new vehicles sold in California must be electric by 2035 furthers the argument that the high-speed train is simply not needed. The migration to ZEV is also boosted by the fact that California already has the infrastructure in place: A world-class freeway and highway system that provides easy and thorough connectivity across the state, not to mention being overseen by a well-established agency, CalTrans, which provides repair and maintenance services.

The high-speed train can ONLY reduce greenhouse gas emissions IF it REPLACES a normally-scheduled vehicle trip, AND the train is full or nearly full. If a driver who normally wouldn't schedule a trip from Los Angeles to San Francisco (or between any other of the cities on the route), decides to take the high-speed train instead of driving, that is adding a trip (net gain), not replacing a trip (zero sum) otherwise done by car. Further, if a majority of the train is empty, it is drawing upon electricity (which currently would not be drawing from a power plant powered by 100% renewable energy). The California High-Speed Rail Authority, when questioned about their assertion that they would only utilize 100% renewable energy

[121] California Energy Commission (2022). New ZEV Sales in California. https://www.energy.ca.gov/zevstats

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and asked where they would pull their electricity from, stated that they would hook up to the local power companies along the way: PG&E (33% is renewable)[122], Southern California Edison (50% is renewable)[123], LA Department of Water & Power (60% is renewable)[124]. These stats are nowhere near 100% renewable, although it is unclear where they will be for the completion of Phase 1.

4494-9829

High-Speed Train v. Air Travel

The Palmdale to Burbank Project Section is completely irrelevant to reducing air travel. In fact, an air passenger may decide to utilize the high-speed train from Palmdale for the sole purpose of catching a flight from Burbank Airport. Statewide, the project will ONLY be effective in reducing airplanes' emissions IF it actually eliminates flight(s). Obviously, no emission savings are realized if the same number of flights remain, and actually will increase greenhouse gasses as explained below.

We established above that the high-speed train is too expensive to be a commuter train. That leaves business and pleasure travel, discussed below.

Early on, the CHSRA claimed that at full build-out (Phase 1), trains would run every 5-7 minutes. However, the chart in the DEIR is quite different:

Phase 1	San Francisco and Merced	Los Angeles and Anaheim	• 2 peak TPH from San Francisco and Los Angeles (3 in off-peak) • 2 peak TPH from San Francisco and Anaheim (3 in off-peak) • 2 peak TPH from San Jose and Los Angeles (3 in off-peak) • 1 peak TPH from Merced and Los Angeles (3 in off-peak) • 1 peak TPH from Merced and Anaheim (same in off-peak)

The San Francisco and Los Angeles termini assume only 2 trains per hour will run during peak times, and 3 trains per hour will run in off-peak. It is counter-intuitive that they would run fewer trains during peak hours for any scenario, much less the San Francisco and Los Angeles scenario while the other scenarios run more trains during peak hours than on off-peak hours.

Question: Why would the San Jose and Los Angeles scenario have a different number of trains since San Jose is not a terminus? Conceivably, since San Jose is relatively close to San Francisco, it would be the same train(s) passing through enroute to the terminus destination.

Assumed Headway Times

Table 1.4 Air Service Assumptions

Origin Airport	Destination Airport	Assumed Airfare (2016 Dollars)	Assumed Headway (Minutes)
Burbank	San Francisco	$115	480.0

[122] https://www.pgecorp.com/corp_responsibility/reports/2018/bu07_renewable_energy.html#:~:text=PG%26E%20delivers%20some%20of%20the,and%20various%20forms%20of%20bioenergy.
[123] https://dailyenergyinsider.com/news/25853-southern-california-ecison-nearly-50-percent-to-2045-carbon-free-energy-goal-as-edison-international-invests-in-progress/
[124] https://www.ladwpnews.com/mayor-garcetti-announces-that-over-60-l-a-s-energy-is-now-carbon-free/#:~:text=With%20this%20addition%2C%20LADWP%20is,of%20Water%20and%20Power%20Commissioners.

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Headway is the distance or duration between vehicles in a transit system measured in space or time. The above chart assumes *8 hours* as headway for an airplane going from Burbank to San Francisco. Four air carriers provide 23 flights per day, or roughly 1.4 flights every hour. This is counter to what this chart provides. 4494-9830

Efficiency: High-Speed Train Versus Other Modes of Transportation

As will be illustrated below, the high-speed train is probably not the best choice for business or pleasure travel. Business travel would likely be a one-person journey and is comparable to air travel. Assuming a trip to/from Burbank to/from San Francisco[125]:

Travel Activity	Airline	HSR
Pre-travel time*	1 hour 30 minutes	25 minutes
Travel time**	1 hour	3 hours 10 minutes
Post travel***	20 minutes	5 minutes
Total Time	2 hours 50 minutes	3 hours 40 minutes
Cost (round-trip)****	$228	$200
*assumes carry-on luggage, parking, checking in/boarding pass, security check for airline; only parking and checking in for HSR **actual travel time including 5 minute stops at stations for HSR ***assumes deboarding for airline travel only ****average Southwest Airline fares October 2022; schedule p. 2-6 of 2020 Ridership Tech Document		

The cost for travelling by airplane and the high-speed train is comparable, but the train takes nearly an hour longer. While the high-speed train is mandated to make the Los Angeles to San Francisco trip in 2 hours 40 minutes, it did not include stops at stations (there will be some "express" trains that will not stop at stations along the corridor). The time from Burbank to San Francisco non-stop is 10 minutes shorter than from Union Station in Los Angeles, or 2 hours 30 minutes.

For pleasure travel, it is likely that there will be at least 2 people travelling. This table compares the cost of travelling by air, HSR, and by vehicle:

	Air	HSR	Vehicle-Gas	Vehicle-Hybrid	EV
2 people	$456	$400	$168.07	$96.05	$32.58
4 people	$912	$800	$168.07	$96.05	$32.58
Total Time	2:50	3:20	5:44	5:44	5:44
362 miles each way, 28 MPG (gas), 49 MPG (hybrid), gas $6.50, EV $.045 per mile[126]					

It's evident that for pleasure travel, a vehicle, especially an EV, is much more cost effective due to being able to carry more than 1 person at a time than either air travel or the high-speed train (although depending on the EV's range, charging may be needed along the way). This throws doubt on the CHSRA's assertion that the high-speed train will displace other modes of transportation.

Based on the above, if the high-speed train:

- Is not a cost-effective commuter train;
- Is not cost effective for pleasure trips, and
- Is not the best choice for business travelers who necessitate the shortest travel time, then

...what is its unique selling proposition?

[125] Assumes this particular train stops at every station, not one of the "express" trains.
[126] www.ecocostsavings.com

4494-9829

Question: If it's not a feasible replacement for commuting, pleasure, or business travel...then what is it?

CHSRA Claims the High-Speed Train Will Result in Substantial Flight Reductions

The California High-Speed Rail Authority claims that the train will replace thousands of flights annually.

The DEIR states:

> *"1.1.4 Process to Estimate Differences in Air Travel and Air Service Needs*
> *As noted in Section 1.1.1, the introduction of HSR will divert trips from auto, air, and CVR. Those diverted trips can be consistently and deterministically forecast by comparing the differences in forecast trips by mode between the build and no-build alternatives.*
>
> *The determination of changes in air service needs are more difficult to estimate since the amount of air service provided by carriers is based on their individual responses to HSR and other factors. Based on the structure of the BPM-V3, air trip interchanges can be assigned to origin and destination airports.9 The average daily air passenger trips were multiplied by 365 to estimate annual intra-California air passenger trips. Each airport was assigned to one of six regions: San Francisco Bay Area, Sacramento Valley, San Diego, San Joaquin Valley, Southern California, and the Remainder of the state. The forecast no-build and modeled annual air trips were aggregated into tables of trips from airport region to airport region.*
>
> *Annual passenger and flight data between California airports updated in May 2015 by the US Bureau of Transportation Statistics (BTS) were used to determine load factors for flights from each of the six regions. The detail of the BTS data allowed for the calculation of different load factors for flights internal to California and flights destined to locations outside of California.*
>
> *The forecast airport region to airport region trips were then divided by the BTS derived load factor for the departure airport region to determine the number of annual flights required to serve the passenger loads based on load factors estimated from 2015 passenger and flight data. The reduction was then the estimated flights for the no-build forecast minus the estimated flights for the build forecast.*
>
> *Flight reductions computed using the above approach represent what might be expected in the future. However, airline response to changes in air passengers due to the introduction of HSR might be different."*

CHSRA claims that in year 2029 (when Phase I is fully operational, although in other documents 2033 is the first year of operation), 24,736 annual flights (outgoing and return trip) in the Southern California area "might" be eliminated by passengers instead opting to ride the high-speed train. The airports in the Southern California Area include Long Beach, Los Angeles International, and Burbank. Passengers flying from these airports would likely only be flying to the Bay Area (Oakland and San Francisco).

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Flight Reductions	2025	2029
Bay Area	(5,358)	(22,644)
Sacramento Valley	(915)	(4,294)
San Diego	(677)	(4,140)
San Joaquin Valley	(436)	(1,143)
Southern California	(6,031)	(24,736)
Rest of State	(232)	(684)
Total	(13,651)	(57,641)

24,736 round trips / 2 = 12,368 one-way
12,368 / 365 = 34 per day
34 per day / 2 (no. of airports in "Southern California") = 17 per airport
(excludes Long Beach Municipal Airport because there are no non-stop flights)

The following charts shows the number of flights per day by carrier.[127] For Burbank, a daily 17 flight per day reduction equates to 33%, or one-third of Burbank's daily flights to Northern California. For flights from LAX, the per day reduction equates to nearly 50%. Blended average is 39%. These scenarios seem unrealistic.

It is important to note that the new Burbank Airport terminal will have more gates, but not more flights, therefore, no flight growth factor is, or should be, included in any analysis.

Would a passenger flying from Long Beach to Northern California opt for the high-speed train because no non-stop flights are available? It is doubtful that any passenger would book a flight from Long Beach to Northern California because all of them stop (or require changing planes) in either Salt Lake City or Phoenix with many taking 10-12 hours. A passenger would likely fly out of LAX or Burbank, or drive. Therefore, the train will not displace any Long Beach to Bay Area trips.

Burbank to San Francisco and Oakland – Non-Stop

	Burbank/SFO	*Burbank/Oakland*	*Total*
Southwest	*6*	*14*	*20*
United	*11*	*11*	*22*
Alaska	*6*	*0*	*6*
Jet Blue		*4*	*4*
Total	*23*	*29*	*52*
CHSRA Reduction Projection			*-17*
Net Flights			*35*

[127] https://www.hollywoodburbankairport.com/flight-information/ and google flight search

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Los Angeles International (LAX) to San Francisco and Oakland – Non-Stop

	LAX/SFO	*LAX/Oakland*	*Total*
Southwest	*4*	*7*	*11*
United	*7*	*7*	*14*
Alaska	*6*	*0*	*6*
Spirit		*2*	*2*
Delta		*2*	*2*
Total	*17*	*18*	*35*
CHSRA Reduction Projection			*-17*
Net Flights			*18*

Summary

	SFO	*Oakland*	*Total*
Burbank to:	*23*	*29*	*52*
LAX to:	*17*	*4*	*35*
Total	*40*	*33*	*87*
CHSRA Reduction Projection			*-34*
Net Flights			*53*
% Reduction			*39%*

Besides this reduction being unrealistic, it doesn't make sense that in 2025 CHSRA includes airports in the Sacramento Valley and San Diego as those experiencing flight reductions because they are not in close proximity to any high-speed train station and in a year that doesn't even have an operational high-speed rail corridor; these stations will not be operational until Phase 2 is completed.

Question: Why did CHSRA include flight reductions for airports serving areas that will not even have High-Speed Rail at that point in time and are not within a reasonable distance to an airport that does?

4494-9831

It is also possible that even if an airline(s) eliminates flights in the Northern California/Southern California corridor, they would substitute other destinations. For revenue and profit, they rely on their revenue from operations: **Flying**.

Question: Why does CHSRA believe that its service will result in airlines reducing actual flights between Northern and Southern California, and will not simply substitute another route?

The following HSR chart states that in 2029, HSR will divert 85% from autos, 8% from air, and 3% from conventional rail. Based on the foregoing, this does not seem credible.

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Table 2.4 2029 Annual Trips (in Millions) and Shares of Trips Diverted from Each Mode to HSR 75th Percentile Forecast

Market		HSR Ridership Diverted from Each Mode				Percentage of HSR Ridership Diverted from Each Mode			
		Auto	Air	CVR	Induced	Auto	Air	CVR	Induced
SACOG	SACOG	-	-	-	-	0%	0%	0%	0%
SACOG	SANDAG	0.1	0.1	0.0	0.0	51%	42%	1%	6%
SACOG	MTC	0.9	0.0	0.0	-	96%	0%	4%	0%
SACOG	SCAG	0.9	0.4	0.0	0.1	64%	29%	0%	6%
SACOG	San Joaquin Valley	0.3	0.0	0.0	-	97%	1%	2%	0%
SACOG	Other Regions	0.2	0.0	0.0	-	98%	1%	2%	0%
SANDAG	SANDAG	-	-	-	-	0%	0%	0%	0%
SANDAG	MTC	0.5	0.4	0.0	0.1	50%	42%	0%	7%
SANDAG	SCAG	3.2	0.0	0.3	0.0	89%	1%	9%	1%
SANDAG	San Joaquin Valley	0.5	0.0	0.0	0.0	86%	7%	2%	5%
SANDAG	Other Regions	0.2	0.1	0.0	0.0	74%	19%	1%	6%
MTC	MTC	2.4	-	0.2	0.1	90%	0%	6%	4%
MTC	SCAG	4.7	2.4	0.0	0.6	61%	30%	1%	8%
MTC	San Joaquin Valley	4.9	0.1	0.1	0.3	92%	1%	2%	5%
MTC	Other Regions	2.8	0.0	0.1	0.1	93%	0%	4%	3%
SCAG	SCAG	7.8	0.0	0.2	0.2	95%	0%	3%	2%
SCAG	San Joaquin Valley	6.3	0.1	0.4	0.4	88%	2%	5%	5%
SCAG	Other Regions	1.8	0.2	0.0	0.1	86%	9%	1%	4%
San Joaquin Valley	San Joaquin Valley	2.3	0.0	0.1	0.1	94%	0%	3%	3%
San Joaquin Valley	Other Regions	1.1	0.0	0.0	-	99%	0%	1%	0%
Other Regions	Other Regions	0.2	0.0	0.0	-	98%	1%	1%	0%
Long-Distance Total		41.0	3.8	1.5	2.0	85%	8%	3%	4%
MTC (< 50 miles)	MTC (< 50 miles)	0.4	-	-	-	100%	-	-	-
SCAG (< 50 miles)	SCAG (< 50 miles)	0.1	-	-	-	100%	-	-	-
Short-Distance Total		0.5	-	-	-	100%	-	-	-
Total		41.5	3.8	1.5	2.0	86%	8%	3%	4%

Source: Cambridge Systematics

To their credit, CHSRA admitted the following:[128]

> *"The BPM-V3, like any travel model, is based on a limited number of variables. While the BPM-V3 has been calibrated to reasonably reproduce travel for a base year, much of the "unexplained" variation in travel is "explained" through calibrated model constants. The constants account for unknown input variables that affect travel. In effect, the constants assume that the impacts of those unknown variables do not change over time.*
>
> *The information and results presented in this technical memorandum are estimates and projections that involve subjective judgments, and may differ materially from the actual future ridership and revenue. This technical memorandum is not intended, nor shall it be construed, to constitute a guarantee, promise, or representation of any particular outcome(s) or result(s). Further, the material presented in this technical memorandum is provided solely for the Authority's planning purposes and should not be used for any other purpose."* [Emphasis added.]

The CHSRA is admitting that the information contained in the DEIR involves subjective judgments and may be **materially** different from the actuals. Also, it is not intended to represent an outcome–so it begs the question, "What is it then?"

Question: If the train does not save passengers time and/or money, why would they ride?

APPENDIX 3.4-C: NOISE AND VIBRATION MITIGATION GUIDELINES

4494-9833 This section describes the noise levels (in terms of dBa) and vibration on the effect of the areas surrounding the construction and operation of the High-Speed Rail (HSR).

[128] Chapter 3.2A – Vehicle Miles P. 40

4494-9833

Noise is one of the principle environmental impacts associated with rail construction and operation. 40dBa represents a quiet ambient noise level in a rural environment. 90dBa represents a jackhammer at 50 feet.

High-Speed Rail noise source shows that a train going 150 mph generates a noise level of 90 dBa. A train traveling at 200 mph generates a dBa of 105.

Construction of the HSR is estimated to take up to five years. Based on previous timelines presented by the HSR, this is probably a low estimate.

During the construction, there will be many phases. A few are:

Phase	dBa produced at 50 feet from source	Estimated timeline
Mobilization	91	2 years
Site Preparation	90	3 years
Tunneling	90	Over 5 years
Retaining Wall Construction	88	3 years
Earthmoving	88	4 years
Cut-and-Cover	89	Over 6 months
Demolition	89	Over 8 months

In addition, the estimated thirty-three types of construction equipment, including pile drivers, rock drills, grazers, dozers, etc. will generate typical noise emission levels ranging from 76 dBa to 101 dBa (50 feet from source).

The criteria of the Federal Railroad Administration (FRA) is not to exceed 80 dBa for daytime noise levels and 70 dBa for nighttime noise levels. Noise levels from the construction of each of the six Build Alternatives would exceed these criteria for both daytime and nighttime activities for sensitive receptors. The Burbank to Palmdale Section will not be able to comply with 10 of the 12 policies with respect to noise and vibration criteria set forth during the construction phase. Mitigation measures associated with the build would only decrease the noise and vibration to the extent feasible, and would still be well above the acceptable criteria levels.

Construction within the Angeles National Forest would exceed noise levels at the surface, therefore affecting wildlife. The FRA does not provide guidance for assessing noise and vibration impacts on wildlife and livestock. The Burbank to Palmdale Project Section traverses through equestrian communities and the Angeles National Forest and will have a potentially devasting impact on such animals. HSR construction would result in noise and vibration impacts for nearby sensitive receivers along the alignment where trains would travel at high speeds. Wildlife and human sensitive receivers could be startled or annoyed. Wildlife communication could be affected. It has been shown that communication among wildlife, especially songbirds, is affected by increased noise and vibration. Wild animals depend on calls and song for species identification, mate attraction, and territorial defense. Continuous noise levels above 60 dBa within habitat areas can affect the suitability of the habitat. Many regulatory agencies state that noise levels above 60 dBa is detrimental to a suitable habitat.

4494-9834 In addition, "startle effects" occur with each pass-by of a train. With a train speculated to pass by every six minutes, according to this DEIR, all domestic animals and wildlife located near the project corridor will be affected each time a train passes by. "Startle effects" occur when animals are subjected to noise levels of 100 dBa or higher. As stated previously, trains traveling at 200 mph produce noise levels around 105 dBa. The DEIR excludes dBa references for "tunnel boom" which is a loud boom sometimes generated by high-speed trains when they enter tunnels. These shock waves can disturb nearby residents and damage trains and nearby

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4494-9834 structures.[129] There are no mitigation measures that effectively reduce these noise levels to acceptable levels, and therefore the No Project Alternative is the only feasible alternative to prevent the harmful effects of noise and vibration on sensitive subjects, domestic animals, livestock, and wildlife. (Please note that wildlife is not exclusive to the Angeles National Forest. There is abundant wildlife in neighboring areas to the forest.)

4494-9835 Construction vibration is assessed for areas where there is a potential for impact from construction activities (including blasting, pile driving, demolition). The only local standard that references vibration states that the perception threshold shall be a motion velocity of 0.01 in/sec over the range of 1 to 100 Hertz. According to the Los Angeles County Ordinance Section12.08.350, "operating or permitting the operation of any device that creates vibration that is above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property, or at 150 feet from the source on a public space is prohibited." The Authority's "commitment" to minimizing construction noise and vibration impacts, since there are too many inconsistencies, is to prepare and submit a memo documenting their guidelines for minimizing noise and vibration when work is being conducted within 100 feet of sensitive receivers. This is completely unacceptable. Mitigation measures for noise and vibration concerns need to be specified before construction begins. There needs to be a specific plan to address noise and vibration in sensitive areas such as the wilderness and areas with livestock and other animals, as well as other sensitive subjects. Since the Authority is unable to comply with noise and vibration criteria, the No Build Alternative is the only solution.

In conclusion, the DEIR completely overlooks the effect of increased noise levels on wildlife, domestic animals, and livestock, stating that there will be less than significant effects after mitigation efforts (which they have failed to outline). There is a complete lack of specific plans to address the environmental impact of noise and vibration during both the construction phase and during the operation of the train.

We know that the effects of fireworks (up to 150 dBa), thunder (which produces a dBa of 100), and other loud noises have a startle effect on wildlife, domestic animals, livestock, and sensitive subjects.

4494-9836 **Question**: How can this report state that the noise impacts from the construction and operation of the train have "Less Than Significant" impact?

Even after mitigation efforts, the operational train noise impacts will be "significant and unavoidable" for sensitive receivers.

4494-9837 **Question**: How can you not correlate this same impact to wildlife, domestic animals and livestock?

Since the noise and vibration of the HSR cannot be mitigated to an acceptable level, the only alternative is the No Project Alternative.

MISCELLANOUS COMMENTS/QUESTIONS

4494-9838 Businesses and residences that are permanently lost due to CHSRA acquisition currently generate the following revenues to the state (which are then allocated back to cities, counties, school districts, special districts, public safety, local transportation, etc.):

[129] People perceive this sound similarly to that of a sonic boom from supersonic aircraft. However, unlike a sonic boom, tunnel boom is not caused by trains exceeding the speed of sound. Instead, tunnel boom results from the structure of the tunnel preventing the air around the train from escaping in all directions. As a train passes through a tunnel, it creates compression waves in front of it. These waves coalesce into a shock wave that generates a loud boom when it reaches the tunnel exit. The strength of this wave is proportional to the cube of the train's speed, so the effect is much more pronounced with faster trains. (Wikipedia)

- Property Tax
- Business Tax
- Utility Users Tax
- Income Tax (state and federal)
- Sales Tax
- Franchise Fees
- Transient Occupancy Tax
- Payroll Tax

CHSRA suggests that there will be little negative impact because displaced businesses and residents will be able to find suitable replacements nearby. Yet, one cannot read the news for an extended period of time without seeing the phrase "Los Angeles housing crisis." CHSRA also states that there will be a temporary increase in sales tax revenue because contractors will have to purchase construction supplies. However, that is only true (for any project section actually) IF they purchase the items in the same city for which they seized businesses/housing. Sales tax is generated at point of purchase and then allocated back to the city (incorporated or unincorporated) that generated it, so if a contractor purchases items in Glendale or any jurisdiction outside of the city of Los Angeles (assuming the lost business was in the city of Los Angeles), then Los Angeles loses that sales tax revenue, and it is instead transferred to Glendale.

Businesses that are forced to shut down will also have to lay off employees. This will result in a loss of state and federal income taxes and payroll taxes (Social Security and Medicare) paid by both the businesses and the employees.

4494-9839 **Question**: Where will displaced residents find suitable replacement housing?

4494-9840 **Question**: Where will displaced businesses find suitable replacement buildings that have the same character, location, and customer base?

4494-9841 **Question**: How can CHSRA guarantee that contractors purchase their supplies in the city of Los Angeles (or any city that had businesses acquired for the project)?

4494-9842 **Question**: How will the Utility Users Tax, which will be based on usage drawn from LADWP and Southern California Edison, be calculated and then remitted to Palmdale, City of San Fernando, City of Los Angeles, and unincorporated areas of Los Angeles County?

4494-9843 **Question**: Is CHSRA planning on backfilling temporary and permanent lost tax revenue to cities due to their acquisition of businesses and residences?

4494-9844 **Question**: For better transparency, and to help build public trust, please explain in greater detail how the inconsistencies between federal, state, regional and local laws for each build alternative will be resolved.

4494-9845 **Question**: What are the details of the construction management plan (CMP) so that the public can better understand how construction impacts within the Angeles National Forest will be maintained below applicable standards?

4494-9846 **Question**: Why are there no alternatives that don't disturb the Angeles National Forest? Considering all the hazards identified within each build alternative, it is irresponsible not to include a safer and less costly alternative. The No Build Alternative option should be selected.

4494-9847 **Question**: For each build alternative, please list the estimated acres of Angeles National Forest land that would be permanently acquisitioned under this project. The Angeles National Forest belongs to the people. It's one thing to drill a tunnel under the forest floor but another thing to appropriate land from the Angeles National Forest for this project. How will the people be compensated for this federal land acquisition?

Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9848 **Question**: For each build alternative, what are the estimated gallons of water that will be removed from aquifers within the Angeles National Forest during the construction phase, and what are the impacts this removal will have on humans, animals, and plants?

4494-9849 **Question**: For each build alternative, what are the maximum acres within the Angeles National Forest that will be impacted temporarily during construction activities, as well as acres permanently impacted by this project?

4494-9850 **Question**: For each build alternative, please describe in detail all equipment for electrification and infrastructure that will be built within the Angeles National Forest. What will this look like? How will it change the current conditions in the Angeles National Forest? Will there be many new buildings and structures in the forest? If so, how many and how tall and wide will they be? How large and what types of electrification equipment will be installed? What are the dimensions and weight of things like transformers, substations, power stations, poles, etc.? How will it change the view and serenity in the forest? Please include photos and detailed drawings so the public can see what the Angeles National Forest currently looks like and then what it will look like post construction.

4494-9851 **Question**: How many miles of access roads will be built within the Angeles National Forest for each build alternative?

4494-9852 **Question**: How many helicopter access points will be built within the Angeles National Forest for each build alternative?

4494-9853 **Question**: Will an updated biological study be performed prior to final selection to ensure the most accurate information is used?

4494-9854 **Question**: Could you please provide an updated cost-benefit analysis that reflects recent changes in population as well as ridership due to more and more people working from home?

4494-9855 **Question**: How much power per day and per year will each build alternative consume from the power grid, and how will this impact residents and businesses within each build alternative who already encounter problems with too much demand?

4494-9856 **Question**: Will this power need to be shut down during high winds to prevent forest fires?

CONCLUSION

4494-9857 Based on the foregoing discussion, which raises a multitude of alarming questions arising from legitimate concerns, the only route that can be considered for the Palmdale to Burbank Project Section is the No Project Alternative. All other six proposed build alternatives are fraught with risks and impacts which are real and easily verifiable: nearly 30 miles of deep-bore tunneling through an active seismic and high fire hazard zone, permanently losing precious water, destroying habitat, building acres of infrastructure within a national forest and a national monument, emitting years of greenhouse gasses during construction, pushing most of the logistical and technical burdens of serious design considerations onto contractors with no specified amount of oversight, utilizing the failed 15/85 design build model, and so on. Yet, the "benefits" of this project are based solely on CHSRA's pure and untested speculation that ridership will be so vigorous (notwithstanding that there is no real reason for train ridership) that it will recoup the $105 billion capital cost and the tons of greenhouse gas emissions generated during construction in a matter of months. It is clear that CHSRA's ridership projections are aggressive and deeply flawed. This project is **all** cost and **no** benefit. The only acceptable alternative presented by CHSRA for consideration is the No Project Alternative.

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4494-9174

The commenter, Save Angeles Forest for Everyone, describes its membership and interests, and refers to a comment letter containing comments and questions organized by the environmental document's chapters. The commenter's review and comment on the Draft EIR/EIS is appreciated.

4494-9175

The commenter indicates that the cumulative analysis conducted for the Palmdale to Burbank Project Section covers cumulative impacts contributed by other projects and fails to analyze the cumulative impacts from the project itself (i.e., the whole California HSR System). The commenter also states because of this omission and the numerous cumulative impacts that will occur, of which many cannot be mitigated, they prefer the No Project Alternative be selected. Section 3.19.3 in the Draft EIR/EIS identifies the methodology used to evaluate cumulative impacts. The first step in the methodology is to define the geographic boundary or resource study area (RSA) for the cumulative effects analysis of each resource. This is consistent with CEQA Guidelines section 15130 (b) (3), which states that "lead agencies should define the geographic scope of the area affected by the cumulative effect and provide a reasonable explanation for the geographic limitation used." The Draft EIR/EIS provides a robust explanation of the geographic scope of cumulative impacts, per resource topic, in Section 3.19.3.1. Each resource topic has a different geographic scope and, therefore, the cumulative impacts for each resource topic would vary by resource topic. In other words, a certain cumulative project might not apply for a certain resource topic but would apply for another resource topic. All the potential cumulative projects are listed in Appendix 3.19-A of the Draft EIR/EIS. Please note that the Bakersfield to Palmdale and the Burbank to Los Angeles Project Sections of the California HSR System are listed in Appendix 3.19-A, and are therefore considered in the cumulative impacts analysis. As shown in Table 3.19-1, the geographic scope for the majority of the resource topics is localized and other sections of the California HSR System would not be within the geographic scope and would therefore not contribute to cumulative impacts. Air Quality, Greenhouse Gas Emissions, and Energy do have a geographic scope of the State of California; however, the Authority does account for the whole California HSR system in its EIR/EIS and its overall benefit related to reducing vehicle and plane trips. The Authority has accurately characterized cumulative impacts based on the geographic scopes appropriate for the resource topic, determined whether the project's incremental contribution to significant cumulative impacts would be cumulatively considerable under CEQA (assuming implementation of mitigation measures previously identified for the respective resource), and therefore no additional analysis is required.

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4494-9176

Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS.

The commenter expressed concern regarding the length of the Draft EIR/EIS and the length of the review period, and stated they were not able to review the entire document - and thus the Authority should not interpret their lack of commentary on a particular section or issue to mean they did not have questions or concerns. The Palmdale to Burbank Project Section Draft EIR/EIS was initially circulated for 60 days as required by CEQA, but in response to agency and stakeholder requests and in consideration of limitations caused by the novel coronavirus (COVID-19) pandemic, the Authority extended the comment period by 30 days to lengthen the review period to a total of 90 days.

The commenter also states that numerous documents they desired to review were not available on the Authority website, and some of their requests for these documents were met with delays in their receiving them. The Draft EIR/EIS document which consists of Volume 1 which is the EIR/EIS itself, Volume 2 which includes technical appendices, and Volume 3 which includes the alignment plans, was available in electronic format for download from the Authority's website. Technical reports referenced in the EIR/EIS were available in electronic form by request via the Authority's website or by calling the Authority office at (800) 630-1039. The Authority made an effort to promptly respond to all requests for technical reports and other supporting documents. The commenter made such a request and the Authority provided the requested documents to the commenter during the public review period.

The commenter expressed concern regarding the age of data used throughout the analysis, including for costs. As noted in Chapter 6 of the Final EIR/EIS, Project Costs and Operations, the analysis presented in the Draft EIR/EIS was initiated using the Authority's 2016 Business Plan. Given that there are minimal differences between the 2016 Business Plan, 2018 Business Plan, 2020 Business Plan, and the 2022 Business Plan, the costs included in this document rely on the 2016 Business Plan. For concerns regarding the age of data used, see Section 3.1.4.5, Affected Environment in Section 3.1, Introduction, of the Final EIR/EIS for an explanation of how the data used by the Authority in the Draft EIR/EIS is appropriate. Refer to Standard Response PB-

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Response-GEN-3: Public Outreach on the Draft EIR/EIS, for review period concerns.

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4494-9177

The commenter requests additional information about spoils hauling and impacts of trucks on the local and regional roadway network.

The commenter asks what the total truck trips are for the duration of the project and the total amount of contaminated or hazardous material that will require special handling. Overall, the project would result in between 1.3 million and 4.9 million construction spoil haul trips throughout the construction duration, depending on the Build Alternative selected (extrapolated from Appendix 2.0-I of the Draft EIR/EIS). A conservative analysis was conducted regarding the amount of potential hazardous spoils for each of the Build Alternatives; it is likely that each of the Build Alternatives would produce a smaller quantity of hazardous spoils than estimated. Hazardous materials would be handled in accordance with the Certified Unified Program Agencies (CUPA) regulations and disposed of off-site at a properly licensed/maintained facility located within the state of California. Many of the sites containing hazardous spoils and/or hazardous materials are associated with the PEC sites listed in Section 3.10.5.3 of the Draft EIR/EIS. Contaminated materials would be removed from the tunnel construction areas and could be temporarily stockpiled onsite before being hauled to a suitable hazardous waste treatment site. IAMFs will require the contractor to implement a series of plans and procedures to minimize hazards associated with use, storage, transportation, and disposal of hazardous material and waste. With HMW-IAMF#3 through HMW-IAMF#8, the impact would be less than significant under CEQA. Based on a formula that the commenter provided, the commenter calculated an estimate of truck trips. The commenter calculated 2.4 million one-way truck trips, 4.9 million round-trip truck trips, and 10.9 million cubic yards of contaminated soils. The commenter asks why the Authority believes 4.9 million round-trip truck trips is acceptable. The estimated total number of one-way and round-trip trucks is correct for the SR14A Build Alternative; the other Build Alternatives would generate fewer construction truck trips. These volumes would occur over a number of years. The analysis for impacts from spoils hauling involved the identification of where the Build Alternatives would degrade level of service (LOS) to unacceptable levels. While automobile delay is not considered a significant environmental impact under CEQA, these impacts are considered adverse under NEPA, as spoils hauling would have effects exceeding the significance thresholds for the six Build Alternatives. Table 3.2-47 in Section 3.2, Transportation of the Draft EIR/EIS identifies the number of roadway segments, intersections, and freeway segments that

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would be adversely affected by spoils hauling. As described in Chapter 1, Purpose and Need of the Draft EIR/EIS, the Palmdale to Burbank Project Section is being proposed, despite the significant and unavoidable impacts or adverse impacts, based on the benefits the Build Alternatives would create for the State. The Palmdale to Burbank Project Section would involve benefits in transportation, environment, and economy and employment. Please refer to Chapter 1, Purpose and Need of the Draft EIR/EIS for further details. The commenter provides a table summarizing truck hauling during construction and asks what specific mitigation strategies will be implemented to limit truck traffic during peak times. As stated in Section 3.2.6.3 of the Draft EIR/EIS, spoils hauling is anticipated to take up to 6.4 years in total, depending on location and Build Alternative. However, the activity and duration of construction would vary depending on the spoils removal location and the means of off-hauling the spoils. In other words, not all spoil generation sites would be active during the entire construction period. The maximum construction spoils hauling truck trips were calculated separately for each of the six Build Alternatives using this information. More information on the spoils hauling activities and calculations are presented in Appendix 2.0-I, Spoils Disposal Assumptions used for Environmental Analysis. Impacts TRA#1 through Impact TRA#4, under Section 3.2.6.3 of the Draft EIR/EIS, presents the spoils hauling effects on intersections, roadway segments, freeway off-ramps, and freeway segments. The analysis prepared to identify these impacts accounted for the peak time of truck activity, the period during the about 6 years of construction that the most spoils hauling trips would occur. TR-IAMF#1, TR-IAMF#2, TR-IAMF#6, TR-IAMF#7, and TR-IAMF#8 will minimize impacts. In addition, the mitigation program, especially TR-MM#12, would reduce impacts associated with haul route traffic, including the scheduling of a majority of travel during off-peak hours (i.e., avoiding the typical weekday AM and PM peak commute periods), station traffic control officers, develop alternative routes to reduce trucks on sensitive facilities, and develop and implement an outreach program. The AM peak period typically occurs between 7:00 a.m. and 9:00 a.m., and the PM peak period is typically between 4:00 p.m. and 6:00 p.m. To provide additional roadway space to accommodate spoils hauling trucks, transit vehicles, bicycle lanes, or pedestrian facilities, the temporary removal of on-street parking may be required. This is documented as part of the Construction Management Plan in TR-IAMF#2. TR-IAMF#3 describes the Authority's commitment to identifying adequate off-street parking to accommodate all construction-related vehicles. This would be required as part of the Construction Management Plan

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documented in TR-IAMF#2. Spoils hauling impacts, including impacts to the transportation network and impacts associated with hazardous materials, were assessed in further detail in the technical reports that support the analysis. Implementation of the IAMFs and Mitigation Measures would be the responsibility of the Authority, and under the purview of the Mitigation Monitoring and Enforcement Plan (MMEP). The air quality and noise impact findings associated with spoils hauling were supported by a robust and conservative analysis. As described in Section 3.3, Air Quality and Global Climate Change in the Draft EIR/EIS, the Palmdale to Burbank Project Section engineers provided detailed assumptions related to earthwork, equipment specifications, and hauling routes for trucks carrying spoils and other materials to and from the construction staging areas. These assumptions were used to produce the associated emissions impacts analysis. Additional detailed construction emission calculations are provided in Appendix D of the Air Quality Technical Report (Authority 2020). Impact N&V#2 in Section 3.4, Noise and Vibration, analyzes noise impacts of spoils hauling, by calculating the existing noise levels based on existing traffic volumes on roadways, and compared existing levels with the projected noise levels from haul trucks operating on the roadways. Due to the Build Alternatives' proximity to sensitive receivers, some receivers may still experience noise in exceedance of acceptable noise limits even after implementation of mitigation, which represents a significant and unavoidable impact for the Refined SR14, E1, E1A, E2, and E2A Build Alternatives. The commenter raises the issue of workers' vehicle travel and parking at the work sites, and asks what is considered peak time, how will workers get to and from the work site, and where they will park. The peak period extends for several hours in both the AM and PM periods; the AM peak period typically occurs between 7:00 a.m. and 9:00 a.m., and the PM peak period is typically between 4:00 p.m. and 6:00 p.m. TR-IAMF#2: Off-Street Parking for Construction-Related Vehicles describes the Authority's commitment to identifying adequate off-street parking for all construction-related vehicles for the construction duration. The actual location of the parking spaces will depend on the final plans for each spoils generation area or construction site. The Construction Management Plan (CMP), which is required as part of TR-IAMF#2, will address construction employee arrival and departure schedules and employee parking locations. To address the travel patterns of construction workers, the CMP could encourage alternative modes of travel such as walking, biking, and taking transit, where feasible. The commenter asks where construction vehicles and equipment would be

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stored. All construction equipment will be stored at the construction site in laydown areas. The commenter states that the Authority places the burden of implementing IAMFs and mitigation on contractors and asks who is ultimately responsible for any failures pertaining to the IAMFS. The Authority is responsible for implementation of IAMFs, which are design features integrated into the project to avoid and minimize impacts. The IAMFs are considered as part of all six Build Alternatives. The Authority would implement IAMFs during design and construction of the selected Build Alternative. The description of each measure details the means and effectiveness of the measure in avoiding or minimizing impacts, as well as the environmental benefits of implementing the measure. The IAMFs are included in the Mitigation Monitoring and Enforcement Plan to enhance implementation tracking, identify the responsible party, and clarify implementation timing.

4494-9178

The commenter makes statements about the spoils hauling traffic analysis and results of the evaluation of roadway segments, intersections, and ramps.

Under CEQA, LOS and traffic delay are not considered significant environmental impacts. The results of the operational analysis presented in the Draft EIR/EIS are only provided at the locations where construction of the relevant Build Alternative would result in LOS below the applicable standard. For the Refined SR14 and SR14A Build Alternatives, Table 3.2-20 presents the six locations where poor operating conditions would occur during construction (some locations would be affected under multiple scenarios). However, as documented in the Transportation Technical Report, nine locations were studied. As noted in the comment, spoils hauling trucks are longer than regular passenger vehicles. For the technical analysis, each truck was assigned a passenger car equivalent of three (Transportation Research Board 2010). See the Addendum to the Transportation Technical Report, April 2019, Section 6.5.1.1, for additional information.

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4494-9179

The commenter questioned the applicability and effectiveness of construction-related mitigation measures discussed in the Draft EIR/EIS.

Overall, a feasible construction mitigation program was developed, as documented in the Draft EIR/EIS and explained below. Construction activities are anticipated to occur approximately 8 hours per day for most spoils removal locations; however, some locations would require two shifts with activities totalling 16 hours a day. TR-IAMF#6 restricts construction hours to off-peak travel times. When implemented, this would result in more truck activities during the midday (between 9:00 a.m. and 4:00 p.m.), which would not cause light pollution or stress the power grid, as suggested by the commenter. If spoils are being generated for longer periods, they would be stored on-site to be disposed of during available times. Because of noise and light regulations, spoils generation and hauling would not be conducted during overnight hours. Spoils collection areas are locations where the spoils are excavated from underground and held prior to being loaded on the spoils hauling trucks. This approach allows for more efficient disposing of the spoils. Spoils collection areas would be identified in the Construction Management Plan (CMP), as required by TR-MM#12, and would be within the project footprint as analyzed in the Draft EIR/EIS.

TR-IAMF#7 also requires the contractor to utilize appropriate truck routes and avoid impacts on streets not designed to accommodate truck traffic. In addition, Mitigation Measure TR-MM#12 incorporates the preparation of a CMP that includes several elements to minimize the effect of construction traffic on local and regional transportation facilities. The detour routes, as noted in the discussion of mitigation measures, are needed for local traffic to be rerouted around construction zones. Typically detour routes have a minimal impact on air pollution and GHG qualities, as these detours are temporary and the potentially longer trip is offset by the reduction in delays that occur if vehicles wait for flaggers at the construction zone. In addition, with full closure of roadways, the construction duration can be reduced, which can also result in less total air pollution and GHG emissions.

As noted in TR-MM#12, it may be possible to temporarily restripe roadways to maximize the efficiency of intersections and streets. Any changes to the roadway network proposed by the Authority would need to follow the design standards of the affected

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jurisdiction, LADOT, and Caltrans, as appropriate. In general, jurisdictions have minimum lane width standards that would need to be adhered to (for example, the LADOT has a standard lane width of 12 feet and a minimum lane width of 10 feet, as documented in the 2020 Manual of Policies and Procedures - Application and Design for Striping, Channelization and Special Signing). These standards are adopted to reduce the likelihood of vehicle accidents. In addition, the affected jurisdiction would need to approve any design that deviates from the standard, and demonstrate that it would not have a detrimental effect on safety. As such, an increase in collisions due to the narrowing of lanes is not anticipated. However, if an increase in collisions does occur because of narrowed lanes, or the implementation of other mitigation measures, the Authority would work with the local and regional agencies to identify countermeasures to reduce the chance for vehicle crashes.

Locations where narrowed lanes would be needed, and whether reductions in on-street parking would be required, are unknown at this time. At any locations where this need is identified, the Authority would work with the affected jurisdiction to identify temporary replacement parking, as needed. As described above, implementation of TR-MM#12 requires the development of the CMP, which will include means to facilitate the flow of traffic in and around the construction zone. One measure is the stationing of traffic control officers at major intersections during peak times. Traffic control officers can override the pre-timed traffic signal phasing and green times, and thus can better adjust for high volumes and account for delays at critical movements. Another CMP measure is the development of alternative routes around sensitive facilities. Alternative routes differ from detour routes in that detour routes are established to direct traffic around roadway closures or where construction activities are occurring, whereas alternative routes are minor shifts in traffic which can be applied to detour routes or regular roadways. As such, these can be effective strategies to address construction activities.

Another typical measure associated with a CMP, which would be implemented as part of TR-MM#12, is a program to facilitate coordination and outreach with the public as well as with business owners. This program would distribute information about the construction process and facilitate coordination with business owners to minimize impacts during construction activities. The Authority will provide affected business owners individualized assistance and within the limits established by law and regulation,

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minimize the economic disruption that could occur to property owners affected by project construction. More information on business disruption can be found in other portions of the EIR/EIS, including Section 3.12, Socioeconomics and Communities.

TR-MM#2 would include modifying signal timing and TR-MM#3 would include modifying signal phasing to accommodate construction-related activities. Traffic signals can operate on a pre-timed basis (where the green times for individual movements are fixed - either the same throughout the day, or vary by time of day) or actuated basis (where the green times are activity adjusted to reflect traffic volumes). Because of construction spoils truck activities and potential road closures, traffic patterns may change in the area during each phase of construction. These mitigation measures would require the Authority to modify the signalization plan to reflect different traffic volumes, thus improving the efficiency of the signal. At locations that have actuated traffic signals, the Authority could adjust the minimum and maximum green times per each approach to ensure that vehicular delays are minimized. TR-MM#4 would include installing temporary traffic signals to existing intersections generally within existing right of way.

In general, these signals could be beneficial when there would be an increase in vehicles at unsignalized intersections during construction. As traffic volumes increase, the provision of new traffic signals would improve operating conditions and the delay per vehicle. Note that signals would only be installed where the applicable traffic signal warrants would be met. The cost of the temporary signals would likely be less than a permanent signal and would be paid for by the Authority as a project mitigation requirement. As noted in TR-MM#6, there may be locations where the intersection could be widened by adding an additional through travel lane to mitigate the impact of construction activities. This would most likely be applied in rural locations or where additional right-of-way is available. Any changes to the roadway network proposed by the Authority would need to follow the design standards of the affected jurisdiction, LA DOT, and Caltrans, as appropriate. TR-MM#8 includes the reconfiguration of the intersection geometry to improve operating conditions and reduce delays. In these locations, the configuration of the intersection, in terms of the number of lanes at each approach, and their allowable movements would be modified to optimize operations (for example, a left-turn pocket could be provided with exclusive left-turn signal timing to replace a shared left-through lane). In combination, these mitigation measures would

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help address operational issues to intersections, roadways, ramps, and freeway segments that would result from construction of the project, and the Authority would work with the applicable jurisdictions to design and implement the measures.

While the commenter suggests that the mitigation measures in the EIR/EIS are not feasible and will not work, the commenter does not provide evidence supporting this claim. The IAMFs and mitigation measures described in the Draft EIR/EIS, as summarized above, are feasible and implementable.

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4494-9180

Refer to Standard Response PB-Response-N&V-5: Impacts of Spoils Hauling (Noise).

The commenter notes that the responsibility of mitigating roadway impacts within the ANF and SGMNM is placed on the construction contractor.

As addressed in the Draft EIR/EIS, Appendix 3.1-C: Standardized Mitigation Measures, a Mitigation Monitoring Enforcement Plan (MMEP) is required, which identifies the responsibility and timing for each mitigation measure. Specifically, the Authority is accountable for the overall administration of the MMEP and for assisting in oversight and reporting responsibilities. The commenter states that roadways in the ANF and SGMNM are not built to accommodate the volume and weight of construction spoils hauling trucks. In the event that damage occurs to roadways within the ANF and SGNM, TR-IAMF#1 would be implemented. This IAMF describes the Authority's commitment to returning public roadways to the equivalent of their original pre-HSR construction structural condition or better. Prior to construction, the Contractor shall provide a photographic survey documenting the condition of the public roadways along truck routes providing access to the project site. The photographic survey shall be submitted for approval to the agency responsible for road maintenance and the Authority and the Contractor shall be responsible for the repair of structural damage to public roadways caused by HSR construction or construction access, returning damaged sections to the equivalent of their original pre-project construction structural condition or better. To reduce the effect of construction-generated activity during times when the roadway network is most congested, TR-IAMF#6 restricts construction hours to minimize traffic impacts (generally between 7 a.m. and 9 a.m. and between 4 p.m. and 6 p.m. on weekdays). This may result in somewhat higher activities during non-peak periods (i.e., between 9 a.m. and 4 p.m.); however, roadways typically have lower volumes during these times and thus can better accommodate additional vehicles without the degradation of conditions and substantial increases in delays. Requiring construction activity to occur outside the peak hours will avoid creating the noise and air quality concerns raised by the commenter. Refer to PB-Response-N&V-5: Impacts of Spoils Hauling (Noise), for additional information regarding concerns of noise generated from spoils hauling associated with each of the Build Alternatives.

4494-9181

The commenter projects that the project construction may generate more greenhouse gases than the project will save. The Authority has calculated the payback of Greenhouse Gas (GHG) Emissions for the six Build Alternatives at 4 to 6 months of project operation (Draft EIR/EIS Table 3.3-44). In other words, the Authority predicts it would take between 4 to 6 months of operation of the Palmdale to Burbank Project Section to offset construction-related GHG emissions. After that, the project will produce net benefits by reducing greenhouse gas emissions (Draft EIR/EIS page 3.3-126). The commenter contends that the HSR has been "the largest recipient of cap-and-trade funds," but "has achieved 0 tons of GHG reductions. . ." It reproduces data from the Cap-and-Trade Auction Proceeds 2021 Annual Report. The 2022 Scoping Plan, however, lays out a path to achieve targets for carbon neutrality and reduce anthropogenic greenhouse gas emissions by 85 percent below 1990 levels no later than 2045, as directed by Assembly Bill 1279. As transportation accounts for 38 percent of the State's current GHG emissions inventory (CARB 2022), public transportation projects of all kinds are critical to meeting the reduction goals (see CARB 2022, p. 194). There have been several studies and business plan models that reflect the current assumptions at the time of the study. The methods used to quantify the regional emissions are summarized in Section 3.3.4.3 of the Draft EIR/EIS. As such, projected GHG emissions reductions from the project, and the entirety of the larger HSR project, vary accordingly. In all cases, however, the project is predicted to reduce GHG emissions. The comment suggests that other projects could have more "efficacy" compared to the HSR. Inasmuch as the comment suggests that the project is not as valuable or cost-effective as other unrelated existing large-scale initiatives in reducing statewide GHG emissions, this is not a "significant environmental issue" associated with the project requiring a response under CEQA (see CEQA Guidelines section 15088(a)). NEPA does not require the cost-benefit analysis that the commenter seeks. Regarding the difference between the GHG reductions in the EIR/EIS and the 2021 CCI Climate Report, the EIR/EIS is based upon the 2016 Business Plan whereas the CCI Climate Report is based on the 2020 Business Plan. That 2020 Business Plan was not available when the Authority was developing the project baseline.

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4494-9182

The commenter inquires as to why there is a discrepancy in the data reported in the 2020 Business Plan and the data reported in the Draft EIR/EIS with respect to GHG reductions. The GHG emission reductions listed in Exhibits 1.4 and 1.5 of the 2020 Business Plan focus on cumulative emissions; the emission reduction for a specific year is the sum of the reduction for that year and all of the previous years. The Draft EIR/EIS presented emission reductions for specific, stand alone analysis years. In all cases, however, the project is expected to reduce GHG emissions (for example, as shown in Table 3.3-46 of the Draft EIR/EIS, the project is expected to reduce annual GHG emissions by 1.1 to 1.8 million metric tons per year). Regarding the difference between the GHG reductions in the EIR/EIS and the 2020 Business Plan, the EIR/EIS is based upon the 2016 Business Plan as opposed to the 2020 Business Plan. For the Draft EIR/EIS, the Authority used the 2016 information when developing its baseline. Using the 2016 Business Plan as a baseline, GHG emissions are still reduced compared to the 2020 Business Plan. Impact AQ#13 of the Draft EIR/EIS describes the statewide GHG reductions from operation of the Palmdale to Burbank Project Section. Please refer to Section 3.1.4.5 of the Final EIR/EIS, which provides additional information about the baseline used in the Draft EIR/EIS and why it is appropriate.

4494-9183

The commenter suggests that the California Climate Investments summary present data on the HSR. The Authority has no control over what data is included in reports prepared by other organizations, such as California Climate Investments (mentioned in the comment). Table 3.3-43, in Section 3.3 of the Draft EIR/EIS, shows the anticipated total GHG construction emissions for each of the six build alternatives. Table 3.3-44, in Section 3.3 of the Draft EIR/EIS, shows the payback of Greenhouse Gas Emissions for the six Build Alternatives. Depending on the Build Alternative and Ridership Scenario, construction-related GHG emissions would be paid back in 4 to 6 months of project operation, meaning that it would take between 4 to 6 months of operation of the Palmdale to Burbank Project Section to offset construction-related GHG emissions. In summary, "[a]fter a maximum of 6 months, the Build Alternatives would result in net annual emissions reductions and a GHG benefit" (Draft EIR/EIS, p. 3.3-126). The California High Speed Rail Project is listed in the AB 32 Climate Change Scoping Plan (2008) under Recommended Actions: Emissions Reduction Measures #12 and also in the "2017 Scoping Plan Update as a component of a sustainable transportation system and would be consistent with the State's plan to achieve GHG emission reductions in the long run" (Draft EIR/EIS, pp. 3.3-126, 3.3-129). The 2022 Scoping Plan lists investment in public transit and expansion of planned networks of transportation infrastructure as strategies for achieving success under AB 32 (CARB 2022, p. 194). Thus, the project is considered a critical part of meeting the State's GHG emissions reduction goals under AB32 and certainly "would not impede the State from meeting the statewide GHG emissions reductions target" (Draft EIR/EIS, p. 3.3-129). Inasmuch as the comment suggests that the project is not as valuable or cost-effective as other unrelated existing large-scale initiatives in reducing statewide GHG emissions, this is not a "significant environmental issue" associated with the project requiring a response under CEQA (see CEQA Guidelines section 15088(a)). NEPA, too, does not require the cost-benefit analysis that the commenter seeks.

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4494-9184

The commenter inquires how the project will meet the requirements of AB 32. The commenter also cites the Due Diligence report and question how the project would achieve cost-effective reductions in GHG emissions.

The Due Diligence report referenced in the comment was published in 2013 and pre-dates the environmental studies performed for the project and is therefore not based upon project-specific assumptions and parameters. The Due Diligence report states that the Greenhouse Gas (GHG) emissions payback period for the project is expected to be 71 years. The Authority has calculated the Payback of GHG emissions for the six Build Alternatives at 4 to 6 months of project operation (Draft EIR/EIS Table 3.3-44). In other words, the Authority predicts it would take between 4 to 6 months of operation of the Palmdale to Burbank Project Section to offset construction-related GHG emissions. After that, the project will produce net benefits by reducing greenhouse gas emissions.

The California High Speed Rail Project is listed in the AB 32 Climate Change Scoping Plan (2008) under Recommended Actions: Emissions Reduction Measures #12 and also in the "2017 Scoping Plan Update as a component of a sustainable transportation system and would be consistent with the State's plan to achieve GHG emission reductions in the long run" (Draft EIR/EIS, pp. 3.3-126, 3.3-129). The 2022 AB 32 Scoping Plan lists investment in public transit and expansion of planned networks of transportation infrastructure as a strategies for achieving success under AB 32 (CARB 2022, p. 194). Consequently, the project is considered a critical part of meeting the State's GHG emissions reduction goals under AB 32and certainly "would not impede the State from meeting the statewide GHG emissions reductions target" (Draft EIR/EIS, p. 3.3-129).

Inasmuch as the comment suggests that the project is not as valuable or cost-effective as other unrelated existing large-scale initiatives in reducing statewide GHG emissions, this is not a “significant environmental issue” associated with the project requiring a response under CEQA (see CEQA Guidelines section 15088(a)). NEPA, too, does not require the cost-benefit analysis that the commenter seeks.

4494-9185

The commenter inquires how GHG emissions during operation of the project were calculated and if they account for construction emissions as well. The commenter also asks for the net increase or reduction in project emissions and questions how the payback period for GHG emissions was calculated. The commenter also references SB 32. Table 3.3-43 in Section 3.3 of the Draft EIR/EIS shows the anticipated total GHG construction emissions for each of the six build alternatives. Construction GHG emissions would be generated starting in year 2020 and end in year 2029. Table 3.3-44 in Section 3.3 of the Draft EIR/EIS shows the payback of greenhouse gas emissions for the six Build Alternatives. Note 1 of Table 3.3-44 explains how construction emissions factored into the calculations of GHG emissions payback. Payback periods were estimated by dividing the total GHG emissions generated during construction from year 2020 to year 2029 by the annual GHG emission reduction during operations. As shown in Table 3.3-44, depending on the Build Alternative and Ridership Scenario, construction-related GHG emissions would be paid back in 4 to 6 months of project operation, meaning that it would take between 4 to 6 months of operation of the Palmdale to Burbank Project Section to offset construction-related GHG emissions. In summary, "[a]fter a maximum of 6 months, the Build Alternatives would result in net annual emissions reductions and a GHG benefit" (Draft EIR/EIS, p. 3.3-126). More specific detail can be found in the Air Quality and Global Climate Change Technical Report prepared for the project (see https://hsr.ca.gov/programs/environmental-planning/project-section-environmental-documents-tier-2/palmdale-to-burbank-environmental-documents/). The California Legislative Analyst's Office evaluation referenced in the comment was prepared in 2012 and pre-dates the environmental studies performed for the project and is therefore not based upon project-specific assumptions and parameters. In addition, the evaluation, and the way it is discussed in this comment, assessed the HSR project in its entirety, and not any one specific segment, such as the project. The Berkeley study referenced in the comment also pre-dates the environmental studies performed for the project and is not based upon project-specific assumptions and parameters. The Berkeley study does not represent the project as currently proposed. Regarding SB 32 (referenced in the comment), as stated in the Draft EIR/EIS, because of the net-negative effect of the project, "o]peration of any of the Build Alternatives would help the State reach the goal established in SB 32 (reduce GHG emissions to a level that is 40 percent below 1990 conditions by the year 2030)" (p. 3.3-129). As the project is unlikely be fully constructed and operational by

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2030, this statement has been revised in the Final EIR/EIS to reflect how the project would help the state reach the goal established in AB 1279 for year 2045 goals of an 85 percent reduction below 1990 conditions (see Final EIR/EIS, p. 3.3-129) The comment references "SB 32," although it was likely referencing AB 32. In reference to that bill, the California High Speed Rail Project is listed in the AB 32 Climate Change Scoping Plan (2008) under Recommended Actions: Emissions Reduction Measures #12 and also in the "2017 Scoping Plan Update as a component of a sustainable transportation system and would be consistent with the State's plan to achieve GHG emission reductions in the long run" (Draft EIR/EIS, pp. 3.3-126, 3.3-129). The 2022 AB 32 Scoping Plan lists investment in public transit and expansion of planned networks of transportation infrastructure as a strategies for achieving success under AB 32 (CARB 2022, p. 194). Consequently, the project is considered a critical part of meeting the State's GHG emissions reduction goals under AB 32 and certainly "would not impede the State from meeting the statewide GHG emissions reductions target" (Draft EIR/EIS, p. 3.3-129).

4494-9186

The comment disputes the Authority's conclusions that it will, in the long-run, vastly decrease greenhouse gas (GHG) emissions. The Authority's calculations demonstrate that this project section, in particular, will only take six months of operations to offset its construction GHG emissions (Draft EIR/EIS Table 3.3-44). The commenter disputes the timelines and the mechanisms that the Authority will use to mitigate its GHG emissions. It fails to recognize that building a project of this size and scope requires time and investment for long-term benefits. At the Legislature's direction, the Authority has developed an ambitious project with ambitious timelines and an ambitious scope to benefit all Californians. The Draft EIR/EIS reflects that investment and those benefits. For details, service on the constructed portions of the California HSR system is expected to start in 2025 (Draft EIR/EIS, p. 2-197). The construction period for the entirety of the Palmdale to Burbank segment will vary between 8.33 and 9.25 years (Draft EIR/EIS, p. 2-198). As stated in the Draft EIR/EIS, because, on net, the project reduces greenhouse gas emissions: "[o]peration of any of the Build Alternatives would help the State reach the goal established in SB 32 (reduce GHG emissions to a level that is 40 percent below 1990 conditions by the year 2030)" (p. 3.3-129). SB32 effectively codified and replaced the directives in EO B-30-15 (Draft EIR/EIS, p. 3.3-10). However, as the project is unlikely be fully constructed and operational by 2030, this statement has been revised in the Final EIR/EIS to reflect how the project would help the state reach the goal established in AB 1279 for year 2045 goals of an 85 percent reduction below 1990 conditions. (see Final EIR/EIS, p. 3.3-129) Construction GHG emissions will, essentially, be offset by the net negative effect of project operation. As shown in Table 3.3-44, depending on the Build Alternative and Ridership Scenario, construction-related GHG emissions would be paid back in 4 to 6 months of project operation, meaning that it would take between 4 to 6 months of operation of the Palmdale to Burbank Project Section to offset construction-related GHG emissions. In summary, "[a]fter a maximum of 6 months, the Build Alternatives would result in net annual emissions reductions and a GHG benefit" (Draft EIR/EIS, p. 3.3-126). The comment confuses GHG emissions and off-set credits. The comment suggests that the project emissions will exceed "AQMD emission levels in 7 of the 9 years of construction." Offset credits will not be purchased through SCAQMD for GHG emissions. The Authority will purchase credits from SCAQMD for other project-related construction air quality impacts, like volatile organic compounds (VOC), NOx, and particulate matter (PM10 and PM2.5). As explained in AQ-MM#1 (Draft EIR/EIS, p. 3.3-130 and Table 1 of the CHSR Standard Mitigation Measures), the Authority will use offsets to demonstrate that, during construction, those pollutant emissions will not

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4494-9186

conflict with the State Implementation Plan (SIP) (see, e.g., Draft EIR/EIS, pp. 3.3-2, 3.3-72, 3.3-73,3.3-79). As indicated in the comment, even with the purchase of a variety of offset credits vis-a-vis AQ-MM#1 through AQ-MM#3, the Draft EIR/EIS shows that for Impact AQ#2, Impact AQ#3, and Impact AQ#5, construction of the project would indeed lead to significant and unavoidable impacts after implementation of AQ-IAMF#1 through AQ-IAMF#6 (see Table 3.3-48). However, all other air quality impacts related to construction would be less than significant. Inasmuch as the comment suggests that the project may not fully comply with an investment plan prepared by the department of finance, this is neither a component of the project, nor is it a "significant environmental issue" associated with the project requiring a response under CEQA (see CEQA Guidelines section 15088(a)). For its part, NEPA does not require analysis of financial impacts, only environmental impacts.

4494-9187

The comment asks how the Authority can receive cap-and-trade funds for greenhouse gas (GHG) emissions while needing to purchase offset credits. The comment is conflating pollutant categories. For GHG emissions, Table 3.3-44 in Section 3.3 of the Draft EIR/EIS shows the payback of greenhouse gas emissions for the six Build Alternatives. Depending on the Build Alternative and Ridership Scenario, construction-related GHG emissions would be paid back in 4 to 6 months of project operation, meaning that it would take between 4 to 6 months of operation of the Palmdale to Burbank Project Section to offset construction-related GHG emissions. In summary, "[a]fter a maximum of 6 months, the Build Alternatives would result in net annual emissions reductions and a GHG benefit" (Draft EIR/EIS, p. 3.3-126). Offset credits will not be purchased through SCAQMD for GHG emissions. The Authority will purchase credits from SCAQMD for other project-related construction air quality impacts, like volatile organic compounds (VOC), NOx, and particulate matter (PM10 and PM2.5). As explained in AQ-MM#1 (Draft EIR/EIS, p. 3.3-130 and Table 1 of the CHSR Standard Mitigation Measures), the Authority will use offsets to demonstrate that, during construction, those pollutant emissions will not conflict with the State Implementation Plan (SIP) (see, e.g., Draft EIR/EIS, pp. 3.3-2, 3.3-72, 3.3-73, 3.3-79). No offset credits are proposed for GHG emissions (see Section 3.3.7).

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4494-9188

The comment asks if the Authority will return funds to the Greenhouse Gas Reduction funds. The comment inaccurately assumes that the HSR will not reduce greenhouse gas (GHG) emissions. Table 3.3-44 in Section 3.3 of the Draft EIR/EIS shows the payback of greenhouse gas emissions for the six Build Alternatives. Depending on the Build Alternative and Ridership Scenario, construction-related GHG emissions would be paid back in 4 to 6 months of project operation, meaning that it would take between 4 to 6 months of operation of the Palmdale to Burbank Project Section to offset construction-related GHG emissions. In summary, "[a]fter a maximum of 6 months, the Build Alternatives would result in net annual emissions reductions and a GHG benefit" (Draft EIR/EIS, p. 3.3-126). The comment provides no evidence or analysis that suggests that the project will not result in a net negative reduction in GHG emissions. Inasmuch as the comment raises issues associated with government funding for the reduction of GHG emissions, this is neither a component of the project, nor is it a "significant environmental issue" associated with the project requiring a response under CEQA (see CEQA Guidelines section 15088(a)). Under NEPA, as well, project funding changes do not impact the human environment.

4494-9189

The commenter asks if there is "any possibility that CHSRA will not be permitted to purchase the entirety of credits necessary to offset its construction emissions?" It is anticipated that agreements will be in place with each air district to ensure that offset credits or other mechanisms account for the project's construction emissions. The offset credits are required to demonstrate that the project's criteria pollutant emissions generated during construction will not conflict with the State Implementation Plan (SIP) (see, e.g., Draft EIR/EIS, pp.3.3-2, 3.3-72, 3.3-73, 3.3-79). For details on the public's opportunity to review and respond to the project and its environmental analysis, refer to Section 1.2.1 of Chapter 17 the Final EIR/EIS.

4494-9190

The commenter initially summarizes the construction activities that were evaluated in the Draft EIR/EIS. The commenter then proposes calculations of CO2 emissions that might have been generated by the manufacturer for the cement that would be used during the construction of the tunnels.

The commenter's detailed assumptions and calculations are noted and appreciated. However, as shown in Table 3.3-3 (Key Topics and Issues for Air Quality and Global Climate Change Impacts) in Section 3.3, Air Quality and Global Climate Change, of the Draft EIR/EIS, the air quality and greenhouse gas analyses did include the emissions associated with the operation of concrete batch plants. These emissions included the delivery of the materials, including cement, required to manufacture the concrete and the trucks required to transport the finished product to the construction site.

As explained in the discussion of Impact AQ#12: Total Regional Construction Greenhouse Gas Emissions and Impact AQ#13: Statewide and Regional Operations Greenhouse Gas Emissions Analysis in Section 3.3 in the Draft EIR/EIS, all Build Alternatives for the Palmdale to Burbank Project Section, and the Statewide HSR System, would result in reductions in GHG emissions over the life of the project due to reductions in vehicle and aircraft travel. These GHG emissions reductions would offset the short-term GHG emissions associated with project construction, resulting in net reductions of GHG emissions, after the initial 4 to 6 months of operations. These GHG emissions reductions would continue in the long term over the life of the project. Thus, the project would have a long-term beneficial effect on GHG emissions and global climate change.

The Draft EIR/EIS does not evaluate GHG emissions generated upstream (e.g., material manufacturing) and downstream (e.g., recycling) of construction. Lifecycle emissions for cement and aggregate manufacturing, which is upstream of the concrete batching process, have been studied in various literature. Any indirect GHG emissions generated upstream and downstream of construction would not materially change the magnitude of the substantial GHG emissions reductions and beneficial climate change effects over the life of the project as disclosed in the Draft EIR/EIS.

The analysis in the Draft EIR/EIS is consistent with the California Natural Resources

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4494-9190

Agency's Final Statement of Reasons for Regulatory Action Amendments to the State CEQA Guidelines (2018), which states that "a full 'lifecycle' analysis that would account for energy used in building materials and consumer products will generally not be required" under CEQA. The analysis in the Draft EIR/EIS also is consistent with the Council on Environmental Quality's interim NEPA Guidance on Consideration of Greenhouse Gas Emissions and Climate Change (88 Fed. Reg. 1196 [Jan. 9, 2023]), which states that "the rule of reason should guide the agency's analysis and the level of effort can be proportionate to the scale of the net GHG effects and whether net effects are positive or negative, with actions resulting in very few or an overall reduction in GHG emissions generally requiring less detailed analysis than actions with large emissions."

4494-9191

The commenter asks if the Draft EIR/EIS included the greenhouse gas emissions associated with the creation of the cement that would be used to build the tunnel portions of the project. Please refer to Response to Comment #9190.

4494-9192

The commenter asks about the source of concrete for the concrete/cement tunnel linings and asks "[h]ow many tons of CO2 will be emitted during the production of the concrete needed to construct the remaining 492 miles connecting San Francisco to Los Angeles?" The commenter also asks if California Climate Investments is aware of the emissions figures. Regarding the questions about the source of concrete for concrete/cement tunnel linings, the pre-fabricated concrete tunnel lining segments would be produced locally at a precast plant installed by the contractor, or at existing pre-cast concrete plants adapted to produce the segments, which will depend on the contractor's means and methods planning. As required by AQ-IAMF#6, prior to construction of any concrete batch plant, the contractor will provide the Authority with a technical memorandum documenting consistency with the Authority's concrete batch plant siting criteria and utilization of typical control measures to reduce fugitive dust and emissions. Regarding the question about the transportation of pre-fabricated concrete tunnel lining pieces and associated GHG emissions, first the Authority would like to clarify that the commenter's estimate for the number of pre-fabricated lining segments is not correct. As documented in Volume 3 of the Draft EIR/EIS (PEPD Record Set REV02 Tunnel Plans, Dwg TNC0202), precast segments are typically 5.25 feet and not 40 feet as identified by the commenter. Emissions from truck material hauling and concrete production are included in the emissions modeling for the project, pursuant to assumptions made for the project (see Draft EIR/EIS, pages 3.3-1, 3.3-23 [Table 3.3-3], 3.3-27 to 3.3-28). Please see Section 3.3.6.3 of the Draft EIR/EIS, as well as the Palmdale to Burbank Project Air Quality and Global Climate Change Technical Report for additional emissions modeling details (see https://hsr.ca.gov/programs/environmental-planning/project-section-environmental-documents-tier-2/palmdale-to-burbank-environmental-documents/). Impact AQ#2 summarizes the regional air quality impacts; Impact AQ#4 summarizes the health risk assessment for construction emissions, including truck trips; Impact AQ#5 summarizes the localized construction effects of the air quality emissions; and Impact AQ#12 summarizes the total regional construction GHG emissions. For information on air emissions for other HSR segments, please refer to the other Tier 2 environmental documents for those segments, available at https://hsr.ca.gov/programs/environmental-planning/project-section-environmental-documents-tier-2/.Regarding the question as to how many tons of CO2 will be generated during the production of concrete, the EIR/EIS calculates the total CO2 emissions produced during construction for each of the six Build Alternatives. This calculation includes CO2 emissions associated with concrete production and hauling to the construction sites. As reported in Table 3.3-43, the total amount of CO2 generated

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4494-9192

during construction ranges from a low of 5,372 Metric Tons (Refined SR14) to 7,167 Metric Tons (E2A).Regarding whether California Climate Investment is aware of the project and its CO2 emissions, on Page 9 of the California Climate Investments 2023 Annual Report (CCI 2023), available at https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/cci_annual_report_2023.pdf, includes the following statement: "The High Speed Rail Project predates California Climate Investments and has distinct approaches and methodologies for spending funds and tracking and assessing project benefits. Because of these differences, the 2023 Annual Report no longer includes High Speed Rail expenditures in the calculation of total implemented dollars in order to increase consistency with how the High Speed Rail Project is treated relative to all other programs and to provide increased clarity and transparency on the activities of the High Speed Rail Project and all other programs. "Page 50 of the CCI 2023 Annual Report includes the following estimate of the long-term GHG benefits of the HSR project: "Implementation of the High Speed Rail Project provides a variety of benefits to Californians. Estimated GHG emissions reductions from the High Speed Rail Project are 84 to 102 MMTCO2e over its first 50 years of operating life. "Therefore, CCI reports the long-term operational benefits of the HSR project but does not include them in the cumulative statistics included in Appendix A of the 2023 Annual Report. In as much as the comment questions the knowledge of another organization not under the control of the Authority, this is neither a component of the project, nor is it a "significant environmental issue" associated with the project requiring a response under CEQA (see CEQA Guidelines section15088(a)). Emissions estimates for the other project segments can be found in the applicable EIR/EIS.

4494-9193

The commenter asks what the impact of the concrete required to reinforce sections of the tunnels will have on the project's greenhouse gas emissions.

The quantified greenhouse gas emissions from construction of the HSR Palmdale to Burbank Section is presented in Section 3.3, Air Quality and Global Climate Change of the Draft EIR/EIS (see Impact AQ#12). HYD-IAMF#6: Tunnel Lining Systems describes the types of linings that would be installed under various conditions.

As described in Section 3.3.4.3 of the Draft EIR/EIS, the Authority used a set of assumptions in quantifying greenhouse gas emissions. The assumptions used to quantify greenhouse gas emissions included the installation of a second concrete tunnel lining where conditions require it, pursuant to HYD-IAMF#6. Table 3.3-4 in the Draft EIR/EIS includes the construction activities for the project, including those for tunneling, and these assumptions were based, in part, on the quantities that would be needed for a second tunnel lining. Quantities of concrete lining, including those needed for the secondary lining of tunnels, are presented in Appendix D of the Air Quality Technical Report. See the Palmdale to Burbank Project Air Quality and Global Climate Change Technical Report for additional emissions modeling details (see https://hsr.ca.gov/programs/environmental-planning/project-section-environmental-documents-tier-2/palmdale-to-burbank-environmental-documents/).

As such, the analysis presented in the Draft EIR/EIS accounts for the greenhouse gas emissions associated with the limited installation of a second concrete tunnel lining. In addition, the project has an extensive sustainability program that aims to recycle as much material as possible and requires the use of materials with a low carbon footprint. Please also refer to response to comment #9190, which discusses lifecycle emissions analysis.

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4494-9194

The commenter inquires if tunnel spoils would be recycled to use as concrete for the tunnels and notes that the Palmdale to Burbank Project Section would result in more emissions than the Merced to Fresno Section which is of similar length.

The Draft EIR/EIS discusses the potential suitability for the reuse of tunnel spoils on pages 2-21 to 2-213. The use of tunnel spoils depends on the in-situ rock quality and the tunnel excavation method. Tunnel spoils coming from rock formations can be suitable to fill embankments, to produce drainage gravels or base layers and—in case of adequate rock material quality—for processing aggregates for concrete production. The Authority will evaluate the feasibility of using tunnel spoils for concrete production. The use of tunnel spoils is conditioned by the chemistry, mineralogy and particle size generated during excavation. It is also required to process these materials because excavation materials are not standard aggregates from a geometric, physical, and petrographic point of view. Furthermore, the quality of this materials is subject to variations in quality during tunnel driving, depending on the geological conditions and the applied excavation methods. As stated in the Draft EIR/EIS, however, the analysis "conservatively assumes that all of the spoils created during excavations would require off-hauling to disposal or re-use sites" (p. 2-12). The Authority continuously looks for opportunities to reduce emissions, including fuel and energy conservation; recycling and reusing steel, concrete and other materials during construction; specifying use of materials with lower global warming potentials; and using renewable energy. Please see the 2022 Sustainability report for HSR, for more information: https://hsr.ca.gov/wp-content/uploads/2022/10/Sustainability-Report-Final-2022-1011-A11Y.pdf.

The commenter states that the Palmdale to Burbank segment is only 28 miles. That is incorrect. Page 3.3-105 of the Draft EIR/EIS states that the Build Alternatives range in length from 31 to 38 miles long. The commenter also states that the Palmdale to Burbank segment would generate 400,000 to 1,000,000 tons of CO2. That is also incorrect. Depending on the build alternative, the project would generate 134,297 to 179,164 MTCO2e (Table 3.3-43 of the Draft EIR/EIS). Compared to the Madera to Fresno segment, the higher emissions associated with this segment of the HSR are due to the longer length and the tunneling required.

4494-9195

The commenter inquires as to why the project would not use existing transportation corridors rather than tunneling if tunneling produces much more GHG emissions. The commenter also references planting trees to reduce CO2 emissions.

Please see response to comment #9194. While the emissions associated with a tunnel alternative are higher than an at-grade alternative, the emissions per mile are not 30 times greater. The commenter's calculations on tree-planting are similarly inaccurate. As this segment of the HSR project would generate 134,297 to 179,164 MTCO2e (Table 3.3-43 of the Draft EIR/EIS) the emissions are 4.5 to 6 times greater than those generated by the Madera to Fresno segment. Compared to the Madera to Fresno segment, the higher emissions associated with this segment of the HSR are due to the longer length and the tunneling required.

See Chapter 2 of the Draft EIR/EIS, Section 2.4.2 which describes the range of alternatives evaluated and why some were eliminated from further consideration. The Authority evaluated alternatives that would be more at-grade and follow the SR14 freeway more closely. However, these alternatives would result in substantial impacts to existing communities within the project area (see, e.g., Draft EIR/EIS, p. 2-47). In response the Authority developed alignment alternatives to avoid these adverse community impacts. Avoiding these communities requires diverting away from the SR14 freeway corridor. Because of the rugged terrain, this requires tunneling. By tunneling the alignment, alternatives avoid impacts to local communities, existing land uses, habitat, and resources at the surface. Please refer to the 2022 Sustainability Report for more information: https://hsr.ca.gov/programs/green-practices-sustainability/sustainability-report/.

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4494-9196

The commenter inquires if the project would plant 90 million trees, similar to the Madera to Fresno Project Section.

Table 3.3-44 in Section 3.3 of the Draft EIR/EIS shows the payback of greenhouse gas emissions for the six Build Alternatives. The Authority concluded that planting trees is unnecessary to reduce construction-related greenhouse gas (GHG) emissions. Depending on the Build Alternative and Ridership Scenario, construction-related GHG emissions would be paid back in 4 to 6 months of project operation, meaning that it would take between 4 to 6 months of operation of the Palmdale to Burbank Project Section to offset construction-related GHG emissions. In summary, "[a]fter a maximum of 6 months, the Build Alternatives would result in net annual emissions reductions and a GHG benefit" (Draft EIR/EIS, p. 3.3-126). As shown in Table 3.3-10 of the Final EIR/EIS for the Merced to Fresno Project Section, the GHG emissions associated with the construction of the Merced to Fresno Project Section would be paid back within 2 to 4 months of project operation. The project is committed to being a net-zero GHG project - please refer to the 2022 Sustainability Report for more information: https://hsr.ca.gov/programs/green-practices-sustainability/sustainability-report/.

4494-9197

This comment contains only information and quoted text from a magazine article. No response required.

4494-9198

The commenter asks if the electrical requirement estimates shown in Table 3.6-22 (Estimated Energy Consumption for Construction of the Build Alternatives) in Section 3.6 of the Draft EIR/EIS include the energy required to run multiple tunnel boring machines (TBMs) a day with each boring machine requiring up to 3,500 kwh. The commenter then provides their own calculations for the GHG emissions that they estimated for the TBM electricity usage.

As detailed below, Table 3.6-22 in Section 3.6 in the Draft EIR/EIS does include the energy required for operation of TBMs during construction. Regarding the commenter-provided estimate, it is noted that the commenter relies on the EPA's online Greenhouse Gas Equivalencies Calculator for their calculation. As stated on the webpage of this calculator (https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator), the estimates provided by the calculator are approximate and should not be used for emission inventories or formal carbon emissions analysis. Values shown in Table 3.6-22 in Section 3.6 of the Draft EIR/EIS include the total energy that would be consumed for the construction of trackway, stations, and ancillary facilities; production and transportation of construction materials; and the operation and maintenance of construction equipment, including TBMs. However, as explained further below, the Authority used different assumptions about electricity use in the Draft EIR/EIS than the commenter. The commenter does not provide the source for the assumption that each TBM requires 3,500 kWh of electricity per day. The energy consumption of TBMs depends on various factors, such as the geological conditions, the operational parameters, the cutterhead design, and the drive system. The daily energy consumption can differ throughout the complete construction period. In addition, the GHG emissions related to this energy consumption is determined by the energy mix used for electricity generation at each moment, as the project would connect all TBMs to the existing electrical grid. The estimate of the maximum power requirements for TBM tunneling operations based on TBM specifications for similar tunnels (28 feet diameter, excavation in rock) is 15 MW (15,000 kW), with the following assumptions: two TBMs (Hard Rock Type) and their auxiliary services per tunnel portal; 15 MW (15,000 kW) of maximum demand power, considering both machines working full-load; the tunneling works will last several months, operating 24 hours per day, 7 days per week. These assumptions, based on information from TBM operation during construction of the Barcelona Metro Line 9 (Spain), are used in Table 3.6-22 of the Draft EIR/EIS. The particular construction

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4494-9198

process of the tunnel will determine the energy consumed every day, but it will never reach the maximum power required multiplied by the operating time, as there are many circumstances where the TBMs will run at low power, will not run at the same time, or will completely stop due to routine maintenance operations. As such, the estimated energy consumption for construction of the Build Alternatives shown in Table 3.6-22 uses different assumptions than those identified by the commenter and the assumptions used by the Authority are based on estimates that consider the specific conditions associated with the project. In summary, the analysis as summarized in Table 3.6-22 of the Draft EIR/EIS includes energy required for operation of TBMs during construction. Although the calculations provided by the commenter differ in several ways from the estimates in the Draft EIR/EIS, the methodology used in the EIR/EIS is appropriate and supported by substantial evidence.

Regarding comments about GHG emissions associated with electricity use of TBMs, as discussed in Chapter 6, Methods of Evaluating Impacts, of the Air Quality Technical Report, GHG emissions generated by electricity used to power tunnel boring equipment were quantified using activity data (e.g., MWh) provided by the Palmdale to Burbank Project Section design team and the statewide grid average emission factors (Illanes pers. comm.; USEPA 2020b). The GHG emissions associated with that consumption are approximately 46,000 metric tons of carbon dioxide equivalent (CO2e) in total, six times higher than the estimate provided by the commenter. Note that the ratio used to translate electricity demand to GHG emissions in the Draft EIR/EIS analysis is different from that of the EPA calculator used by the commenter, because California's electricity is cleaner than what is assumed in the EPA calculator. As discussed in Impact AQ#12 of the Draft EIR/EIS, the total GHG construction emissions, including GHG emissions from TBM, would be less than 0.03 percent of the total annual statewide GHG emissions. Furthermore, the increase in GHG emissions generated during construction would be offset in less than one year by the net GHG reductions from HSR Phase 1 operations of the Palmdale to Burbank Project Section. As Table 3.3-46 of the Draft EIR/EIS shows, the project is predicted to have a beneficial effect on (i.e., reduce) statewide GHG emissions, when compared with the existing and 2040 future No Project baselines.

4494-9199

The comment asks whether the Draft EIR/EIS greenhouse gas (GHG) emissions estimates include GHG emissions generated by operation of the tunnel boring machines (TBMs). Yes, those emissions are included in the GHG emissions modeling for the project. Please see Section 3.3.6.3, Impact AQ#12, of the Draft EIR/EIS as well as the Palmdale to Burbank Project Air Quality and Global Climate Change Technical Report for additional emissions modeling details (see https://hsr.ca.gov/programs/environmental-planning/project-section-environmental-documents-tier-2/palmdale-to-burbank-environmental-documents/).

4494-9200

The commenter asks if SCE and/or LADWP can provide the electricity required for the project, notes that there is an electrical requirement for cement production, and provides GHG emissions estimates from the electricity needed for cement production. Impact PUE#11: Permanent Operations Energy Demand and Section 3.6.5.10 in Section 3.6, Public Utilities and Energy of the Draft EIR/EIS analyze the electricity generation and transmission capacity impacts. With implementation of PUE-IAMF#1, project operation would not place a substantial demand on regional energy supply, require significant additional capacity, or significantly increase peak- and base-period electricity demand, nor would it conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The commenter also references the electricity required to produce the cement needed for the project and CO2 emissions from cement production. The Draft EIR/EIS energy analysis calculates energy usage from construction activities, focused on emissions generated within the project study area. The energy required to produce the cement would be used at an off-site facility upstream of construction and through activities for which the Authority has no practical control. Therefore, the energy required to produce cement used in concrete was not considered. Please see response to comment #9190 for additional information about greenhouse gas emissions associated with cement production during project construction.

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4494-9201

The comment asks if the Draft EIR/EIS included the greenhouse gas (GHG) emissions associated with the electricity required to mix the concrete. No, the Authority did not include those emissions because the GHG emissions from electricity to power the concrete mixers was negligible . However, the air quality and GHG emissions analyses did include the emissions associated with the diesel concrete trucks. Table 3.3-44 of the Draft EIR/EIS shows the Payback of Greenhouse Gas Emissions for the six Build Alternatives. Depending on the Build Alternative and Ridership Scenario, construction-related GHGs would be paid back in 4 to 6 months of project operation. Adding the GHG emissions from electric mixers would have no effect on the project's payback period. With implementation of PUE-IAMF#1, project operation would not place a substantial demand on regional energy supply, require significant additional capacity, or significantly increase peak- and base-period electricity demand. The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The commenter remarks on the state, regional, and local air quality standards for sensitive receptors. As described in Draft EIR/EIS Section 3.3.5.5, the people in some locations are considered more sensitive to adverse effects from air pollution than in others. These locations, termed "sensitive receptors," include schools, daycare facilities, elderly care establishments, medical facilities, and other areas with people considered particularly vulnerable to the effects of poor air quality. Residential uses are also considered sensitive because people in residential areas are often at home—and therefore exposed to pollutants—for extended periods of time. Recreational areas are considered moderately sensitive to poor air quality because vigorous exercise associated with recreation places a high demand on the human respiratory function.

4494-9202

The commenter inquires why Angeles National Forest, the San Gabriel Mountains National Monument, the Big Tujunga Wash, and Hansen Dam are not included as sensitive receptors. The commenter also states that the construction period is noted in the Draft EIR/EIS to start in 2020 and that geotechnical investigations will still need to be conducted. National and state parks were not identified in the Draft EIR/EIS as per se sensitive receptors, as indicated in the comment. The South Coast Air Quality Management District (SCAQMD) defines sensitive receptors to be "any residence including private homes, condominiums, apartments, and living quarters, schools, preschools, daycare centers, and health facilities such as hospitals or retirement and nursing homes, long term care hospitals, hospices, prisons, and dormitories or similar live-in housing" (http://www.aqmd.gov/docs/default-source/compliance/advisory_1470.pdf). In addition, in Section 4.6.4 of their 2015 Air Toxics Hot Spots Program Guidance Manual, the California Office of Environmental Health Hazard Assessment (OEHHA) defines sensitive populations to "include young children and chronically ill individuals" and "may require that locations with high densities of sensitive individuals be identified (e.g., schools, nursing homes, residential care facilities, daycare centers, and hospitals)" as sensitive receptor locations (https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf). Therefore, sensitive receptors represent locations where people congregate or occupy for long durations. Unless they include camping or educational areas, national parks are more of a transitory use and are not typically included. Figure 3.3-5 through Figure 3.3-14 of the Draft EIR/EIS show the 1,000-foot analysis buffer and identify the locations of sensitive receptors evaluated within the buffer for each modeling case, including recreational areas. As shown in Figure 3.3-13 of the Draft EIR/EIS, a recreational receptor was identified in the Big Tujunga Wash. Although the project alignment would traverse near or through the Angeles National Forest/San Gabriel Mountains National Monument, no sensitive receptors (i.e., no camping or educational areas) would be present in these areas. The Hansen Dam was not evaluated because this area was not within the 1,000-foot buffer. Regarding the project's construction schedule, Page 3.3-28 in the Draft EIR/EIS states the following, ""Construction emissions calculations are included for each year of Build Alternative construction, which was assumed to occur from 2020 to 2029 at the time this analysis was conducted. While the year 2020 has passed, the listed construction years remain the same for purposes of this environmental analysis because the scope and scale of impacts on air quality are based on the number of construction

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4494-9202

years and activities, which would remain the same in an updated construction timeline." Therefore, the use of this construction timeline and schedule would not result in additional adverse impacts.

Regarding information related to the project's geotechnical investigations, please refer to the response to comment 8844.

4494-9203

The commenter inquires why construction schedule includes dates that have already passed and notes that vehicle exhaust would be a significant impact under CEQA.

Regarding the project's construction schedule, Page 3.3-28 in Section 3.3 of the Draft EIR/EIS states the following, "Construction emissions calculations are included for each year of Build Alternative construction, which was assumed to occur from 2020 to 2029 at the time this analysis was conducted. Although the year 2020 has passed, the listed number of construction years remain the same for purposes of this environmental analysis because the scope and scale of impacts on air quality are based on the number of construction years and activities, which would remain the same in an updated construction timeline. If construction activities were to change in the future (i.e., improved technology leading to greater efficiencies), these changes would lead to less construction-related emissions." Therefore, the use of this construction timeline and schedule would not result in additional adverse impacts. The impact discussed on page 3.3-133 of the Draft EIR/EIS (Impact AQ#5), referenced in the comment, states that the impact will be significant and unavoidable, even after implementation of IAMFs and MMs, for two air pollutants under four worse-case scenarios.

4494-9204

The commenter inquires if emissions from spoils hauling trucks are included in the emissions modeling for the Palmdale to Burbank Project Section. Emissions from truck material hauling is included in the emissions modeling for the project, pursuant to assumptions made for the project (see, e.g., Draft EIR/EIS, pp. 3.3-1, 3.3-23 [Table 3.3-3], 3.3-27 to 3.3-28). Please see Section 3.3.6.3 of the Draft EIR/EIS as well as the Palmdale to Burbank Project Section: Air Quality and Global Climate Change Technical Report for additional emissions modeling details (see https://hsr.ca.gov/programs/environmental-planning/project-section-environmental-documents-tier-2/palmdale-to-burbank-environmental-documents/). Please see Section 3.3 of the Final EIR/EIS for updated information on emissions, including trick trips. Impact AQ#2 summarizes the regional air quality impacts; Impact AQ#4 summarizes the health risk assessment for construction emissions, including truck trips; Impact AQ#5 summarizes the localized construction effects of the air quality emissions; and Impact AQ#12 summarizes the total regional construction GHG emissions.

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4494-9205

The commenter inquires as to what the consequence of significant vehicle exhaust emissions is and if a Statement of Overriding Conditions will be prepared for significant and unavoidable impacts. The commenter also states that there is no evidence that the project will lead to a reduction in airline travel because airline tickets are cheaper and are faster.

The Authority will prepare a Statement of Overriding Conditions for any significant and unavoidable impact for which mitigation is not available or would not reduce the impact to a less than significant level, and provides Findings as to the reasons for doing so, pursuant to CEQA Guidelines sections 15093 and 15091. These Findings will be included with the Final EIR/EIS and be part of any Board approval of the project. There is no plan at this time to present the Statement of Overriding Conditions to the State Legislature, nor is that required under CEQA. For its GHG emissions analysis, the Draft EIR/EIS assumed a reduction in aircraft emissions when compared to the No Project baseline as a result of some intrastate travelers shifting to HSR (Draft EIR/EIS, p. 3.3-114). Assumptions regarding flight reductions due to the project can be found in the Business Plan analyses.

4494-9206

This comment refers to analyzing flight reductions under different assumptions than were used in the Authority's Business Plan and does not offer any authority or evidence supporting these modified assumptions. Refer to response to comment 9205 for information on the assumptions used in the Draft EIR/EIS associated with a reduction in flight emissions and the GHG analysis. Refer to response to comment 9183 for a description of how the project is considered a critical part of meeting the State's GHG emissions reduction goals under AB 32. Inasmuch as the comment suggests that the project is not as valuable or cost-effective as other unrelated existing large-scale initiatives in reducing statewide GHG emissions, this is not a "significant environmental issue" associated with the project requiring a response under CEQA (see CEQA Guidelines section 15088(a)). NEPA, too, does not require the cost-benefit analysis that the commenter seeks.

4494-9207

The comment asserts that the Authority "cannot demonstrate that it can achieve cost-effective reductions in GHG emissions." The facts demonstrate otherwise. The California High Speed Rail Project is listed in the AB 32 Climate Change Scoping Plan (2008) under Recommended Actions: Emissions Reduction Measures #12 and also in the "2017 Scoping Plan Update as a component of a sustainable transportation system and would be consistent with the State's plan to achieve GHG emission reductions in the long run" (Draft EIR/EIS, pp. 3.3-126, 3.3-129). The 2022 AB 32 Scoping Plan lists investment in public transit and expansion of planned networks of transportation infrastructure as a strategy for achieving success under AB 32 (CARB 2022, p. 194). Thus, the project is considered a critical part of meeting the State's GHG emissions reduction goals under AB 32 and certainly "would not impede the State from meeting the statewide GHG emissions reductions target" (Draft EIR/EIS, p. 3.3-129). Section 3.3.6.3 of the Draft EIR/EIS presents air quality impacts associated with project air emissions. Some impacts for some build alternatives will remain significant and unavoidable, even after implementation of IAMFs and MMs. CEQA does not require an EIR to demonstrate that all project-related air quality impacts be reduced to less than significant; it only requires that an EIR disclose all possible air quality impacts associated with a project and consider feasible mitigation measures to reduce impacts (see, generally, CEQA Guidelines §§15126.2, 15126.4). NEPA, too, does not require an agency adopt any particular mitigation measure. It only requires analysis. Although this comment does not offer any potential mitigation measures to reduce air quality impacts, the Draft EIR/EIS includes three feasible measures to reduce impacts. Inasmuch as the comment suggests that the project is not cost-effective enough to receive government funding or cap-and-trade auction proceeds from unrelated programs and projects associated with a reduction in GHG emissions, this is not a "significant environmental issue" associated with the project requiring a response under CEQA (see CEQA Guidelines section 15088(a)). NEPA, too, does not require the cost-benefit analysis that the commenter seeks.

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4494-9208

The commenter inquired about what actions will the Authority take to minimize the impacts of EMI/EMF, inquired about a different project section, and asked about methods to ensure contractor compliance.

In Final EIR/EIS Section 3.5, Electromagnetic Interference and Electromagnetic Fields, EMI/EMF-IAMF#2 includes measures to avoid potential impacts via coordination with the Federal Aviation Administration's spectrum engineering office and airport staff, identification of existing airport radio systems, and selection of systems to prevent EMI with identified airport uses. In addition to EMI/EMF-IAMF#2, the Implementation Stage Electromagnetic Compatibility Program Plan (ISEP) and Electromagnetic Compatibility Program Plan (EMCPP) would require monitoring and evaluation of systems performance to ensure compatibility with airport systems (FAA 2014a, of Section 3.5, Electromagnetic Interference and Electromagnetic Fields).

The mechanism for ensuring compliance with all regulations and contractual obligations by the selected contractors (for the entire California HSR system, including the Merced to Fresno Project Section and Fresno to Bakersfield Project Sections which are now under construction, as well as the Palmdale to Burbank Project Section) includes adherence to all IAMFs (i.e., EMI/EMF-IAMF#2). IAMFs are design features and will be required to be implemented for the entire California HSR system.

During development of the design package, the IAMFs will be reaffirmed to be compliant with the design package and any other avoidance or minimization measures that are required during coordination with third parties. With compliance of IAMFs, any impacts regarding electromagnetic interference will be avoided and/or minimized where applicable. In addition, Section 3.5 of the Final EIR/EIS describes a mitigation measure proposed to be implemented to reduce impacts of the project on EMI/EMF. In summary, the Authority will ensure that appropriate standards related to EMI/EMF are met through implementation of its design features (i.e., IAMFs), which the Authority has committed to implement as part of the design of the California HSR System, as well as through application of mitigation.

4494-9209

The commenter inquired about mitigation measures for sensitive receptors within the Resource Study Area (RSA) include impacted businesses, homes, schools, and wildlife. The commenter expresses concern regarding the Palmdale to Burbank Project Section's operation emitting EMI during infrastructure emergencies. sensitive receiver and radio interferences RSAs used to analyze EMI/EMF impacts include the rail alignments, station areas, and ancillary facilities capable of producing EMI/EMFs, including substations, power lines, and electrical interconnections. As noted in Section 3.5, Electromagnetic Interference and Electromagnetic Fields, the sensitive receiver and radio interference RSAs include urban and developed areas in Palmdale, Los Angeles, Burbank, and unincorporated portions of Los Angeles County that encompass the Angeles National Forest. Computer modeling predicts that the EMF level would decay to less than 2 mG at 200 feet from either side of the HSR right-of-way centerline. However, to be conservative, a 500-foot buffer on either side of the HSR alignment centerline (a 1,000-foot-wide corridor) was used for the sensitive receiver RSA. Sensitive receivers within the 500-foot screening distance of the alignment could be impacted by implementation of the Build Alternatives, whereas sensitive receivers outside of this area would be unlikely to experience effects (Authority 2010a). For sensitive receivers such as Sierra Hospital, mitigation measure EMI/EMF-MM#1 will be implemented, which includes requirements of contacting affected third parties to explore relocation or shielding affected equipment to eliminate interference. As also noted in Section 3.5, Electromagnetic Interference and Electromagnetic Fields, right-of-way fencing would prevent larger wildlife from traveling in proximity to harmful EMF levels. For smaller wildlife traveling near the Build Alternative alignments, the effects would be minimal as the wildlife would be exposed in short durations of time, therefore limiting the effects of EMF levels. Because of the fencing, it is unlikely that wildlife would be exposed to high levels of EMF for an extended period of time. Therefore, no impact would occur.

As shown in Table A3.5-1, Band B6 is 200MHz (or 0.2 GHz) to 2.2 GHz and Band B7 is 2.0 GHz to 6.0 GHz, which includes the VHF and UHF bands. HAM radio, which is amateur radio, may be granted permission to transmit emergency communication in certain situations. Emergency HAM Radio is not mentioned explicitly in this EIR/EIS since it is not a part of the existing ambient environment.

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4494-9210

The commenter inquired about the exclusion of HAM radiofrequencies above 2,000 Megahertz (MHz), the use of radio frequency (RF) environment capped at 6 (Gigahertz) GHz, questioned why the RF environment was capped at 200 MHz for Table A3.5-1, and why RF impact on HAM radios was not analyzed in the Draft EIR/EIS.

Baseline measurements to characterize the RF environment were taken in a range from 10 kilohertz (kHz) to 6 GHz, which does include 2000 MHz (2GHz). The 10 Khz to 6 GHz range is used for characterizing the existing ambient environment. Emergency operation is not captured in ambient measurements. As shown in Table A3.5-1 in Appendix 3.5-A, Electromagnetic Measurement Survey Summary of the Draft EIR/EIS, Band B6 is 200 MHz (or 0.2 GHz) to 2.2 GHz and Band B7 is 2.0 GHz to 6.0 GHz, which includes the VHF and UHF bands. HAM radio, which is amateur radio, may be granted permission to transmit emergency communication in certain situations. Emergency HAM radio is not mentioned explicitly in the Draft EIR/EIS since it is not a part of the existing ambient environment. To minimize interference from HSR communication systems, the HSR Build Alternative would employ dedicated, exclusive-use radio bands (Authority2016a). In addition to the use of frequency bands dedicated to the HSR system, the Authority would require communications equipment procured for HSR use, including commercial and noncommercial off-the-shelf products, to comply with FCC regulations designed to prevent EMI with other equipment, as called for in EMI/EMF-IAMF#2. Potential impacts would be avoided through implementation of EMI/EMF-IAMF#2, which would provide the necessary third-party coordination through the EMCPP and ISEP. During the planning stage through system design, the Authority would perform additional EMC/EMI safety analyses. Furthermore, emergency radio operators are expected to be operating with FCC compliant radio communication equipment, also on dedicated frequency bands. Lastly, frequencies in the SHF and EHF range are typically reserved for high precision systems, which require direct line-of-sight, and is beyond the range of what would be typical radiocommunications.

4494-9211

The comment inquires if the Authority decided to use renewable energy to power the project because of Senate Bill 100 (The 100 Percent Clean Energy Act). The Authority's decisions to use renewable energy power preceded the Governor's signing of Senate Bill 100 in September 2018. As explained in Section 3.6.6.3 of the Draft EIR/EIS, the Authority adopted a policy goal of using renewable energy for all traction power in 2008, and adopted its further goal to purchase 100 percent of the entire system's power from renewable energy sources in 2018. Accordingly, these commitments were not made on the basis of Senate Bill 100.

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4494-9212

The commenter questions the validity of the project energy requirements due to the age of the analysis, which the commenter states is 10 years old.

Data in Table 3.6-22, Estimated Energy Consumption for Construction Build Alternatives, in Section 3.6 of the Draft EIR/EIS is based on the Fuel Consumption and Power Usage Matrix prepared in 2017. Operational energy consumption is based on the Authority's 2016 Business Plan. The baseline year for the analysis of project impacts was established after the CEQA Notice of Preparation and NEPA Notice of Intent were issued in 2014, with a public scoping period for the project, and at the onset of environmental analysis (see Draft EIR/EIS, Section S-7, pages 3.3-23 to 3.3-24). CEQA Guidelines section15125(a)(1) supports establishing baseline physical conditions in this manner, therefore, the use of 2016 data in the Draft EIR/EIS is appropriate.

Additionally, the Authority has adopted a sustainability policy under PUE-IAMF#1 as part of the Build Alternatives that establishes design elements and policies intended to reduce energy consumption, including but not limited to, energy-saving equipment, energy-saving measures during construction, and regenerative train braking. With implementation of PUE-IAMF#1 and standard BMPs, project construction would not result in wasteful, inefficient, or unnecessary consumption of energy resources. Construction of the Palmdale to Burbank Project Section would also be consistent with state and local plans and policies related to renewable energy and energy efficiency. With adherence to the Authority's policy on sustainability under PUE-IAMF#1, construction of the Build Alternatives would not result in a substantial demand on regional energy supplies, require additional energy capacity, or substantially increase peak or base period electricity demand.

The commenter identifies the addition of renewable power sources to the grid. Page 2-30 of Chapter 2 of the Draft EIR/EIS indicates the Authority's commitment to using 100 percent clean, renewable energy sources. As such, the addition of more renewable energy sources would improve the future conditions of reliable clean energy to power the California HSR system. The commenter also identifies the expanding electrification of automobile transportation. According to the California Energy Commission, at the end of 2022, battery electric vehicles accounted for 2.6 percent of total light-duty vehicles in California, compared to 0.5 percent in 2016 (https://www.energy.ca.gov/data-

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reports/energy-almanac/zero-emission-vehicle-and-infrastructure-statistics/light-duty-vehicle). While electrification of automobile transportation is expanding, the vast majority (97.4%) of light-duty vehicles are not electric, and the difference (an increase of 2.1 percentage points) would not measurably alter the estimated energy consumption in Table 3.6-22 in Section 3.6, nor modify the findings or conclusions in the Draft EIR/EIS. Further, as noted previously, it is appropriate for the Draft EIR/EIS to use data from 2016.

4494-9213

The commenter asks what discussions have occurred between the Authority and SCE, LADWP and BWP. Please refer to Draft EIR/EIS Chapter 9: Public and Agency Involvement for additional information. Section 9.6 Log of Public and Agency Meetings and Table 9-5 lists outreach and related meetings for the Palmdale to Burbank Project Section. Meeting with SCE occurred on July 8th, 2020 and with LADWP on November 7, 2018. Federal, state, regional, and local agencies, tribes, elected officials, neighborhood councils, organizations, businesses, and the general public participated in these meetings to obtain project information and provide feedback. Additional public and agency meetings have occurred between 2017 and 2021. Due to the COVID-19 pandemic, meetings in 2020 through September 2021 were held virtually over Zoom Meetings. In addition, the Authority will carry out detailed coordination with the California Independent System Operator and California Public Utilities Commission to determine and resolve any applicable regulatory issues as the Authority approaches important milestones, including initiating interconnection agreements. For additional information regarding energy, please refer to the Authority's 2022 Sustainability Report, which can be accessed here: https://hsr.ca.gov/wp-content/uploads/2022/10/Sustainability-Report-Final-2022-1011-A11Y.pdf.

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4494-9214

Refer to Standard Response PB-Response-PUE-1: Energy Use and Consumption.

Refer to Standard Response PB-Response-PUE-1: Energy Use and Consumption. The commenter asks if the Utilities have committed to supplying 100 percent green electricity for the project during various scenarios, including during peak power requirements and heat waves. The commenter also asks about the Authority's planned power backup capabilities. Please refer to Section 2.3.7 of the Draft EIR/EIS and Standard Response PUE-1: Energy Usage and Consumption, which provides information about how the Authority has verified the feasibility of powering the California HSR System with 100 percent renewable energy sources. Regarding coordination with Utility providers for renewable energy, the Authority will carry out detailed coordination with the California Independent Systems Operator and California Public Utilities Commission to determine and resolve any regulatory issues as the Authority approaches important milestones, including initiating interconnection agreements. For additional information regarding energy, please refer to the Authority's 2022 Sustainability Report, which can be accessed here: https://hsr.ca.gov/wp-content/uploads/2022/10/Sustainability-Report-Final-2022-1011-A11Y.pdf.

Regarding power back up capabilities, please refer to Appendix 2-D: Design Baseline Report (page 2-35 "Backup and Emergency Power Supply Sources for Stations and Facilities") in the Draft EIR/EIS. During normal system operations, power would be provided by the local utility or a TPSS. Should the flow of power be interrupted, the system would automatically switch to a backup power source: an emergency standby generator, an uninterruptable power supply, or a direct current (DC) battery system. For the Palmdale to Burbank Project Section, permanent emergency standby generators are anticipated to be located at passenger stations and terminal layup/storage and the Maintenance Facility. Standby generators are required to be tested (typically once a month for a short duration) in accordance with National Fire Protection Association (NFPA) 110/111 to verify readiness for backup and emergency use. If needed, portable generators could also be transported to other trackside facilities to reduce the impact of power interruptions on system operations.

4494-9215

Refer to Standard Response PB-Response-PUE-1: Energy Use and Consumption.

The commenter asks if the Authority has provided peak/normal/minimal power supply requirements to Southern California Edison (SCE), Los Angeles Department of Water and Power (LADWP), and Burbank Water and Power (BWP) and whether these utilities have committed to increasing their infrastructure to meet power requirements for the California HSR System.

As discussed in Section 3.6.4.3 in Section 3.6, Public Utilities and Energy, of the Draft EIR/EIS, the energy analysis focuses on the Palmdale to Burbank Project Section's demand on regional energy supply and the potential need for additional electrical generation capacity to support operations, peak-period electricity demand for operations, overall statewide energy consumption for transportation, and construction-related energy consumption, primarily derived from extending electric utilities to HSR tunnel portal areas during construction. Because the analysis was based on the peak-period energy demand for operation of the project, which provides a worst-case scenario, there is no need to analyze "normal" and "minimal" power demands. The operation energy analysis uses a dual baseline approach. That is, the Palmdale to Burbank Project Sections energy impacts evaluated against existing conditions (2015) and expected 2040 No Project conditions. Impacts in the opening year of HSR operations were also considered. The Authority calculated operation energy consumption for medium and high ridership scenarios for the Phase 1 HSR system. The medium and high scenarios are based on the 2040 level of ridership as presented in the Authority's 2016 Business Plan. As explained in Section 3.1.4.5 of the Final EIR/EIS, the latest 2024 Business Plan shows a lower ridership compared to the 2016 Business Plan. The analysis related to energy use from project operation relied on the assumptions in the 2016 Business Plan. Lower ridership would correlate with reduced energy offsets. However, energy use offsets would still be expected given that vehicle and aircraft trips would still be replaced by rail trips. Therefore, the analysis in this section would still be accurate despite the lower ridership projected in the 2024 Business Plan. Please refer to Standard Response PB-PUE-1: Energy Usage and Consumption, which directs readers to Impact PUE#6: Temporary Energy Consumption during Construction for information regarding temporary energy requirements for project construction and Impact PUE#11: Permanent Operations Energy Demand for details regarding operational

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energy requirements. The complete statewide analysis is included in Appendix 3.6-A, with detailed calculations on the reduction in energy consumption from transportation.

The Authority has met with SCE, LADWP, and BWP to discuss rail system power needs and potential electrical interconnections to each system. Please refer to the utility owner contact logs within Appendix 3.6-A, High Risk &Major Utility Impact Report, for detailed records on coordination with utility providers.

As discussed in Section 2.3.7 and Impact PUE #11: Permanent Operations Energy Demand in Section 3.6, Public Utilities and Energy, of the Draft EIR/EIS, the Palmdale to Burbank Project Section would not include the construction of a separate power source, but instead, would require the extension of underground or overhead power transmission lines to a series of power substations positioned along the HSR corridor. These power substations would be needed to even out the power feed to the train system. Working in coordination with power supply companies and per design requirements, the Authority has identified frequency and right-of-way requirements for these facilities. Power for the Palmdale to Burbank Project Section would be supplied either by SCE or LADWP transmission lines. SCE has indicated that serving the Palmdale to Burbank Project Section could require reconstruction of some existing lines. This could consist of reconductoring or of installing new power poles. Where electrification of the system is required, power companies would design and implement changes to their transmission lines, which include environmental review and clearance of the reconstruction. If the engineering design for new or upgraded SCE or LADWP facilities involves new or different significant environmental impacts, additional environmental review, and analysis of the new equipment, including reconstruction of transmission lines, would be completed as part of the California Public Utilities Commission permit application process prior to construction.

The Authority has designated staff to collaborate with utilities and renewable energy developers (who may construct facilities that contribute wind, solar, or other renewable sources to the power grid). The utilities coordination staff have a strong understanding of HSR system electricity demands and of how these demands impact negotiations with utilities and renewable energy developers. Furthermore, the Authority is developing a strategic renewable energy procurement plan that requires extensive collaboration and

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can be supported through stakeholder engagement, internal and external working groups, and creation and selection of efficient and effective instruments for power procurement. The Authority will continue to gather and synthesize information to develop this plan for the California HSR System, pursuant to the Authority's 2011 Technical Memorandum TPS Interconnections to Utility (TM 300.01).

It is important to note that potential impacts from the California HSR System would not affect statewide electricity reserves or transmission capacity. Additionally, the HSR system in California will run entirely on electricity generated from renewable sources, such as solar, wind, geothermal, and bioenergy. Not only will the trains use 100 percent renewable energy, but the stations and maintenance facilities have been designed to be sustainable. Furthermore, as described in PUE-IAMF#1, the California HSR System design incorporates utilities and design elements that minimize electricity consumption (e.g., regenerative braking, energy-saving equipment on rolling stock and at station facilities, implementation of energy-saving measures during construction, and automatic train operations to maximize energy efficiency during operations). The net change in energy use (i.e., after the energy savings from reduction in roadway vehicle miles traveled and in air trips are factored in, inclusive of the Palmdale Subsection and the Maintenance Facility) would result in statewide energy savings of 15,427,699 million British thermal units (MMBtu) (or 4,521,412 megawatt-hours [MWh]) per year under the medium ridership scenario and 23,641,108 MMBtu (6,928,525 MWh) per year under the high ridership forecast compared to the 2040 No Project Alternative.

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4494-9216

The commenter asks how much power is to be delivered to each power distribution station and if electrical infrastructure will need to be upgraded as a result of the project and who will pay for that upgrade. Please refer to the Appendix 2-D: Design Baseline Report in the Draft EIR/EIS. Based on the California HSR System's estimated power needs, each Traction Power Substation (TPSS) would need to be approximately 32,000 square feet (200 feet by 160 feet) and be located at approximately 30-mile intervals. Each TPSS would have two 115/50-kV or 230/50-kV single-phase transformers. These transformers would interconnect the TPSS to two breaker-and-a-half bays, built at a new utility switching station within the fence line of an existing utility facility. Interconnection would be made by a short section of 230-kV transmission or 115-kV power lines (tie-lines). Per Authority requirements, the proposed interconnection points would need redundant transmission (i.e., double-circuit electrical lines) from the point of interconnection, with each interconnection connected only to two phases of the transmission source. A new utility switching station would encompass approximately 32,200 square feet (160 by 220 feet) and include an approximately 975-square-foot (15 by 65 feet) control building, a 525-square-foot (15 by 35 feet) battery building, and, if required, a retention basin.

Regarding network upgrades, the Authority has coordinated with Pacific Gas and Electric Company and Southern California Edison and determined that network upgrades would be required to meet the projected power demands of the 345-mile portion of the California HSR System within the two utilities' respective service territories. Detailed engineering of electrical interconnections and network upgrade components has not been undertaken and would not be completed until closer to the time of construction. Network upgrades could include modifications to existing infrastructure such as expansion of existing substations and reconductoring of existing electrical lines (i.e., replacement of power structures [poles and lattice steel towers] and electrical conductors with taller structures and more efficient electrical wires or new electrical lines). Anticipated network upgrades are included in the Build Alternative footprint and would be implemented pursuant to California Public Utilities Commission General Order 131-D. The Authority would construct and pay for the necessary utility infrastructure needed to support project operations. For further information, please refer to Chapter 6 Project Costs and Operations in the Draft EIR/EIS. Please refer to Standard Response PB-Response-PUE-1: Energy Use and Consumption which

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discusses the Authority's policy goal which is to use 100% clean, renewable electricity for the operation of the HSR.

4494-9217

The commenter inquires as to whether the cost of additional electrical infrastructure required to power HSR has been included in the latest Palmdale to Burbank Project Section cost projections. The project costs presented in the Draft EIR/EIS include costs associated with providing electrical infrastructure during construction as well as electrical infrastructure within the Project Section for operations.

4494-9218

The commenter asks about interagency and utility provider coordination associated with utilities and high fire danger. Regarding the comment about wildfire, the Authority considered the potential impacts of wildfire from operation of the HSR Palmdale to Burbank Project Section in Section 3.11, Safety and Security, of the Draft EIR/EIS. Please refer to Impact S&S#19, which discusses SS-IAMF#1 and SS-IAMF#2, which will implement fire and life-safety programs during design, operations, and maintenance of the Palmdale to Burbank Project Section to reduce the risk of wildfire from the Build Alternatives. Regarding a contingency plan in place to address the potential for local utility blackouts: please refer to Appendix 2-D: Design Baseline Report (page 2-35 "Backup and Emergency Power Supply Sources for Stations and Facilities") in the Draft EIR/EIS. During normal system operations, power would be provided by the local utility or a TPSS. Should the flow of power be interrupted, the system would automatically switch to a backup power source: an emergency standby generator, an uninterruptable power supply, or a direct current (DC) battery system. For the Palmdale to Burbank Project Section, permanent emergency standby generators are anticipated to be located at passenger stations and terminal layup/storage and the Maintenance Facility. Standby generators are required to be tested (typically once a month for a short duration) in accordance with National Fire Protection Association (NFPA) 110/111 to verify readiness for backup and emergency use. If needed, portable generators could also be transported to other trackside facilities to reduce the impact of power interruptions on system operations.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9219

The commenter asks about how electricity would be obtained during a planned power outage, as well as prioritization of electricity use. Please refer to Appendix 2-D: Design Baseline Report (page 2-35 "Backup and Emergency Power Supply Sources for Stations and Facilities") in the Draft EIR/EIS. During normal system operations, power would be provided by the local utility or a TPSS. Should the flow of power be interrupted, the system would automatically switch to a backup power source: an emergency standby generator, an uninterruptable power supply, or a direct current (DC) battery system. For the Palmdale to Burbank Project Section, permanent emergency standby generators are anticipated to be located at passenger stations and terminal layup/storage and the Maintenance Facility. Standby generators are required to be tested (typically once a month for a short duration) in accordance with National Fire Protection Association (NFPA) 110/111 to verify readiness for backup and emergency use. If needed, portable generators could also be transported to other trackside facilities to reduce the impact of power interruptions on system operations. This process would not require the prioritization of electricity use.

4494-9220

Refer to Standard Response PB-Response-S&S-1: Wildfire.

The commenter requested further information on measures that would be implemented to mitigate wildfire hazards from the project. This topic is further discussed in Standard Response PB-Response-S&S-1: Wildfire.

4494-9221

The commenter asks about temporary power and associated infrastructure. Please refer to Appendix 2-D: Design Baseline Report (page 2-33) in the Draft EIR/EIS, which clarifies that during construction and operation, portals, adits, temporary work sites, and certain other ancillary facilities would require power supplies. These power supplies would generally connect to the nearest existing overhead transmission lines. The Authority will be responsible for the cost, installation and removal of any temporary infrastructure required. No power rates have been negotiated at this stage of the project. The Authority will continue to coordinate with electricity suppliers during subsequent stages of the project.

4494-9222

The commenter asks whether the Authority has considered alternative electrical power supplies, including placing solar power arrays at power distribution stations, above ground rights-of-way above the tracks, and electrical train connections. The Authority did consider alternative energy methods, and the Draft EIR/EIS discussed that the project would use renewable energy sources. The Authority welcomes the suggestion of placing solar arrays at power distribution stations, above ground rights-of-way above the tracks, and electrical train connections. The Authority is proposing an energy net positive design criterion for stations and facilities, which aims to generate at least 5 percent more energy than is needed to meet the building requirements. At stations and facilities, this could take the form of solar arrays. Please refer to Standard Response PB-Response-PUE-1: Energy Use and Consumption.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9223

The commenter questions the use of the 2016 baseline data in Section 3.6 of the Draft EIR/EIS. They also question the accuracy of the 9 percent VMT regional increase by 2040 and expected 0.7 percent VMT reduction by 2040 with implementation of the SCAP RTP, including the HSR project.

The baseline year for the analysis of project impacts was established after the Notice of Preparation was filed on July 24, 2014, just after the public scoping period for the project was completed and at the onset of environmental analysis (see Draft EIR/EIS, page S-7, 3.3-23 to 3.3-24). CEQA Guidelines section15125(a)(1) supports establishing baseline physical conditions in this manner, therefore, the use of 2016 data in the Draft EIR/EIS is appropriate.

While the analysis is generally from 2016, the fundamental concepts and conclusions presented remain correct and accurate. Under the No Project scenario, VMT (the commenter references "MVT") would increase without the HSR project (see Draft EIR/EIS Table 3.6-19 and Section 3.6.6.2 in Section 3.6, Public Utilities and Energy). The energy use under the No Project versus with Project scenario is further clarified in Table 3.6-26 of the Draft EIR/EIS, which shows the Estimated Change in Energy Consumption due to the Palmdale to Burbank Project Section. Table 3.6-26 shows that the project would result in substantial overall energy reductions when compared to the No Project scenario.

The commenter raises two specific issues that they believe need to be updated in the No Project analysis. This includes the rapid increase in solar infrastructure (utility solar farms, rooftop solar, the increase of home solar battery systems, the rapid development and acceptance of electric vehicles, the government support of electrical charging stations along interstate and state highways, and the State of California's commitment to be Carbon Neutral by 2045) and population decreases. Regarding the population trends, population projections are always snapshots, reflecting the historical data available, and the analysis of trends, growth capacities, and growth constraints apparent at the times the projections are prepared. More important than the specific population projection is the recognition and examination of how the HSR system, and its project sections would operate in the context of anticipated growth. Updating the document with more recent population projections for 2040 would not change the impact determinations presented

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in Section 3.6, as the HSR Palmdale to Burbank Project Section would reduce overall VMT and provide a benefit, related to energy reduction. Regarding the comment about rapid increases in solar infrastructure, this trend would not overall affect the abilities of the California HSR system to reduce energy demand, by decreasing VMT. rends in increased solar infrastructure, this does not take away from the fact that the California HSR System would reduce energy demand. As indicated by the commenter, and acknowledged in Section 3.3, Air Quality and Global Climate Change, the State of California has a goal to be Carbon Neutral by 2045. The increase in solar infrastructure is certainly one component to help achieve that goal. The California HSR system too is a component to help achieve that goal.

4494-9224

The commenter expresses concern about interruptions in utility service during construction. IAMFs are incorporated as part of the Build Alternatives design to help avoid and minimize these potential impacts. PUE-IAMF#2 requires new or relocated irrigation systems to be operational prior to disconnecting the original system, to the extent feasible. PUE-IAMF#3 requires the contractor to prepare and adhere to a public communication plan where utility service interruptions are unavoidable. PUE-IAMF#3 also requires construction to be coordinated to avoid interruptions of utility services to hospitals and other critical users. PUE-IAMF#4 identifies the Authority's commitment to minimize or avoid utility service interruptions during construction by requiring the preparation of a technical memorandum documenting how construction activities would be coordinated with service providers to minimize or avoid interruptions. With implementation of PUE-IAMF#2 through PUE-IAMF#4, utility relocations associated with the HSR Palmdale to Burbank Project Section will be minimized and temporary disruptions will be limited to short durations during construction. For additional information, please refer to Impact PUE#1 in the Draft EIR/EIS.

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4494-9225

The commenter asks whether data in Table 3.6-22 of the Draft EIR/EIS includes the electrical energy required to run multiple tunnel boring machines (TBMs). The estimates in Table 3.6-22 include the electricity demand to run TBMs. Please refer to Response to Comment #9198 for a detailed discussion of the electricity demand of TBMs.

4494-9226

Refer to Standard Response PB-Response-PUE-1: Energy Use and Consumption.

The commenter questions if the project would increase base or peak power demand during project construction because Tunnel Boring Machines (TBMs) would be running 24 hours, 7 days a week.

The Draft EIR/EIS provides information as to the power demands during construction (see Table 3.6-22 in Section 3.6, Public Utilities and Energy, which includes the electrical energy required to run multiple TBMs). Values shown in Table 3.6-22 include the energy that would be consumed for the construction of trackway, stations, and ancillary facilities; production and transportation of construction materials; and the operation and maintenance of construction equipment (including TBMs). The estimate of power requirements for TBM tunneling operations is 15 megawatts (MW), assuming 2 TBMs (Hard Rock Type) and their auxiliary services. 15 MW is the maximum power demand, considering both machines working full load. The average power demand, however, is much lower and is around 4 to 5 MW. This means that the Authority can assume conservatively that a TBM will utilize around 5 MW (5,000 kW) during excavation operations. Assuming 16 hours of excavation and 8 hours of maintenance and other operations per day, this means that the power consumption would be about 80,000 kWh per day. The maximum number of TBMs that would be working at any given time is 10, according to the proposed construction schedule, and that would happen only during a 3-month period. With an average electricity consumption of 80 MWh per day and per TBM, this means that the energy demand during this peak quarter would total 72,000 MWh. Comparing this figure with the production capacity of California for 2018 (reference year), described in Section 3.6.5.10 of the Draft EIR/EIS, electricity consumption from TBMs would represent 0.1 percent of the total capacity of the system, assuming that the production is linearly distributed around the year. The Authority is assuming a total yearly production of 285,488 GWh for California to calculate this number, which translates into 71,372 GWh per quarter.

At each portal, a new substation will be provided to allow matching the voltage of the electrical grid with the voltage needed by the machines (if necessary), and to produce low voltage (LV) power to supply the auxiliary services. The voltage connection is preferably at medium voltage (around 33 kilovolts [kV]). Considering that there is

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adequate electric infrastructure already in place, the usual procedure is to lay down a 10- to 50-kV line to feed the TBM to the nearest distribution substation or connect directly to one of the existing distribution lines included in the project plan. For these reasons, there will be no need to build additional power generation facilities or transmission lines to power the construction of this project.

As described in Draft EIR/EIS Section 3.6.6.3 under Impact PUE#6: Temporary Energy Consumption during Construction, "The temporary demand for energy utilized during construction would not require additional permanent electricity transmission capacity and would not increase peak- or base-period demands for electricity from the electrical grid system."

An industry survey was conducted in April 2013 for the Renewable Energy Feasibility Highlights Memorandum, which indicated that there is sufficient renewable energy capacity to meet the system demand of the operation of the California HSR System (Authority 2014b). For an overview of how energy demand from operations of the HSR Palmdale to Burbank Project Section would be met, please refer to Standard Response PB-Response-PUE-1: Energy Use and Consumption. Data in Table 3.6-22, Estimated Energy Consumption for Construction Build Alternatives, is based on the Fuel Consumption and Power Usage Matrix prepared in 2017. Operational energy consumption is based on the Authority's 2016 Business Plan. The baseline year for the analysis of project impacts was established after the CEQA Notice of Preparation and NEPA Notice of Intent were issued in 2014, with a public scoping period for the project, and at the onset of environmental analysis (see Draft EIR/EIS, page S-7, 3.3-23 to 3.3-24). CEQA Guidelines section 15125(a)(1) supports establishing baseline physical conditions in this manner. Additionally, the Authority has adopted a sustainability policy under PUE-IAMF#1 as part of the Build Alternatives that establishes design elements and policies intended to reduce energy consumption, including but not limited to, energy-saving equipment, energy-saving measures during construction, and regenerative braking. With implementation of PUE-IAMF#1 and standard BMPs, project construction would not result in wasteful, inefficient, or unnecessary consumption of energy resources. Construction of the Palmdale to Burbank Project Section would also be consistent with state and local plans and policies related to renewable energy and energy efficiency. With adherence to the Authority's policy on sustainability under PUE-

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IAMF#1, construction of the Build Alternatives would not result in a substantial demand on regional energy supplies, require additional energy capacity, or substantially increase peak or base period electricity demand.

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4494-9227

The commenter asks why the utility conflicts identified in Appendix 3.6-A have not been updated (since the last communication of 2016); whether the Authority validated Appendix 3.6-A; and whether there has been further communication to validate Appendix 3.6-A.

Consistent with CEQA Guidelines Section 15125(a)(1), the baseline year for the analysis of project impacts was established after the Notice of Preparation was filed with the State Clearinghouse on July 24, 2014, just after the public scoping period for the project was completed and at the onset of environment analysis (see Draft EIR/EIS, pages S-7, 3.3-23 to 3.3-24). The commenter does not provide any specific information about missing utilities that might have been added since 2016. Based on its expertise and experience, the Authority expects that critical utility infrastructure is relatively consistent with the conditions in 2016. Notably, moving utilities often requires new easements, such that utility providers often continue to use the already existing footprints. As such, new utility footprints since 2016 are unlikely. Therefore, the 2016 baseline is considered sufficient, and updating the list of critical utility infrastructure near each of the proposed route alternatives would not modify or alter environmental impacts disclosed in the Draft EIR/EIS.

As noted in Appendix 3.6-A Section 4, Utility Information Collection of the Draft EIR/EIS, the design team reached out to both public and private utility owners whose facilities would potentially be affected by the proposed footprint of all Build Alternatives. The first solicitation effort to acquire as-built and utility service maps was to send letters with exhibits depicting the proposed alignments to all utility owners within the potential project footprint. Site visualization and Google Earth map were also used to identify and/or confirm various above ground and aerial facilities. The next course of action was to follow up with emails and phone calls if the utility owner was not responsive. A utility owner contact log has been established as a living document to record the due diligence taken during the information gathering stage. In addition, as the project progresses, utility record drawings and as-built information will be collected from various sources including public agencies (navigatela.lacity.org), third-party drawings, and respective stakeholders.

As noted in the comment, critical infrastructure within the Build Alternative Resource

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Study Areas (RSA) has been identified and presented in Appendix 3.6-A of the Draft EIR/EIS. During the detailed design phase, additional coordination with utility providers within the RSA for the preferred alternative will be conducted to more precisely identify, locate, and plan for any relocations or other changes that may be necessary. As described in Impact PUE#2, PUE-IAMF#4 would be implemented to limit impacts to utilities by requiring that the contractor prepare a technical memorandum prior to construction, documenting how construction activities would be coordinated with service providers to minimize or avoid utility service interruptions. In addition, California Government Code Section 4216 establishes procedures for identifying buried utilities prior to excavation, thus the Palmdale to Burbank Project Section would be unlikely to result in accidental disruption of utility systems. The Draft EIR/EIS provides appropriate procedures via its IAMFs to minimize impacts, if in the future, additional utilities are found to be located within the footprint. The Authority will continue coordination with utility providers during the detailed design phase; however, the Draft EIR/EIS has appropriately disclosed the potential impacts related to utility conflicts based on the best data available at the time.

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4494-9228

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter provides estimates, based on their assumptions, about how much water may be needed for boring the tunnels of the SR14A Build Alternative. The commenter provides a low estimate of 1,283 acre feet and a high of 2,305 acre feet. The commenter makes note of drought conditions and asks where the Authority expects to obtain this water for construction. The Authority provides the following information about its water use estimates assumed for tunneling construction: - For tunnels excavated with a tunnel boring machine (TBM) with an internal diameter of 28 feet, the advance rate and water consumption assumed are 43.3 feet/day and 55,000 gallons/day/TBM, respectively. - For tunnels excavated with a TBM and an internal diameter of 31.5 feet, the advance rate and water consumption assumed are 33.3 feet/day and 70,000 gallons/day/TBM, respectively. - For tunnels excavated with a TBM and an internal diameter of 36 feet, the advance rate and water consumption assumed are 33.3 feet/day and 103,000 gallons/day/TBM, respectively. - For tunnels excavated with a TBM and an internal diameter of 31.5 feet and crossing fault areas, the advance rate and water consumption assumed are 6.7 feet/day and 70,000 gallons/day/TBM, respectively. - For tunnels excavated using the sequential excavation method (SEM) with an internal diameter of 28 feet, the advance rate and water consumption assumed are 13.3 feet/day and 40,000 gallons/day/tunnel, respectively. - For tunnels excavated using the SEM method with an internal diameter of 45 feet (single tunnel for double track), the advance rate and water consumption assumed are 6.7 feet/day and 40,000 gallons/day, respectively. - For tunnels excavated using the SEM method with an internal diameter of 64 feet (single tunnel for three tracks), the advance rate and water consumption assumed are 3.3 feet/day and 40,000 gallons/day, respectively. Based on water demand rates shown on Table 3.6-4 of the Draft EIR/EIS and the information detailed above, the total water demand for Build Alternative SR14A tunnels is estimated to be approximately 2,176 acre feet. The commenter's highest range for the estimated water consumption required for SR14A construction is in the same order of magnitude. Please note that these are total water demand calculations for all the tunneling construction required for the project. Regarding the commenter's question about water sources, please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which provides information about the sources of water for the Project, including during dry and multiple dry-year conditions.

4494-9229

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter asks if the Authority will require a reduction in water allocation for all residents and the agricultural sector, as well as what benefits would be obtained from water reductions that would be required to build the Palmdale to Burbank Project Section. The Authority will not require a reduction in water allocation for all residents of California or the agricultural sector. As summarized in Section 3.6.4.5 in Section 3.5, Public Utilities and Energy of the Draft EIR/EIS, CEQA requires that the Authority consider whether there would be sufficient water supplies available to serve the Palmdale to Burbank Project Section and reasonably foreseeable future development during normal, dry, and multiple dry years. The Authority's analysis, which has been revised in the Final EIR/EIS to include additional information about water supplies, included an analysis of the Project's water demand in relation to existing water demand, as well as projected water demand in normal, dry, and multiple dry years. As such, the analysis included in the Final EIR/EIS accounts for the Project's effect on water demand within the context of existing and future water demand, and concludes that there would be sufficient water supply to serve the project, as well as reasonably foreseeable future development after mitigation, in all three scenarios. Furthermore, the Authority has no jurisdiction regarding who gets water. Water is provided by water agencies and if there are drought conditions, any purchaser of water, including the Authority, would be subject to their requirements to reduce water delivery quantities, as required by their Water Shortage Contingency Plan. However, in this scenario, this would be water reductions as a result of the requirements from the water agency and not the Authority. Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage and Impact PUE#3 in Section 3.5, Public Utilities and Energy of the Final EIR/EIS, which provides information about the Project's water use and water supplies. The Authority has identified the benefits of the California HSR System in Section 1.2.5 of the Draft EIR/EIS.

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4494-9230

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter asks if there will be sufficient water to support ongoing Authority activities once the Authority completes the HSR Palmdale to Burbank Project Section. Operational water supply demand is addressed in Impact PUE#8 in Section 3.6 of the Draft EIR/EIS. As stated therein, operation of all six Build Alternatives would result in 164.8 acre-feet per year of water demand total for the Palmdale to Burbank Project Section, representing a fraction (0.58 percent) of projected available water supplies. The operation of the Burbank Airport Station, which represents the largest operational water use, would result in a 15 percent decrease in water use when compared with existing land uses. Therefore, the impact from water demand generated by operations of the Burbank Airport Station would be less than significant under CEQA for the Refined SR14, SR14A, E1, E1A, E2, and E2A Build Alternatives. In other words, sufficient water would be available to support ongoing Authority activities upon completion of the Palmdale to Burbank Project Section.

The commenter references Table 3.6-4: Water Demand Rates for Construction Activities, in the Draft EIR/EIS Section 3.6. Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which identifies a portfolio of water supplies that could meet the project's temporary water demand for construction during normal years, as well as dry and multiple dry years.

This comment also includes the calculations for the estimates made by the commenter for construction water use. These calculations are summarized in Comment #9228. Please refer to Response to Comment #9228, where the Authority provides a response to the calculations made by the commenter. The commenter further summarizes the impact conclusion for Impact PUE#3: Effects from Water Demand during Construction, as less than significant with mitigation. The commenter correctly identifies the Authority's CEQA conclusion. Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which provides additional information about how the Authority identified that impacts related to construction water demand, usage, and water supply would be less than significant after mitigation.

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Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter provides a table with three impacts (Impact PUE#1: Planned Temporary Interruption of Service; Impact PUE#2: Accidental Interruption of Utility Systems; and Impact PUE#3: Effects from Water Demand During Construction) and asks how the Authority can consider these impacts to be less than significant given the current drought conditions.

Drought conditions have no effect on impacts related to the planned interruption of service (Impact PUE#1) or accidental interruption of utility systems (Impact PUE#2). The rationale for why these impacts would be less than significant, including the IAMFs and Mitigation Measures that would reduce impacts, is provided in Section 3.6, Public Utilities and Energy of the Draft EIR/EIS.

With respect to effects from water demand during construction (Impact PUE#3), please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which provides additional information about how the Authority identified that impacts related to water demand, usage, and water supply would be less than significant after mitigation.

4494-9232

The commenter asks who will be stipulating recovery plans, who will be carrying them out, and who will be paying for them. As stated in the paragraph on Recovery Plans on page 3.7-4, the Secretary of the Interior and the Secretary of Commerce develop and implement recovery plans. The USFWS and NMFS are the responsible agencies under the Department of Interior and Department of Commerce.

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4494-9233

The commenter asks about the time period when the Authority has been in coordination with the U.S Forest Service (USFS) with respect to the Angeles National Forest. The USFS agreed to participate as a Cooperating Agency, involved in the NEPA review process, by letter dated August 25, 2014. The commenter asks what communications were available to the public. If members of the public had sought communications between the Authority and USFS regarding the NEPA process, the NEPA regulations describe the process for requesting those materials in 40 C.F.R. 1506.6(f). Additionally, the Authority has received and responded to Public Records Act (PRA) requests for public records and information on the Palmdale-Burbank Section under Government Code section 7920.000 et seq.. Coordination and communications between the Authority and USFS were provided in response to a PRA request, and included non-exempt public records containing copies of the MOU and agreements between the Authority and the USFS, and meeting minutes from a May 19, 2015 meeting between the Authority and USFWS.

The commenter also asks about compliance with California Assembly Bill (AB) 498. The Authority assumes the commenter is referring to AB 498, signed into law in October 2015, that amended Sections 1797.5, 1930, and 1930.5 of the Fish and Game Code and that pertains to wildlife conservation and corridors, declaring that it would be the policy of the state to encourage, wherever feasible and practicable, voluntary steps to protect the functioning of wildlife corridors. Specifically the "project applicants" may receive advance mitigation credits for investing in a mitigation bank that protects habitat connectivity for affected fish and wildlife resources, and would further provide that the fact that a project applicant does not take voluntary steps to protect the functioning of a wildlife corridor prior to initiating the application process for the project shall not be grounds for denying a permit or requiring additional mitigation beyond what is otherwise required by law to mitigate project impacts.The Authority has fully complied with applicable law, and additional detail about wildlife movement mitigation follows.

The Draft EIR/EIS identified several mitigation measures to reduce impacts to wildlife movement, such as BIO-MM#64 (Establish Wildlife Crossings), which would require installation of one wildlife crossing south of the California Aqueduct (Soledad Siphon) and one wildlife crossing east of Una Lake to improve the permeability of SR14A and Refined SR14. Other mitigation measures were also developed to further reduce

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impacts, including: preparation and implementation of a restoration and revegetation plan [BIO-MM#6 (Prepare and Implement a Restoration and Revegetation Plan)]; installation of aprons or barriers within security fencing [BIO-MM#36 (Install Aprons or Barriers within Security Fencing)]; minimize effects on wildlife movement corridors during construction [BIO-MM#37 (Minimize Effects on Wildlife Movement Corridors During Construction)]; establish environmentally sensitive areas [BIO-MM#58 (Establish Environmentally Sensitive Areas and Nondisturbance Zones)]; limit vehicle traffic and construction site speeds [BIO-MM#60 (Limit Vehicle Traffic and Construction Site Speeds)]; implement wildlife height requirements for enhanced security fencing [BIO-MM#77 (Implement Wildlife Height Requirements for Enhanced Security Fencing)]; install wildlife jump-outs [BIO-MM#78 (Install Wildlife Jump-outs)]; and implementation of measures intended to reduce, avoid and minimize effects on wildlife movement [BIO-MM#83 (Measures Intended to Reduce, Avoid, and Minimize Effects on Animal Movement)].

4494-9234

The commenter asks if all contractors working in the ANF are familiar with each of these listed Acts and
Codes. As described in Bio-IAMF#3, all construction personnel will be required to take a project specific training on these regulations as they apply to the Build Alternatives.

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4494-9235

The commenter asks if the Authority is exempt from Forest Service regulations. Although Forest Service regulations do not bind the Authority directly, when the Authority takes actions on land managed by the Forest Service, relevant Forest Service regulations apply to those actions. A summary of the Forest Service authorities is provided on Draft EIR/EIS page 3.7-9. Information and analysis of consistency with laws, regulations, plans, and policies relative to portions of the Build Alternatives that would occur within the ANF, including within SGMNM, are discussed in Section 3.7.11, United States Forest Service Impact Analysis, and in Appendix 3.1-B, USFS Policy Consistency Analysis.

The commenter asks for an example of a mitigation measure that would minimize removal of native vegetation. BIO-MM#6 requires the Project Biologist, before ground-disturbing activity occurs, to implement appropriate measures to restrict project vehicle traffic within the limits of construction to established roads, construction areas, and other permissible areas. Separately, BIO-MM#58 will minimize removal of native vegetation. Prior to any ground disturbing activity in a project work area, the Project Biologist will use flagging to mark Environmentally Sensitive Areas (ESAs) that support some special-status species.

4494-9236

The commenter asks (3.7-12) for an example of an unavailable RSA and what the process is for identifying species through aerial photography interpretation. All RSAs described on page 3.7-12 were assessed as described in the document. By the term "unavailable RSAs," the commenter is presumably referring to areas within an RSA that were inaccessible because, for example, permission to enter had not been granted by a landowner. Examples of inaccessible areas in an RSA include the private inholdings in the ANF. The methods used to determine species habitats are included in Section 3.7.4.4. While aerial photography is one tool used to identify vegetation communities, landforms, and potentially suitable sensitive species habitat within the various RSAs, the photography by itself is not used to identify species, but instead vegetation and landform types that may be suitable as habitat for particular species.

4494-9237

The commenter inquires about the amount of training that would be provided and requests an example of WEAP training materials. The commenter also asks for an example of a special status plant that might be encountered as well as if workers would be distracted from identifying plants while working.
BIO-IAMF#3, summarizes the requirements for WEAP training and materials, and is fully described in Appendix 2-E in Volume II of the Draft EIR/EIS. Special status plant species that may be encountered are identified in Section 3.5.7.3 and include, e.g., Braunton's milk vetch and Nevin's barberry. The biologists and biological monitors will have already surveyed work areas and marked known occurrences of special-status plants prior to construction personnel commencing work, and the WEAP training will effectively alert construction personnel to flagged areas as well as the general appearance of the protected species should they be encountered outside of the flagged areas.

4494-9238

The commenter asks (1) how many Project Biologists will be working in an area, (2) whether there will be video cameras at night to track animal life, (3) how wildlife movement corridors will be identified, (4) what materials will be used to clean vehicles, (5) whether rodenticides be used, given that they are harmful to animals, including owls and mountain lions.

The number of Project Biologists working on the project at any time will be based on the type and location of work being done at the time. Cameras will be used to identify wildlife as describe in Bio-MM#96. The method to identify wildlife movement corridors is described in Section 3.7.4.4. Wildlife movement corridors identified within the Project area are discussed in Section 3.7.5.12. Construction vehicles will be cleaned in accordance with Bio-IAMF#10. The use of rodenticide will be governed by any permits issued for the project as well as BIO-IAMF#11.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9239

The commenter asks for examples of modeling tools. Modeling tools used for the project are described in Section 3.7.4.4 (Draft EIR/EIS pages 3.7-26-3.7-27). Habitat models bring together information about environmental attributes, species life history, and environmental requirements to create a spatially explicit model of suitable habitat at a regional scale. For example, a species habitat model could be developed using spatial data describing vegetation communities, soil types, elevation, and species range to predict where habitat suitable for a given species, based on the species life history requirements, could occur.

4494-9240

The commenter asks if field surveys, aside from red-legged frog, were conducted. Field surveys are described in Section 3.7.4.4 (Draft EIR/EIS pages 3.7-24 -3.7-26) and were not limited to the California red-legged frog. Reconnaissance field surveys, special-status plant and wildlife surveys in the Angeles National Forest, unarmored three-spine stickleback habitat assessment, vernal pool assessment, and California red-legged frog protocol surveys were conducted.

4494-9241

The commenter asks how the 5 species were chosen as focal species for the wildlife corridor assessment. They state that black bears are also prevalent in the San Gabriel Mountains and ask why they were not included. The CHSR Palmdale to Burbank Project Section: Wildlife Corridor Assessment Report (Authority 2019c) includes a description of the selection process for the five focal species. As described in Section 2.2.3.8 of the Wildlife Corridor Assessment, the five focal species were selected because they represent a broad range of species that utilize the habitat within the habitat within the Wildlife Corridor Study Area (WCSA) and was comparable to previous regional modeling, specifically the South Coast Missing Linkages (South Coast Wildlands 2008) and the California Desert Renewable Energy Conservation Plan (BLM 2016). Black bears are also present in the San Gabriel Mountains but their movement is represented by the focal species, mountain lion, mule deer, and American badger that inhabit similar habitats.

4494-9242

The commenter asks what the special-status plants are and how many are there. Special-status plants are defined in Section 3.7.5.3 of the Draft EIR/EIS. Background literature review identified 98 special-status plant species with low to high potential to occur within the Refined SR14, SR14A, E1, E1A, E2, and E2A special-status plant RSAs, based on the species range, known occurrences, and presence of potential habitat. Of these, 62 species were removed from consideration because of their low potential to occur within the special-status plant RSA as a result of lack of suitable habitat. The remaining 44 special-status plant species have a moderate or high potential to occur in the special-status plant RSA. Please see Table 3.7-5 on page 3.7-51 in the Draft EIR/EIS for a list of special-status plants within the special-status plant RSA.

4494-9243

The commenter questions whether the Los Angeles River watershed is largely polluted, and requests evidence supporting that water from this area cannot be used. The commenter also asks how spoils hauling will affect vegetated communities. Section 3.7.5.1 on page 3.7-32 does not suggest the Los Angeles Watershed is largely polluted or cannot be converted or used. The text says the following "Pollutants from dense clusters of residential, industrial, and other urban development have impaired water quality in the middle and lower portions of the watershed." The Authority believes this is an accurate description of the Los Angeles River watershed. Impacts to vegetation communities resulting from hauling of spoils materials include potential deposition of dust onto vegetation communities immediately adjacent to the haul routes. The Authority is committed to requiring the construction contractor to prepare a fugitive dust plan (AQ-IAMF#1) for each project segment prior to any ground disturbing activities. This plan will include measures to minimize and control fugitive dust emissions and reducing potential indirect impacts to vegetation communities adjacent to the project haul routes. Additionally, BIO-IAMF#8, BIO-IAMF#9, and BIO-IAMF#10 require the Authority to address vegetation community impacts as relates to spoils and spoils hauling.

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4494-9244

The commenter inquires how wildlife in Significant Ecological Areas will be affected by vibrations of the train, how vibrations may affect animals and wetlands, and what area of the Hansen Dam is under the jurisdiction of the Army Corps of Engineers. Section 3.7.5.9 describes the Significant Ecological Areas. The SEAs impacts are described in the Draft EIR/EIS in Impact BIO #11 and BIO#18. The potential wildlife and wetland impacts associated with operational vibration along surface alignment alternatives are discussed in Section 3.4, Noise and Vibration, and Section 3.7, Biological and Aquatic Resources. These impacts include potential avoidance of the habitat adjacent (behavioral, auditory mating cues, stress response) to segments of surface alignment. The impact analysis is specific to mammals and birds which are especially sensitive to vibrational impacts. These impacts are anticipated to be localized to within 40-50 feet of the above-ground alignment. The entirety of the Hansen Dam (embankment) is under the jurisdiction of the U.S. Army Corps of Engineers. When the project is in tunnel, as it is under the Angeles National Forest, it is deep enough where there would be no noise or vibration impacts at the surface. One reason for tunneling under these areas is to avoid impacts to surface resources.

4494-9245

Refer to Standard Response PB-Response-BIO-3: Wildlife Movement Corridors.

The commenter inquires if any of the Build Alternatives go on the ground in any part of the 275,000 acres of "protected areas" referenced on page 3.7-92 of the Draft EIR/EIS The footprints of the HSR Alternatives would impact areas identified in the California Protected Areas Database (2017) and California Conservation Easement Database (2016) maintained by the California InfoNetwork and funded by the California Natural Resources Agency and the California Department of Water Resources. Impacts on protected lands are summarized as follows (i.e., acres impacted by each alternative within protected or conserved land).

Table 1 –Acres impacted by each alternative within protected or conserved land.

HSR Alternative	Acres
Refined SR14	3,019.8
SR14A	2,473.9
E1	1,423.0
E1A	1,422.9
E2	695.3
E2A	695.3

The mitigation measures discussed in Section 3.7.7 of the Draft EIR/EIS would be applied to areas or resources within protected or conserved land that would be directly or indirectly impacted by the Build Alternatives. Specifically, BIO-MM#6 (Prepare and Implement a Restoration and Revegetation Plan) would involve implementation of a Restoration and Revegetation Plan to ensure that all temporarily disturbed areas would not be adversely affected in the long term. In addition, implementation of BIO-MM#47 (Prepare and Implement a Compensatory Mitigation Plan for Impacts on Aquatic Resources) and BIO-MM#53 (Prepare and Implement a Compensatory Mitigation Plan for Species and Species Habitat) would ensure that the biotic viability of protected areas to function as habitat for wildlife and plant species would be preserved, and impacts to aquatic resources, species, and species habitat would be offset.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9245

BIO-MM#50 (Implement Measures to Minimize Impacts During Off-Site Habitat Restoration, or Enhancement, or Creation on Mitigation Sites) stipulates that the Authority will implement applicable Impact Avoidance and Minimization Features (IAMFs) and mitigation measures discussed in Section 3.7.7 of the Draft EIR/EIS to avoid or minimize impacts on species habitat and aquatic biological resources during habitat restoration, enhancement, or creation activities.

The commenter also inquires if there are any wildlife corridors known to the Forest Service. The Angeles National Forest, Land Management Plan (USFS 2005) identifies three wildlife corridors, including Big Tujunga Canyon Place, I-5 Corridor Place, and the Sheep Mountain Wilderness Area. The Land Management Plan generally defines Big Tujunga Canyon as downstream from the Big Tujunga Dam to Pipe Canyon, flanked by the steep canyon walls. This lower section of the canyon ranges in elevation from about 2,000 feet at Pipe Canyon up to 2,290 feet at the Big Tujunga spillway within the project area. Big Tujunga Canyon Place's riparian area is an important wildlife corridor. Alternatives E2 and E2A are the only alternatives in the vicinity of Big Tujunga Canyon, and the Alternatives cross Big Tujunga Wash well downstream of this corridor and cross the wash via an elevated viaduct segment where the adjacent areas are developed on both sides with the Lake View Terrace and Shadow Hills communities. Pipe Canyon is over 4.5 miles upstream of where Alternatives E2 and E2A cross Big Tujunga Wash.

The Angeles National Forest Land Management Plan (USFS 2005) describes the I-5 Corridor Place as running north and south along both sides of Interstate 5. This landscape is commonly defined as the area between Marple Canyon at the southern end, and the intersection of California State Highway 138 at the northern end. The east and west boundaries are defined by the ridges visible from Interstate 5. The western boundary of this area is shared with the Los Padres National Forest. Marple Canyon is located at the southern end of the Castaic Lagoon, which is approximately 14 miles from the nearest location of the Refined SR14 and SR14A alternatives. As described above, a majority of the Build Alternatives would be permeable (i.e., no impediments to wildlife movement), in areas with known wildlife corridors. Where the Build Alternatives would be elevated on a viaduct or underground in a tunnel, the Build Alternatives would be permeable to wildlife movement because wildlife can travel above tunneled segments or under elevated viaducts. Tunnels and viaducts provide almost unimpeded connectivity for wildlife and would have no impact on wildlife movement and connectivity. As a result, the Authority (2019c) concluded that as long as there is a viaduct/tunnel/at-grade transition and/or drainage structure within 1.0-mile intervals for large crossings and 0.3-

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mile intervals for small crossings, wildlife movement would not be impeded. Despite the extensive tunnel and viaduct segments, the Authority determined that mitigation measures were required to address significant impacts related to at-grade segments near Una Lake and the California Aqueduct (See Draft EIR/EIS 3.7.6.3). From this analysis, the Authority developed BIO-MM#64 to require installation of one wildlife crossing south of the California Aqueduct and one wildlife crossing east of Una Lake to improve the permeability of SR14A. Other mitigation measures were also developed to further reduce impacts, including: preparation and implementation of a restoration and revegetation plan (BIO-MM#6); installations of aprons or barriers within security fencing (BIO-MM#36); minimize effects on wildlife movement corridors during construction (BIO-MM#37); establish environmentally sensitive areas (BIO-MM#58); limit vehicle traffic and construction site speeds (BIO-MM#60); implement wildlife height requirements for enhanced security fencing (BIO-MM#77); install wildlife jump-outs (BIO-MM#78); and implementation of measures to reduce, avoid, and minimize effects on wildlife movement (BIO-MM#83). Standard Response PB-Response-BIO-3: Wildlife Movement Corridors, provides detailed information regarding the methodology and analysis used to analyze the project's effects on wildlife movement.

4494-9246

The commenter asks what wildlife, including but not limited to mountain lions, have been killed on SR 14 freeway. To the best of the Authority's knowledge, data on the types of wildlife killed on the SR 14 freeway, including but not limited to mountain lions, is not available. The Authority coordinated with Caltrans regarding available roadkill data, and Caltrans indicated they do not track roadkill data on SR 14.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9247

The commenter asks what exactly is meant by "would affect." The potential effects resulting from construction of the six Build Alternatives are described in Impact BIO#1 - Impact BIO#13. The potential effects from operation of the project are described in Impact BIO#14- Impact BIO#19. Each of these impacts describe in detail how construction of the Build Alternatives "would affect" biological and aquatic resources. See also 40 C.F.R. Section 1508.1(g) ("Effects or impacts means changes to the human environment from the proposed action or alternatives that are reasonably foreseeable . . . ."), (g)(4) ("Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effects will be beneficial.").

4494-9248

The commenter asks to what extent are special status plants protected by law. In addition, the commenter asks for the meaning of "range of impact" and clarification of the "acres of impact" used in Table 3.7-10. Section 3.7.2 describes the Laws, Regulations, and Orders as they pertain to special-status plants, which are individual plant species listed by federal, state, or local regulators. The "range of impact" means that plants located in thise areas could be destroyed. The "areas of impact" signifies the acreage that will be temporarily and permanently impacted by the Build Alternatives and not the amount of habitat within the study area.

4494-9249

The commenter asks what will be done to mitigate the loss of threatened, endangered, and rare plants. Please see Impact BIO#1 that describes project construction effects on habitat for special status plants and communities. Implementation of BIO-IAMF#1-3, 5, 8-11 will reduce the potential for impacts to occur and BIO-MM#1, 2, 4, 5, 6, 32-34, 38, 50, 53, 54, 55, 56, 58, and 61 will mitigate the loss of threatened, endangered, and rare plant species. In addition, indirect impacts on special-status plants will be minimized by monitoring ground-water dependent surface water resources (HYD-MM#4) and mitigated by implementing an Adaptive Management Plant for Groundwater Effects on Species and Habitat (BIO-MM #93). Pages 3.7-112 through 3.7-114 of the Draft EIR/EIS describe how and why the mitigation measures reduce the impacts to a less-than-significant level.

4494-9250

The commenter asks how the destruction of each plant community will specifically affect wildlife (mammals, birds, fish) that depend on the plants for shelter or food. Section 3.7.6.3 discusses and quantifies the amount of each plant community that will be impacted. Impact BIO#3 (Birds), Impact BIO#4 (Fish), and Impact BIO#6 (Mammals) describe and quantify the amount of impact to habitat for each special-status species per taxa. Those sections specifically reference impacts on the vegetation communities, and the amount of species habitat impacted within each Build Alternative is derived from that species association with each plant community.

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4494-9251

The commenter asks if workers will be allowed to smoke during construction. Workers smoking on a project construction site can introduce a health hazard to fellow employees through their exposure to tobacco smoke. Use of tobacco products also introduces fire/life safety concerns that would increase the potential risk of workspace injuries to construction workers and potentially to the public in the event of a workplace accident, such as a fire or explosion, that resulted in off-site consequences.

As described on page 3.11-50 in Section 3.11 of the Draft EIR/EIS, the Authority acknowledges that worksite safety, including construction worksite safety, is governed by provisions of Title 8 of the Cal. Code Regs. and is overseen by Cal-OSHA. To minimize worker exposure from other employees smoking tobacco products, Title 8, Section 5148 prohibits California employers from allowing smoking in an enclosed space at a place of employment. In non-enclosed areas of a project construction site, implementation of the Authority's Standard Safety Procedures (Authority 2014) and SS-IAMF#2 will require preparation and implementation of a Construction Safety and Health Plan (CSHP) for each construction phase. The plan will establish the minimum safety and health standards for contractors of, and visitors to, project construction sites. Implementation of the CSHP, in compliance with Title 8 and other legal requirements, would reduce risks to human health during construction by establishing protocols for safe construction operations.

4494-9252

The commenter asked for additional details on how particular impacts could qualify as "temporary." The Authority has identified temporary impacts, impacts that will not persist once the project construction and subsequent restoration is complete. While the Authority has identified placement of staging and other temporary construction activities to be placed within permanent disturbances as a priority, temporary impacts could occur within areas that are needed only temporarily during construction. These areas would be restored to pre-disturbance conditions once construction is complete. However, as described in Section 3.7.6.3, for the purposes of quantifying acreages of habitat impacts, temporary impacts are considered permanent impacts due to the length of the construction period.

The commenter asked how many biologists would be present on-site during construction. The number of Project Biologists working on the project and on the ground at any particular time will be decided by the Authority in conjunction with the USFWS, USFS, and CDFW based on the type, location, and seasonality of work being done at the time.

The commenter asked for examples of WEAP training. WEAP stands for Worker Environmental Awareness Program. BIO-IAMF#3, describe the requirements for WEAP training and materials and is fully described in Appendix 2-E in Volume II of the Draft EIR/EIS. Construction spoils and waste will be disposed of in accordance with BIO-IAMF#9 which requires any excavated waste materials unsuitable for treatment and reuse will be disposed at an off-site location, in conformance with applicable State and federal laws. Construction vehicles will be cleaned in accordance with BIO-IAMF#10 and will include primary and secondary containment to hold water and materials dislodged from equipment preventing it from draining into the adjacent areas and habitats. In addition, not all equipment washing uses water and compressed air is often used to dislodge organic materials at wash stations. Construction spoils would be hauled away from construction sites to be deposited at approve disposal sites in the area such as the Boulevard Mine site or in the case of the SR14A and Refined SR14 Build Alternative some spoils would be deposited at the Vulcan mine site and used to re-grade the area to reflect a more natural topography. Waste generated from construction would be hauled away and deposited in appropriate waste disposal facilities and/or landfills in the area. The change in groundwater levels during construction were described as a

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temporary indirect impact to special-status plants. As described in Section 3.7, tunnel construction under the Angeles National Forest has the potential to alter hydrogeological conditions, resulting in inflows of groundwater into the tunnel and the subsequent change in groundwater levels. Changes in groundwater levels for aquifers could affect the hydrology of groundwater dependent ecosystems, resulting in effects on vegetation. Groundwater-dependent species were determined through a review of the literature and an assessment of species habitat requirements, especially those habitats that are riparian in nature and have greater sensitivity to changes in surface water availability.

The Authority considers changes in groundwater conditions due to construction to be temporary because pre-construction conditions will return once construction is completed. Special-status plant species and vegetation communities with the potential to occur in the tunnel construction RSA were evaluated to determine if they are groundwater dependent. Species were considered to be groundwater dependent if they require aquatic or riparian conditions to exist and complete a significant part or portion of their life cycle. For all species determined to be groundwater dependent, the habitat suitability models developed for the project section were overlaid with the tunnel construction RSA and Risk Areas to review the amount of modeled suitable habitat that could be adversely affected for each species. All modeled suitable habitat within the Risk Areas was quantified and considered to be potentially affected. Changes in groundwater levels during tunnel construction could result in indirect impacts on special-status plants.

The Authority has incorporated HYD-IAMF#5, Tunnel Boring Machine Design, HYD-IAMF#6, Tunnel Lining Systems, and HYD-IAMF#7, Grouting, into the design and construction methods for tunnels under the ANF to avoid or minimize groundwater inflows into and around tunnels during construction. As discussed in Impact HWR#5 in Section 3.8, Hydrology and Water Resources, although HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 will reduce the amount of potential changes in groundwater levels due to tunnel construction, based on the available information and based on prior tunnel construction experience elsewhere, some groundwater inflow into the tunnels could still occur during construction. This groundwater flow could result in localized changes of groundwater level that could have temporary indirect effects on the hydrology of groundwater-dependent surface water features, including springs, seeps, and perennial

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streams that provide habitat for special-status plants and special-status plant communities. The areas of greatest potential impact would be within riparian habitat areas and within mesic habitat areas (habitat with a moderate or well-balanced supply of moisture) where special-status plants and special-status plant communities depend on soil moisture that could be altered by changes in surface water from tunneling. The duration of temporary impacts to special-status plants would depend on the hydrologic conditions, subsurface conditions, and amount of groundwater inflow into the tunnel, none of which can be precisely estimated at this time as discussed under Impact HWR#5 in Section 3.8, Hydrology and Water Resources. The duration of groundwater inflows into the tunnels at any one location is expected to be a matter of months; and the potential period of effect on groundwater levels due to tunnel construction could be months to several years after tunnel completion (post project monitoring of surface water features near the Arrowhead Tunnels in the San Bernardino Mountains in southern California found that groundwater recovery from tunnel construction took up to 5 years for some features.

4494-9253

The commenter asks if there was groundwater recovery from tunnel construction as mentioned in the Arrowhead Tunnels and if so, how did that affect vegetation recovery? As noted on page 3.7-103 of the Draft EIR/EIS, groundwater levels recovered after construction of the Arrowhead tunnels was completed. While ecological recovery of vegetation was not the focus of the Arrowhead tunnel analysis, it was noted that an additional 2 years beyond groundwater recharge were required to achieve pre-disturbance levels.

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4494-9254

The commenter asks how the Authority can justify destroying plants living in the San Gabriel Mountains National Monument. They asked if that land is protected and if endangered species of plants and animals are present, aren't they federally protected. The national monument, and any federally listed species present, are federally protected. The Build Alternatives, including the Authority's preferred alternative, tunnel under the San Gabriel Mountains such that impacts to surface resources, including plants within the forest, would largely be avoided except potentially in the vicinity of portal construction. As described in Section 3.7 of the Draft EIR/EIS, pages 112-114, impacts to special-status plants from construction are distributed throughout the resource study area in the relatively undeveloped regions between Palmdale and the San Fernando Valley. These impacts would be avoided, minimized, and mitigated through mitigation measures discussed in Section 3.7, principally BIO-MM#1, BIO-MM#2 and BIO-MM#38. With application of these mitigation measures, impacts to special-status plants would be reduced to less than significant levels.

4494-9255

According to the commenter, in 2015 the Authority's regional director for this project section, Michele Boehm, reportedly stated in a meeting in Pacoima that "[i]f any routes affect the watershed, then they won't be selected." No transcript of that meeting is available to provide context. While all Build Alternatives would have impacts on aquatic resources, none would have watershed-level effects (see Impact BIO#8 in Draft EIR/EIS Section 3.7, Biological and Aquatic Resources. The Authority, in coordination with USEPA and USACE, closely examined practicable alternatives for the alignment to avoid and minimize impacts to aquatic resources. USACE and USEPA concurred on December 17, 2020, and December 16, 2020, respectively, with the range of alternatives recommended in the Checkpoint B Summary Report for inclusion consideration in the EIR/EIS. The SR14A Build Alternative has been identified as the preliminary LEDPA, which has been recorded in Checkpoint C (established by the Memorandum of Understanding - National Environmental Policy Act [42 U.S.C. 4321 et seq] and Clean Water Act Section 404 [33 U.S.C. 1344] and Rivers and Harbors Act Section 14 [33 U.S.C. 408] - Integration Process for the California High-Speed Train Program).

4494-9256

The commenter noted that tree communities communicate underground, and their well-being depends upon this communication. The commenters asks how forest communities of special-status trees will survive when their habitats are interrupted. The Build Alternative alignments within the ANF are proposed within tunnels constructed deep below the ground surface and well below the root zone for forest communities within the project footprint. As such, the tunnels would not interrupt habitat as suggested in the comment. Each of the Build Alternatives would require permanent facilities on private in-holdings and along existing utility and roadway corridors in the ANF (see Figures 3.14 11 through Figure 3.14 15). Limiting permanent above ground facilities and construction within the ANF to in-holdings and along existing utility corridors and roadways would also protect forest communities by utilizing areas that have already been disturbed by development.

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4494-9257

The commenter requests specific details on how surveys will be conducted for Special-Status Plant Species and Communities and requests specifics on seed banks, replanting, and monitoring of replanting. The commenter also asks for clarification of the vernal pool work restriction and oversight, for an example of associated plants in relation to BIO-MM#32 and BIO-MM#33, and asks how long aquatic resource monitoring would continue during train operations.

As required by BIO-MM#1: Conduct Presence/Absence Pre-Construction Surveys for Special-Status Plant Species and Special-Status Plant Communities in Section 3.7, Biological and Aquatic Resources in the Draft EIR/EIS, special-status plant species and sensitive plant community surveys will be conducted using a pedestrian transect survey methodology following protocols developed by the CDFW and USFWS, in collaboration with the California Native Plant Society (CDFW 2018 and USFWS 2001). Surveys will be performed during the appropriate blooming season of the year for the given focused species to enhance detection ability (e.g., diagnostic flowering or vegetative elements are more easily detected). Often, the special-status plant species surveys occur across multiple years to account for the amount and timing of annual precipitation (e.g., surveys during drought years may not be valid for establishing presence/absence).

All restoration seed collection will strictly follow a restoration plan (refer to BIO-MM#2 Prepare and Implement Plan for Salvage and Relocation of Special-Status Plant Species) approved by the Authority, and CDFW and/or USFWS as appropriate. This plan will include appropriate seed storage requirements (e.g., temperature, humidity, minimizing pests, etc.) until the seeds are used in restoration planting activities. The Project Biologist will oversee and monitor the restoration activities in conjunction with Authority-approved restoration biologists. Vernal pool work restrictions (refer to BIO-MM#4 Implement Seasonal Vernal Pool Work Restriction) are intended to avoid or minimize construction activities within 250 feet of vernal pools or, if unavoidable, the work would occur when the features are not inundated and are at less risk to potential impacts.

An example under BIO-MM#32 Restore Temporary Riparian Habitat Impacts and BIO-MM#33: Restore Aquatic Resources Subject to Temporary Impacts includes recontouring, removing weeds, and planting salvaged seeds and native plants within the

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temporarily disturbed habitats. The seeds and plants will include both native sensitive and non-sensitive plants known to occur within the affected riparian and aquatic habitats. Restoration would begin following completion of construction activities and would include site preparation, irrigation installation, seeding and/or planting. Monitoring of restoration areas is generally expected to occur for five years, but may go longer or shorter, based on when the restored community successfully re-establishes and meets the approved success criteria identified in the Restoration and Revegetation Plan (RRP). In addition, please refer to BIO-MM#6 Prepare and Implement a Restoration and Revegetation Plan. Success criteria will be specific to the type of vegetation community being restored, the expected timeline for each specific community to successfully re-establish, the community-specific metrics indicating successful restoration, and the proposed restoration and revegetation activities. Should success criteria be met prior to the start of train operations, monitoring would not take place during train operations. As required pursuant to applicable permits, the RRP is subject to review and approval by the appropriate regulatory agencies prior to RRP implementation.

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4494-9258

The commenter asks for details related to compensation in BIO-MM#38 and the methods for restoring sensitive plant species after construction. BIO-MM#38 addresses compensation from impacts to listed species. Compensation refers to replacing the habitat impacted as a result of the construction or operation of the project. The Authority, through coordination with CDFW and the USFWS, determines the appropriate acreage/ratio of mitigation to offset potential impacts for each sensitive species and vegetation community relative to the type of habitat potentially impacted. BIO-MM#38 states that a minimum compensatory mitigation ratio of 1:1 will be provided to offset impacts to federal and state-listed plant species. Compensatory mitigation is most commonly fulfilled through purchase of mitigation credits at an established and permitted mitigation bank or creation of like habitat in proximity to the impact. These mitigation credits or off-site habitat preservation would require the protection of this habitat in perpetuity. BIO-MM#38 states that a compensatory mitigation plan will be implemented following the methodology in BIO-MM#53, which will further define the species, habitat types, how they are evaluated, impact estimates, mitigation strategies, and management actions. A work restriction most typically takes the form of exclusionary fencing around the sensitive resource to prevent direct impact to the resource. This fencing keeps construction workers and equipment from entering and damaging sensitive areas. The Authority as the lead agency for the project has the primary responsibility for implementing mitigation. BIO-MM#54 requires the preparation and implementation of an annual vegetation control plan. The plan will be implemented throughout construction activities and updated annually. While the vegetation control plan would be updated on a yearly basis, implementation of the plan would not be limited to an annual basis. The focus of the vegetation plan is the removal and ongoing treatment of non-native plant species within areas of ground disturbance during construction. Furthermore, BIO-MM#6 outlines the requirements of the Restoration and Revegetation Plan that will be prepared and implemented. The Compliance Reporting Program, including the components, is described in detail in BIO-MM#61, and will allow the Authority to monitor and document the success of restoration efforts. BIO-MM#6 addresses the preparation and implementation of a Restoration and Revegetation Plan which includes information as to success criteria including that the restoration success criteria will include limits on invasive species, as defined by the California Invasive Plant Council, to an increase of no greater than 10 percent compared to the pre-disturbance condition, or to a level determined through a comparison with an appropriate reference site consisting of similar

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natural communities and management regimes. Restoration is deemed successful when success criteria are met. The timeframe for achieving success varies by location and type of restoration and can typically take 1-3 years.

4494-9259

The commenter asks when surveys and habitat assessment were conducted for red-legged frog populations, if the observations were done in person, and if so, by whom? As described on page 3.7-25 and 3.7-26 of the Draft EIR/EIS, protocol presence/absence surveys for California red-legged frog were performed in 2017. The habitat assessments and surveys were conducted from March until July 2017. The protocol surveys were conducted in-person by individual Regional Consultant biologists familiar with the identification of California red-legged frog and other amphibians and determined to be qualified by the Authority and USFWS.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9260

The commenter asked how the Authority knows that destruction to aquatic breeding habitats would be temporary (3.7-116), how often the BIO IAMFs will be employed, and whether workers will be on the job at night. Temporary impacts could occur within areas that are needed temporarily during construction and would not be part of the permanent project disturbance. These temporary impact areas would be restored to pre-disturbance conditions once construction is complete. While page 3.7-116 of the Draft EIR/EIS describes the potential temporary impacts to aquatic breeding habitats, page 3.7-95 of the Draft EIR/EIS states "However, for the purposes of quantifying acreage of habitat impacts, temporary impacts are considered permanent impacts due to the length of the construction period." Therefore, temporary impacts are considered permanent and mitigated as such.

Implementation of BIO-IAMF#1 (Designate Project Biologist, Designated Biologists, Species-Specific Biological Monitors and General Biological Monitors), BIO-IAMF#2 (Facilitate Agency Access), BIO-IAMF#3 (Prepare WEAP Training Materials and Conduct Construction Period WEAP Training), BIO-IAMF#5 (Prepare and Implement a Biological Resources Management Plan), BIO-IAMF#8 (Delineate Equipment Staging Areas and Traffic Routes), BIO-IAMF#9 (Dispose of Construction Spoils and Waste), BIO-IAMF#10 (Clean Construction Equipment), and BIO-IAMF#11 (Maintain Construction Sites) (described in Section 3.7.4.2); and BIO-MM#6 (Prepare and Implement a Restoration and Revegetation Plan), BIO-MM#7 (Conduct Pre-construction Surveys for Special-Status Reptile and Amphibian Species), BIO-MM#8 (Implement Avoidance and Minimization Measures for Special-Status Reptile and Amphibian Species), BIO-MM#32 (Restore Temporary Riparian Habitat Impacts), and BIO-MM#33 (Restore Aquatic Resources Subject to Temporary Impacts) (described in Section 3.7.6.3) will ensure that mitigation measures (listed in Impact BIO#2, in Section 3.7.6.3 of this Final EIR/EIS) are applied prior to and during project construction and actively monitored and enforced throughout the construction period, in order to minimize surface construction impacts on aquatic breeding habitat. The intent of the temporary impact area restoration is to return these areas to pre-disturbance conditions. Collectively, these mitigation measures would provide avoidance, minimization, and compensatory mitigation for direct and indirect surface construction impacts on aquatic breeding habitat for special-status species.

4494-9260

The Authority will avoid conducting ground-disturbing activities within known wildlife habitat during nighttime hours, to the extent feasible. If nighttime work is necessary, the Authority will minimize impacts on adjacent habitat through implementation of BIO-MM#99 (Implement Lighting Minimization Measures During Construction), and BIO-MM#100 (Implement Lighting Minimization Measures for Operations) because they will limit the work areas where nighttime activities are allowed during construction and will minimize the lighting during operations to only those areas deemed necessary for health and safety. BIO-MM#72 (Implement Avoidance of Nighttime Light Disturbance for California Condor) would minimize the use of lighting that may pose a risk or otherwise disturb or harm condors during construction, such that impacts on individuals and habitat of this fully protected bird species would be avoided.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9261

Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the ANF.

The commenter asks how the Authority can compensate for "unavoidable impacts" to groundwater resources and drinking water wells.

Pursuant to the Authority's 2019 Preliminary Geotechnical Data Report for Tunnel Feasibility, Angeles National Forest and 2019 Geotechnical Tunnel Feasibility Evaluation for High-Speed Rail Tunnels Beneath the Angeles National Forest (referenced in Section 3.8 of the EIR/EIS), based on observed impacts on groundwater from past tunnel projects, no impacts to wells are expected to occur outside the tunnel construction resources study area (more than 1 mile from the centerline of each Build Alternative). Section 3.8, Hydrology and Water Resources, of Final EIR/EIS has been revised to expressly clarify concerns related to private water supply wells. As stated in the Final EIR/EIS, because only limited information is available regarding the location of private wells, there is the potential that tunnel construction could result in the destruction of private water supply wells, including wells that have not been identified, if any wells are located directly in the path of the tunnels. HYD-IAMF#8: Private Well Monitoring and Minimizing Access Disruptions for Private Water Supply Wells Outside of the ANF has been added to the Final EIR/EIS to describe in detail the options that the Authority would consider to address impacts to private water supply wells outside the Angeles National Forest (ANF), including relocating the wells and ensuring similar pumping capacity and water quality in replacement wells. For wells within the ANF (including in Kagel Canyon) that are determined through modeling and monitoring to be adversely affected by groundwater reductions caused by the HSR, the Adaptive Management and Monitoring Plan (AMMP) included in Mitigation Measure HWR-MM#4 requires modifications to the affected wells or by providing supplemental water. Supplemental water would only be provided if monitoring indicates that the HSR construction caused groundwater impacts. However, the Authority has identified several IAMFs to avoid and minimize the potential for impacts to water supply wells and the need for supplemental water. HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 require design features and construction methods to address potential groundwater intrusion, including the installation of a tunnel liner(s) capable of effectively controlling inflows into the tunnels. As such, groundwater inflow

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during construction would likely be minimal and temporary. Please refer to both Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest and Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the Angeles National Forest for additional information regarding hydrogeologic impacts, impacts to wells, and correlating mitigation measures and IAMFs.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9262

The commenter asks about the source of the surveys, restoration plans, and minimization measures for the Project, and if they have been used in other high-speed rail construction projects. The commenter also asks how successful they have been and for examples of construction activities and monitoring measures that can reduce impacts on nesting habitats. The commenter also asks when a species is lost, how it is compensated for. The Authority is ultimately responsible for the implementation of biological surveys, developing restoration plans, and developing mitigation measures but relies on consultants with subject matter experts to conduct biological resource surveys and data collection, develop restoration plans, and formulate effective mitigation measures. These measures have been successfully used in other HSR projects including HSR work under construction in the Central Valley. The IAMFs and mitigation measures discussed in Section 3.7 of the Draft EIR/EIS were developed to reduce potential impacts to nesting habitats. These include but are not limited to BIO-MM#14, BIO-MM#15, BIO-MM#16, BIO-MM#66, BIO-MM#68, BIO-MM#69, BIO-MM#71, BIO-MM#74, BIO-MM#79, BIO-MM#80, BIO-MM#81, and BIO-MM#82. Compensation for impacts to species habitat is dependent on the species, the type of habitat impacted, and the species conservation status. Compensatory mitigation for species and habitat are set out in BIO-MM#35, BIO-MM#38, BIO-MM#39, BIO-MM#43, BIO-MM#44, BIO-MM#46, BIO-MM#47, BIO-MM#53, BIO-MM#61, BIO-MM#67, BIO-MM#70, BIO-MM#93, BIO-MM#95, BIO-MM#97, and BIO-MM#103. For species where a take permit can be issued, the compensation and amount of take are also defined in the permit. Examples of construction activities and monitoring measures that can reduce impacts include full time monitoring of active nests during construction activity and halting activities and expanding the no-work buffers if birds begin to display stress behaviors due to the proximity to construction activities. By monitoring active nests during construction, nest failures due to construction are avoided.

4494-9263

The commenter cites the Draft EIR/EIS page 3.7-122 and asks for clarification about weed control, the use of rodenticides, the eradication of Arundo, and requested examples that would need reduced traffic speeds and if these roads are shared with other vehicles not related to High-Speed Rail construction. The commenter also asks about frequency of compliance reports and who will receive them. The commenter also asks for examples of construction activities that can reduce impacts on breeding habitat for amphibians and if there will be workers who specialize in construction in wetlands. Page 3.7-122 provides a summary of various mitigation measures that apply to Impact BIO#2: Project Construction Effects on Special-Status Amphibian Habitat. The full text of each of these mitigation measures is provided in Section 3.7.7. These measures address many of the questions raised in the comment. For example BIO-MM#55 requires the Authority to develop a weed control plan to control the spread of weeds. This approach to weed control is anticipated to utilize a wide range of measures that may include herbicides. *Arundo donax* would be a species included in the weed management plan to control the population and potential spread of the species within the project footprint. The Authority would only use rodenticide in accordance with federal, state, and local regulations and outside of sensitive species habitat in areas where no direct and indirect mortality to native wildlife would occur (See BIO-IAMF#11). The roads referred to in BIO-MM#60 are project access roads which are not shared roads and would have reduced speeds as a measure to reduce dust generation, enhance worker and public safety, and avoid impacts to wildlife crossing or basking on the roadways. The only traffic that would be expected to adhere to project-specific speed limits would be related to project construction. Compliance reports are typically generated weekly, monthly, quarterly, and annually and submitted to the Authority and subsequently to resource agencies coordinating with the Authority or that have jurisdictional responsibility over the resources (See BIO-MM#61). Examples of construction activities that can reduce impacts on breeding habitats for amphibians include seasonal restrictions in suitable or occupied breeding or dispersing habitats to avoid disruption of breeding behaviors and dispersal of juvenile amphibians (BIO-MM#58). The Authority expects construction workers to have been provided training on wetland resources and resource protection (BIO-IAMF#3) and be monitored by the Project Biologist while working adjacent to aquatic resources (BIO-MM#34).

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9264

Refer to Standard Response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife.

The commenter asks how mitigation measures will make impacts on amphibians less than significant in all cases when construction has not started and whether construction will continue from February to September during nesting months for the five FESA-listed bird species.

The mitigation measures to address potential impacts to amphibians included in the Draft EIR/EIS have been successfully implemented for other HSR projects, including those in the Central Valley, and are typically required through permitting authorizations issued by agencies with regulatory oversight. The Authority is currently implementing similar mitigation measures during construction of the Merced to Fresno and Fresno to Bakersfield Project Sections and they are effective at avoiding, minimizing, and mitigating impacts. The mitigation measures listed prior to page 3.7-123 are only summaries of the mitigation measures to be implemented to reduce construction impacts on special-status amphibians. Refer to Section 3.7.7 in the Final EIR/EIS for the full text of these measures applicable to amphibians.

While the Authority believes the mitigation measures presented in the Draft EIR/EIS are adequate for addressing potential impacts to amphibians, Mitigation Measures BIO-MM#7 and BIO-MM#8 have been revised in the Final EIR/EIS to provide additional protection for amphibians. BIO-MM#7 (Conduct Pre-construction Surveys for Special-Status Reptile and Amphibian Species) was revised to state that surveys would be conducted in accordance with applicable required agency protocols, including CDFW Survey and Monitoring Protocols and Guidelines (https://wildlife.ca.gov/Conservation/Survey-Protocols#377281282-amphibians) and the USFWS Survey Protocols and Guidelines (https://www.fws.gov/library/collections/survey-protocols-and-guidelines-recovery-permits-pacific-southwest-region).

As stated in the Draft EIR/EIS, surveys would be conducted prior to the start of any ground-disturbing activities. BIO-MM#7 was also revised in the Final EIS/EIS to describe that the results of the focused survey would guide the placement of ESAs, protective

4494-9264

fencing, and species relocation. For federal or state-listed species, relocations will be undertaken in accordance with regulatory authorizations issued under the FESA and/or CESA and/or Fish and Game Code §§1002, 1002.5, 1003 and/or Cal. Code Regs., tit. 14, §650. The qualified Project Biologist will also prepare a Reptile and Amphibian Relocation and Avoidance Plan that includes species-specific avoidance buffers of at least 50 feet, and if needed, the approach for relocating individuals out of harm's way and moving to suitable sites outside of the Project footprint. This Plan would be reviewed by CDFW and USFWS prior to any clearing, grading, or excavation work on the Project site. BIO-MM#7 would be effective because it identifies and documents amphibians and their habitat within the project footprint, informs methods for the species' avoidance, protective fencing placement, and relocation activities. BIO-MM#8 (Implement Avoidance and Minimization Measures for Special-Status Reptile and Amphibian Species) was revised to describe that the materials used to establish the exclusion buffer around an environmentally sensitive area (ESA) would not be made of solid material such that the species becomes entrapped within the buffer area. Additionally, the ESA exclusion buffer would include an area of suitable habitat around the species observation such that the species has suitable area to perform normal life history functions and is able to move away from the project site of its own volition. The ESA buffer would be maintained at 50 feet from the point where the species was observed, and the resulting ESA individuals would not be isolated within the construction site from adjacent suitable habitat for the species. This measure requires the Project Biologist to monitor all initial ground disturbing activities that occur within suitable habitat for special-status amphibians and to conduct clearance surveys of suitable habitat on a daily basis to reduce impacts on special-status reptiles and amphibians and their habitat.

In addition, if impacts on special-status amphibians and/or their habitats are not able to be avoided or minimized, implementation of BIO-MM#47 (Prepare and Implement a CMP for Impacts on Aquatic Resources) and BIO-MM#53 (Prepare and Implement a CMP for Species and Species Habitat) would provide compensatory mitigation subject to approval by the applicable regulatory agencies. Please also refer to Standard Response PB-Response-BIO-2, which provides additional information about each species-specific survey, avoidance, minimization, and compensatory mitigation measure.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9264

Identification of special-status amphibian locations and their habitat allows for the implementation of several facets of BIO-MM-7 and BIO-MM-8 including avoiding the habitat impact altogether (with species-specific avoidance buffers) or relocating the special-status species to other nearby suitable habitat (through measures that will be detailed in the Reptile and Amphibian Relocation and Avoidance Plan). Any movement of special-status listed species would require proper regulatory authorizations to ensure that the relocation of the listed species would not result in additional secondary impacts. Implementation of the revised BIO-MM#7 and BIO-MM#8, as described in the Final EIR/EIS, would ensure that impacts to special-status amphibians remain less than significant.

The commenter also asked whether construction will continue from February to September during nesting months for the five FESA-listed bird species. If it is not feasible to avoid the bird nesting season for any of the protected bird species, including FESA-listed bird species, measures will be implemented prior to the start of construction, as well as extend into construction if needed, to avoid and minimize impacts to nesting birds. These measures include BIO-MM#14 (Conduct Pre-construction Surveys and Delineate Active Nest Buffers Exclusion Areas for Breeding Birds), BIO-MM#15 (Conduct Pre-construction Surveys and Monitoring for Non-Special Status Raptors), BIO-MM#16 (Implement Avoidance Measures for California Condor), BIO-MM#65 (Conduct Pre-construction Surveys and Monitoring for Bald and Golden Eagles), BIO-MM#66 (Implement Avoidance Measures for Active Eagle Nests), BIO-MM#68 (Avoid Impacts on White-tailed Kite), BIO-MM#69 (Conduct Surveys and Implement Avoidance Measures for Active Tricolored Blackbird Nest Colonies), BIO-MM#71 (Implement California Condor Avoidance Measures During Helicopter Use), BIO-MM#74 (Implement Bird Nest and Avian Special-Status Species Avoidance Measures for Helicopter-Based Construction Activities), BIO-MM#79 (Conduct Surveys for Coastal California Gnatcatcher), BIO-MM#80 (Conduct Surveys for Least Bell's Vireo), BIO-MM#81 (Conduct Surveys for Southwestern Willow Flycatcher) and BIO-MM#82 (Conduct Surveys for Western Yellow-billed Cuckoo). Please refer to Section 3.7.7 in the Final EIR/EIS for the full text of these measures applicable to nesting birds.

4494-9265

The commenter asks how the Authority can conclude that no California Condors breeding activity is known from within 10 miles of the Build Alternatives. The Authority concluded that there is no known breeding activity within 10 miles of the Build Alternatives, based on the literature review and consultation with resource agencies as described in Section 3.7.4.4.

4494-9266

The commenter asks if the appropriate Biologists for specific areas plan ahead to coordinate with bird nesting habits. As described in BIO-IAMF#1, the qualifications of the Project Biologist (appropriate Biologist) would be approved ahead of ground disturbing activities. The biological monitoring team will schedule preconstruction activities ahead of proposed construction activities to coordinate exclusionary buffers around occupied nesting habitats. Please see Appendix 2-E page 2-E-5 for more information about the qualifications and responsibilities of the biologists.

4494-9267

The commenter asked, related to BIO-IAMF#2, what happens if, during a meeting among agencies such as the United States Fish and Wildlife Service, issues arise. This IAMF describes the Authority's commitment to allowing the USFWS, USACE, NMFS, CDFW, and SWRCB to access the project site during the construction period. It explains that, if an agency visits the project site and raises an issue, the Project Biologist will prepare a memorandum within 3 business days after the visit. The Project Biologist will report any issues regarding regulatory compliance raised by agency personnel to the Authority. If a Project Biologist reports an issue, the Authority will review that report and take appropriate steps to ensure that it is complying with all of its legal obligations and commitments.

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4494-9268

The commenter asks how long WEAP training should be so that it is certain that workers understand the training materials and how workers are evaluated to confirm their understanding. They also ask whether training materials will be available in the primary language of each worker. As described in the full text of BIO-IAMF#3 in Appendix 2-E of the Draft EIR/EIS, the dissemination of the WEAP training materials is initiated prior to ground disturbing construction activities and the materials continue to be provided to new project construction and operation staff as they are onboarded and begin supporting the project. Training participants are asked questions and queried to ensure adequate comprehension. Materials are typically provided in multiple languages including but not limited to English and Spanish.

4494-9269

The commenter asks for an example of a penalty for noncompliance of a regulation. The take prohibition of the California Endangered Species Act (CESA) specifically states that no person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts (Fish &G. Code, §2080; Cal. Code Regs., tit. 14, §783.1). In this context, the term "take" is defined by Fish and Game Code section 86 as hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill. Penalties for violating section 2080 range from $25,000 to $50,000 for each violation, one-year imprisonment, or both fine and imprisonment (Fish &G. Code, §12008.1). However, CESA contains several exceptions to the take prohibition and CDFW may permit the take of candidate, threatened, or endangered species for individuals or businesses carrying out otherwise lawful activities.

4494-9270

The commenter asks about BIO-IAMF#5 and at what point in the building process is the Resources Management Plan compiled? As explained in BIO-IAMF#5, the Biological Resources Management Plan is prepared prior to any ground-disturbing activities related to project construction. Please see Appendix 2-E, page 2-E-7 for more details.

4494-9271

The commenter asks for examples of type of erosion control materials appropriate for protection of a particular species and asks if the Project Biologist will conduct daily inspections for wildlife. Prior to ground-disturbing activities, the Project Biologist will be responsible for identifying acceptable material for use, including but not limited to geomembranes, coconut coir matting, tackified hydroseeding compounds, and rice straw wattles. Please see BIO-IAMF#6 (Establish Monofilament Restrictions) in Appendix 2-E. The commenter does not specify between general wildlife and special-status wildlife that will be inspected for on a daily basis. During construction, a Project Biologist will likely be surveying for wildlife along the Palmdale to Burbank alignment at some point every day. The type of work, location of work activity, the type of habitat present, the likelihood of special-status species to be present, etc. are all factors to determine if inspections for wildlife should occur on a daily basis.

The Authority will implement BIO-IAMF#1 (Designate Project Biologist, Designated Biologists, Species-Specific Biological Monitors and General Biological Monitors) to reduce potential biological resource impacts through designating Project Biologist(s), Designated Biologist(s), Species-Specific Biological Monitor(s), and General Biological Monitor(s) retained to conduct biological resource monitoring activities and implement avoidance and minimization measures. These positions are approved by the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS) and California Department of Fish and Wildlife (CDFW). The positions are responsible for overseeing timely implementation of biological resource mitigation features and permit conditions, overseeing regulatory compliance and monitoring construction activities. The positions provide on-the-ground field inspection to verify that the project is implemented consistent with all biological resource terms and conditions.

Several of the mitigation measures described in Section 3.7 require monitoring throughout construction, including on a daily basis for several special-status reptiles, amphibians, birds, and aquatic wildlife. BIO-MM#8 (Implement Avoidance and Minimization Measures for Special-Status Reptile and Amphibian Species) requires the Project Biologist to monitor all initial ground disturbing activities that occur within suitable habitat for special-status reptiles and amphibians and to conduct clearance surveys of suitable habitat in the work area on a daily basis. BIO-MM#18 (Implement Avoidance and Minimization Measures for Swainson's Hawk Nests) requires that Swainson's hawk

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4494-9271

nests be monitored daily by the Project Biologist. BIO-MM#34 (Monitor Construction Activities within Jurisdictional Waters) requires monitoring of construction activities that occur within or adjacent to aquatic resources. BIO-MM#52 (Conduct California Glossy Snake, California Legless Lizard, Coast Patch-Nosed Snake, Coastal Rosy Boa, Coastal Whiptail, Blainville's Horned Lizard, San Bernardino Ringneck, San Bernardino Mountain Kingsnake, South Coast Garter Snake, Two-Striped Garter Snake, and Western Pond Turtle Monitoring, and Implement Avoidance and Minimization Measures) specifies that clearance surveys will be conducted daily unless the Project Biologist determines that the surveys are no longer necessary. BIO-MM#87 (Prepare and Implement Spill Prevention and Containment Measures) requires daily water quality monitoring during concrete pouring operations.

Two measures, however, BIO-MM#56 (Conduct Monitoring of Construction Activities) and BIO-MM#58 (Establish Environmentally Sensitive Areas and Nondisturbance Zones) do not require daily inspections; rather, they are up to the discretion of the Project Biologist. BIO-MM#56 requires monitoring during any initial ground disturbing activity to verify compliance, establish ESAs and install wildlife/construction exclusion fencing. Following completion of initial ground disturbing activities, the Project Biologist will visit the project construction site(s) once per week or once every two weeks, depending on the Project Biologist's assessment of the level of disturbance, to verify compliance with mitigation measures. BIO-MM#58 requires regular monitoring of Environmentally Sensitive Areas, wildlife exclusion fencing, and construction exclusionary fencing, but does not require daily inspections.

4494-9272

The commenter asks about BIO-IAMF#8 and how much space will be used by staging areas and traffic routes, about the timing for restoration of temporarily disturbed areas, and the size of permanent staging areas.

The project footprint that has been identified and evaluated in the Draft EIR/EIS for each Build Alternative includes space for staging construction activities. These areas will be located in areas that would be occupied by permanent facilities where possible. The biological impacts of these staging areas have been included in the Draft EIR/EIS analysis. The Authority will flag and mark access routes to ensure that vehicle traffic within the project footprint is restricted to established roads, construction areas, and other designated areas. Locating the temporary disturbance areas within areas where permanent facilities will be built, when possible, will avoid and minimize additional impacts to special status species and their habitats. BIO-MM#6 requires that prior to any ground disturbing activity, the Project Biologist will prepare a Restoration and Revegetation Plan (RRP) to address temporary impacts resulting from ground disturbing activities within areas that potentially support special-status species, wetlands and any other aquatic resources. In addition, BIO-MM#32 requires that temporarily disturbed riparian areas will be revegetated within 90 days of completing construction in a work area.

4494-9273

The commenter asked, in response to BIO-IAMF#9, whether the Authority would build new facilities for storing construction spoils and waste and what the IAMF means by "treatment." No new facilities are anticipated or included in the project design for storing construction spoils or waste. It is expected that the contractor will store spoils on-site within the project footprint before being hauled or conveyed to its final deposition site. Much of the spoils are anticipated to be deposited at the Vulcan mine and Boulevard mine sites, see Appendix 2.0-1 Spoils Disposal Assumptions for further details. In the context of "BIO-IAMF#9, "treatment" refers to biological, thermal, chemical, or physical remediation techniques (3.7-19).

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4494-9274

The commenter asks about BIO-IAMF#10 and where will cleaning locations be, how large and disruptive to the forest will they be, and what materials will be used to clean the equipment. The cleaning locations would be located within the construction footprint established for each Build Alternative. Because they would be located within the construction footprint, no additional disturbance to the surrounding area is anticipated. Cleaning may be done by washing with water, blowing with compressed air, brushing, or other hand cleaning. See Appendix 2-E, page 2-E-8 for more details.

4494-9275

The commenter inquires whether rodenticides that could harm wildlife would be used, and requests details regarding the methodology for ensuring that HSR construction/maintenance workers abide by standard construction site housekeeping practices.

Construction and operations and maintenance activities may require the use of rodenticides in limited instances. Pesticide use, including rodenticides, would be in accordance with federal and state requirements and guidelines. Through adherence to state and federal requirements and guidelines, the use of rodenticides in certain limited instances is not expected to result in harm to non-target wildlife. It should be noted that there is currently a moratorium on the use of second-generation anticoagulant rodenticides pursuant to the Ecosystems Protection Act. Under the Act, the moratorium would only be lifted for rodenticides that are determined by the California Department of Pesticide Regulation to not have a significant adverse effect on non-target wildlife. As specified in BIO-IAMF#11, the Authority will prepare a construction site Best Management Practice (BMP) field manual. The manual will contain standard construction site housekeeping practices required to be implemented by construction personnel. The manual will identify BMPs for rodenticide use and other general construction site cleanliness measures. All construction personnel will receive training on BMP field manual implementation prior to working within the project footprint. All personnel will acknowledge, in writing, their understanding of the BMP field manual implementation requirements. The BMP field manual will be updated by January 31st of each year. The Authority will provide, on an annual basis, training updates to all construction personnel (BIO-IAMF#4). BIO-IAMF#4 (Conduct Operation and Maintenance Period WEAP Training) will provide training to HSR operations and maintenance workers on regulatory agency terms and conditions contained in permits and approvals, federal and state environmental regulations, and project avoidance features and mitigation measures. BIO-IAMF#11 has been revised in the Final EIR/EIS to indicate that the BMP Manual shall be reviewed and approved by USFS if the activities occur within USFS lands (see Appendix 2-E of the Final EIR/EIS).

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4494-9276

The commenter asks about the efficacy of BIO-IAMF#12 and whether construction will avoid the breeding season of birds. BIO-IAMF #12 in Appendix 2-E provides guidance on design of facilities to address the potential for electrocution and collision with birds. The Authority has identified additional mitigation measures to address potential impacts from construction, including habitat fragmentation and nest disturbance. BIO-MM#14 requires that prior to any ground disturbing activity, including vegetation removal, scheduled to occur during the bird breeding season (February 1 to September 1), the Project Biologist will conduct visual pre-construction surveys within the work area for nesting birds and active nests (nests with eggs or young) of non-raptor species listed under the MBTA and/or the Fish and Game Code. These surveys will be conducted in accordance with required protocols. In the event that active bird nests are observed during the pre-construction survey, the Project Biologist will delineate no-work buffers. No-work buffers will be set at a distance of 75 feet unless a larger buffer is required pursuant to regulatory authorizations. Consistent with standard practice, no work buffers will be set from the base of the nesting site. No-work buffers will be maintained until nestlings have fledged and are no longer reliant on the nest or parental care for survival, or the Project Biologist determines that the nest has been abandoned. This measure will ensure nests are not disturbed by construction activities including construction period noise. The following mitigation measures provide additional requirements specific to different bird species that may be present in the project area - BIO-MM#15, BIO-MM#16, BIO-MM#66, BIO-MM#68, BIO-MM#69, BIO-MM#71, BIO-MM#74, BIO-MM#79, BIO-MM#80, BIO-MM#81 and BIO-MM#82. The Authority has also included mitigation measures requiring compensatory mitigation for any loss of habitat which would mitigate impacts of habitat loss and fragmentation. See measures BIO-MM#43, BIO-MM#44, BIO-MM#67, BIO-MM#70 which require compensatory mitigation for the loss of nests associated with specific bird species as well as habitat loss.

4494-9277

The commenter asked the Authority to apply Executive Order 11990, Protection of Wetlands, 42 Fed. Reg. 26961 (May 24, 1977). That order directs agencies to "consider factors relevant to a proposal's effect on the survival and quality of the wetlands," and to ensure that "the proposed action includes all practicable measures to minimize harm to wetlands." That order does not focus on protecting nesting birds. Nonetheless, the Authority intends to take thorough measures to protect nesting birds. The commenter asks (1) how the Authority will survey to reduce impacts on nesting birds, (2) who will conduct those surveys, and (3) how the Authority will ensure construction workers abide by those protections.

The commenter asks if construction will ever cease, so it will not harm birds. The Authority will take several steps. It will survey for active nests and, when it finds them, it will take measures to protect them. To identify active nests, biologists will conduct pedestrian surveys, plant community identification, and observations of the habitat for nesting behavior. Pre-construction nesting bird surveys are described in BIO-MM#14 and 15.When the Authority's biologists discover active nests, they will place around the nest a no-disturbance buffer to avoid or to reduce impacts on the nest. Results are translated to workers in the form of a no-work buffer being identified in work areas, where they overlap. The Authority will not disclose the exact location of a nest to anyone who does not need to know that location, and that confidentiality is also important to protect the nests.

The commenter asks about impacts on the California Condor. Under BIO-MM#16, the Authority will not perform work within 0.5 mile of a roosting condor, and that mitigation measure will protect condors. Moreover, the Authority will properly dispose of trash and will contain construction materials. If condors appear in the work area, those efforts will prevent them from becoming entangled or ingesting harmful/foreign materials. Stopping work activities that can harm a condor until the condor vacates the area will avoid construction activity related harm to condors. The comment asks how locating Swainson's hawk nests or burrowing owl nests will protect the species. The Authority will protect those nests by applying a no-work buffer around the nests to protect Swainson's hawk and burrowing owl nests. Those efforts will protect those members of the species. BIO-MM#14 and 15 apply to general nesting birds and raptors, and BIO-MM#16, 17, 18, 20, and 21 apply to Swainson's hawks, condors, and burrowing owls, and will be used

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for their protection. Restoration of habitat is described in BIO-MM#6, 32, and 33.

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The commenter asks how the Authority will document mitigation measures. The Authority will prepare a Mitigation Monitoring Report which will be used to monitor, track and ensure that mitigation measures committed to by the Authority are being implemented and effective.

The commenter asks evidence is there that habitat restoration will cause birds to return to a previous area. By restoring the habitat to predisturbance successional stages, the Authority expects a quicker return to secondary succession or re-colonization of the restored site to occur. As these habitats develop and provide suitable environmental elements (space for individual and population growth, cover or shelter, food, water, nutritional or physiological requirements, sites for breeding and rearing offspring, and habitat that are representative of historical geography and ecological distributions of the species) individuals and then populations of birds will return to the area.

The commenter asks specifically will weeds be controlled. The Authority will implement BIO-MM#54 and BIO-MM#55 to address vegetation removal for the purpose of maintaining clear areas around facilities, reducing the risk of fire, and controlling invasive weeds during the operational phase and establish approaches to minimize and avoid the spread of invasive weeds during ground disturbing activities during construction and operations and maintenance. The commenter asks how the Authority will confine noise from construction. The Authority will do so by taking periodic noise readings in areas with sensitive biological resources such as nesting birds and halting construction that exceeds USFWS and CDFW published thresholds for each species, by establishing Environmentally Sensitive Areas no-work areas around sensitive resources, by installing wildlife exclusion fencing (WEF), and by installing construction exclusion fencing (exclusion fencing). See Appendix 3.1-C-25.

The commenter asks questions about the Compliance Reporting Program. Generally, the Project Biologist will prepare monthly and annual reports that document compliance with all IAMFs, mitigation measures, and other requirements, and the Authority will review and decide whether to approve them. See Appendix 3.1-C-26 to -28.The comment requests an example of construction speed limits. The Project Biologist will establish, for example, vehicle speed limits of no more than 15 mph for unimproved access roads and for temporary and permanent construction areas within the

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Construction Footprint. See Appendix 3.1-C-26.

The commenter asks how a Work Stoppage "is the same as 'reduced'" impacts on wildlife. In the event that any special-status wildlife species is found in a Work Area, a work stoppage would reduce impacts on those members of the species. See Appendix 3.1-C-28 to -29.

4494-9279

The commenter asks how the Authority will relocate eagle nests and who would do that. Active bald eagle and golden eagle nests can be relocated through the use of a federal eagle nest take permit issued by the USFWS under the authority of the Bald and Golden Eagle Protection Act. However, pursuant to California Fish &Game Code 3511, golden eagle are fully protected and active nests cannot be relocated. Please see Response to Comment #10391 for further discussion regarding nest relocation.

The commenter asks what measures the Authority will undertake to avoid effects on white-tailed kite nests within the construction footprint under BIO-MM#68. For construction between February 1 and August 31, the Project Biologist will survey for kites. If the biologist finds kites, the biologist will establish no-disturbance buffers until the young have fledged. The commenter asks who will identify Tricolored Blackbird nesting habitat and active nests, what method that person will use to identify the colonies, and what other mitigation measures the Authority will use. The Project Biologist will locate the nests. The methods used to identify Tricolor Blackbird habitat and active nests include pedestrian surveys, plant community identification, and observations of the habitat for active nesting behavior. As described in BIO-MM#14, active nests would be protected through no-work buffers. The commenter asked how the Authority will avoid [impacts from] helicopter use. As described in BIO-MM#74, for construction activities involving the use of a helicopter, the buffer for nesting birds will be 200 feet horizontal and 150 feet vertical. Buffers will be measured from the location of the nest. If a nest is located on a tower or a tree, the vertical buffer begins from the nest location. For raptors that are not state or federal special-status raptors the default buffer is 300 feet. Under BIO-MM#71, prior to construction-related uses of helicopters, the Project Biologist will coordinate with USFWS to establish that no California condors are present in the area. If California condors are observed in the area where helicopters will operate, including the helicopter's flight pattern from its origination, during construction use, and the return flight, helicopter use will not be permitted until the Project Biologist has determined that the California condors have left the area. The commenter asked how the light will affect migrating birds. As described in BIO-IAMF#12 and BIO-MM#99, appropriate project lighting techniques will be utilized if construction activities are required at night. The commenter asked how the Authority will protect the California Condor. The Authority has developed a range of IAMFs and MMs to avoid or minimize impacts to California Condor (see e.g., BIO-MM#72). The commenter asked what is an

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example of a "helicopter-based construction activity." As described in Chapter 2, page 2-199, geotechnical investigations are an example of an activity carried out with the use of helicopters. The commenter asked how bird nest surveys reduce impacts. Bird nest surveys allow for the identification of active nests, which then requires implementation of the no-work buffers identified in BIO-MM#14, BIO-MM#18, BIO-MM#21, BIO-MM#66, BIO-MM#68, BIO-MM#69, BIO-MM#74, BIO-MM#79, BIO-MM#80, BIO-MM#81, and BIO-MM#82.

4494-9280

The commenter asks from where and the method the Authority would be delivered supplemental water for fostering wildlife habitat. The Authority would implement BIO-MM#93 adaptive management to provide supplemental water as necessary to support riparian vegetation, wildlife breeding cycles, aquatic wildlife or protect tree health. Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which addresses the commenter's question about the water sources for supplemental water.

The commenter also asks how the Authority would use compensatory mitigation. BIO-MM#2, BIO-MM#46, BIO-MM#47, and BIO-MM#53 require compensatory mitigation which may include purchasing credits from an approved mitigation bank, acquiring habitat and preserving it in perpetuity, participating in an in lieu fee program, or a combination of all these options. Through the protection and long-term management of habitat, the project related habitat impacts would be offset.

4494-9281

The commenter asks how mitigation involving biologists, planning, training, waste disposal, traffic, and maintenance of workspace and tools ensure that special status fish are protected.

While the commenter did not specifically reference BIO-IAMF#1 (Project Biologist), BIO-IAMF#2 (Facilitate Agency Access), BIO-IAMF#3 (WEAP Training), BIO-IAMF#8 (Designated Traffic Routes), BIO-IAMF#9 (Disposal of Spoils), BIO-IAMF#10 (Clean Construction Equipment), BIO-IAMF#11 (Maintain Construction Sites), the Authority believes the comment is in reference to the effectiveness of these features to protect special status fish. The Authority developed the following: BIO-IAMF#1 to require that a qualified biologist oversee compliance with biological and wetland avoidance and minimization features; BIO-IAMF#2 to ensure that the Palmdale to Burbank Project Section site and construction activities comply with all regulatory procedures intended to avoid and minimize impacts on applicable resources; BIO-IAMF#3 to educate all construction workers on the importance and specific requirements of identifying and avoiding sensitive biological resources; BIO-IAMF#8 to delineate roadways for construction equipment and to avoid driving through and injuring, killing, or removing sensitive biological resources; BIO-IAMF#9 to prevent disposal of construction spoils and waste in sensitive biological habitats and resources that would could result in injury or death of individuals of the species or reducing the habitat quality; and BIO-IAMF#10 and BIO-IAMF#11 to maintain construction sites and equipment in accordance with identified best practices.

In summary, implementation of BIO-IAMF#1, BIO-IAMF#2, BIO-IAMF#3, BIO-IAMF#5, and BIO-IAMF#8 through BIO-IAMF#11 will ensure that mitigation measures are applied in a timely manner, such that construction activities comply with all regulatory procedures intended to avoid and minimize impacts to applicable resources, and that biological resources are appropriately identified and preserved. The above IAMFs have been incorporated into project design to reduce impacts on special-status fish.

Impact BIO#4 in Section 3.7 of the Draft EIR/EIS concluded that surface construction associated with each of the six Build Alternatives would have a substantial adverse effect on habitat for special-status fish species, but finds that implementation of the IAMFs listed above would minimize impacts.

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While it is assumed that the commenter is not raising specific issues with mitigation measures (based on the information in the comment), it should be noted that Impact BIO#4 (Page 3.7-142 through 3.7-144 of the Draft EIR/EIS) also describes how each applicable mitigation measure (i.e., in addition to the IAMFs discussed above as part of project design) would reduce surface construction impacts on special-status fish. The suite of mitigation measures described in this section provides a multi-tiered approach to avoiding/minimizing impacts to special-status fish and their associated habitat. This multi-tiered approach includes measures intended to avoid/minimize impacts, followed by restoration or relocation, as needed. Monitoring is applied where restoration/relocation occurs to ensure that mitigation efforts are successful. Furthermore, if avoidance/minimization of impacts to special-status fish species is not possible, compensatory mitigation would be applied. As described in Section 3.7.4.6 of the Draft EIR/EIS, the project would result in a significant impact (pursuant to CEQA's mandatory findings of significance) if it would substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of an endangered, rare, or threatened species. The Draft EIR/EIS determined that, with implementation of mitigation, none of the Build Alternatives would result in a significant impact per the conclusion identified herein. Implementation of the IAMFs as part of project design, in conjunction with the multi-tiered approach to mitigation during project construction and operations, will ensure impacts remain less than significant.

The commenter also asks how much time would be allowed for these measures. The time allocated to implement each measure varies depending on what the measure is intended to achieve. Each measure will take the time necessary to ensure its effectiveness. Some measures will be completed prior to ground disturbing activities, while others would remain ongoing throughout construction. For each mitigation measure set forth in the Final EIR/EIS, the Mitigation Monitoring and Enforcement Plan (MMEP) identifies the action being monitored, responsibility for implementation, the schedule for implementation, and the mechanism that verifies when monitoring is effectively complete.

4494-9282

The commenter asks at what point in the construction would riparian habitat be restored. Within 90 days of completing construction in a work area, the Project Biologist will direct the revegetation of any riparian areas temporarily disturbed as a result of the construction activities. Please see the full text of BIO-MM#32 on page 3.7-218 for requirements for riparian habitat restoration.

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4494-9283

The commenter asks for descriptions of the process for restoring aquatic resources and of the difference between temporary and permanent impacts to fish as they relate to BIO-MM#33. The full text of BIO-MM#33 can be found in Section 3.7.7 in Section 3.7, Biological and Aquatic Resources of the Final EIR/EIS.

The process for restoring aquatic resources will return temporarily impacted aquatic resources back to approximate pre-project conditions. The details of the process will be specific to the impacted area based on factors such as, but not limited to, the type, condition and size of the impacted aquatic resource and the type and duration of construction activity impact to the area. The process will be described in detail in a Restoration and Revegetation Plan (RRP), as required in BIO-MM#6 (Prepare and Implement a Restoration and Revegetation Plan), which must be prepared prior to any ground disturbing activity. The RRP will be provided to the relevant aquatic resource regulatory agencies, such as the USACE, SWRCB and/or CDFW, for review and approval.

The process that will be described in the RRP may include, but is not limited to, grading impacted areas to approximate pre-disturbance conditions, re-vegetating impacted areas with native plant species, and using certified weed-free straw and mulch. The RRP will also include process details such as, at a minimum, pre-project condition documentation procedures; sources of plant materials and methods of propagation; parameters, methods, and schedules for maintenance, monitoring and reporting; success criteria; and remedial measures to be taken if success criteria are not met. These will be adhered to during implementation of BIO-MM#6 and BIO-MM#33 (Restore Aquatic Resources Subject to Temporary Impacts). BIO-MM#33 requires that the Authority begin to restore aquatic resources that were temporarily affected by the construction, as laid out in the approved RRP, within ninety days of the completion of construction activities in a work area. If the impacts to aquatic resources would also result in permanent or temporary impacts on federal and state-listed species and their habitat, fish and wildlife resources regulated under Section 1600 et seq. of the Fish and Game Code, and other certain other special-status species, a Compensatory Mitigation Plan (CMP) that addresses that species and its habitat would be prepared and implemented, as required in BIO-MM#53: Prepare a CMP for Species and Species Habitat. The CMP would also be subject to the review and approval of the relevant

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resource agencies, such as CDFW or USFWS.

Temporary impact areas are areas that can be restored to approximate pre-project conditions following the completion of short-term construction activities, such as the establishment of laydown and storage areas, temporary construction access routes, or work areas needed to construct permanent project components but that are ultimately not part of the final project footprint, and are not subject to effects for longer than a period agreed to by the relevant regulatory resource agencies, and as approved in the RRP. Permanent impacts to aquatic resources result from the permanent removal or fill of the aquatic resources where the aquatic resource cannot be restored in that location. As discussed in Impact BIO#8: Project Construction Effects on State and Federally Protected Aquatic Resources, some areas would be restored when construction is complete, but because the construction schedule is longer than two growing seasons, all direct impacts during construction are considered permanent for the purpose of the analysis in the Draft and Final EIR/EIS.

4494-9284

The commenter is asking how monitoring construction activities (BIO-MM#34) helps to reduce impacts on fish, and what is one activity that would have an effect in protecting a special status fish. The Authority developed BIO-MM#34 as part of Section 3.7 of the Draft EIR/EIS to monitor construction activities within jurisdictional waters and avoid or minimize impacts to these resources. These aquatic resources often serve as suitable habitat for special-status fish communities, and monitoring can alert Project Biologists to the presence of special-status fish. Implementation of BIO-MM#34 would reduce construction-related disturbance, degradation, and pollution to these resources, such that impacts on special-status fish species and habitat would be reduced. The Project Biologist will monitor construction activities that occur within the aquatic resource to ensure these activities are implemented in a way that do not impact special status fish.

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4494-9285

In relation to BIO-MM#45, the commenter asks how the appropriateness of compensatory mitigation is determined, who receives compensation, and what is the follow-up process to offset the loss. BIO-MM#46 requires that, pursuant to Fish and Game Code section 1600 et seq., the Authority will compensate for permanent impacts on riparian habitats at a ratio of 2:1 unless a higher ratio is required by agencies with regulatory jurisdiction over the resource. Compensatory mitigation may occur through habitat restoration, the acquisition of credits from an approved mitigation bank, or participation in an in-lieu fee program. The determination as to the appropriateness of compensatory mitigation is done in consultation with the California Department of Fish and Wildlife under Fish and Game Code section 1600 et seq or other agency with jurisdiction over the affected resource. As noted in BIO-MM#46, compensatory mitigation often takes the form of acquiring mitigation credits from an approved mitigation bank. Under BIO-MM#46, the Authority will need to provide the California Department of Fish and Wildlife confirmation that the required credits have been purchased, habitat restoration completed, or payment of in-lieu fees has occurred to verify that the compensatory mitigation (offset as noted in the comment) has occurred.

4494-9286

The commenter asks if aquatic resources are to be replenished and what the source would be. The Authority will prepare and implement a CMP that identifies mitigation to address temporary and permanent loss, including functions and values, of aquatic resources as defined as WOTUS under the CWA and/or waters of the state under the Porter-Cologne Act. The compensatory mitigation will meet state and federal policies on no net loss of functions and values of wetlands. Compensatory mitigation may involve the restoration, establishment, enhancement, and/or preservation of aquatic resources through one or more of the following methods:

- Purchase of credits from an agency-approved mitigation bank.
- Preservation of aquatic resources through acquisition of property.
- Establishment, restoration, or enhancement of aquatic resources.
- In-lieu fee contribution determined through consultation with the applicable regulatory agencies.

Please see the full text of BIO-MM#47 on page 3.7-220 for compensatory mitigation requirements for impacts to aquatic resources. Temporary impacts to aquatic resources will be addressed as described in BIO-MM#6, BIO-MM#32 and BIO-MM#33, found on pages 3.7-124 and 3.7-218.

4494-9287

The commenter asks what is done with offset compensation. Please see the full text of BIO-MM#53 on page 3.7-222 for a description of how compensatory mitigation will be provided to offset permanent and temporary impacts.

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4494-9288

The commenter asks how construction can reduce special-status fish disturbance, and what power the Project Biologist would have in enforcing these mitigations. The commenter also asks to what extent does the construction contractor follow the biologist's recommendations. Section 3.7 of the Draft EIR/EIS indicates that construction activities that occur while closely following the prescribed BIO IAMFs and BIO MMs will avoid or minimize disturbance to special status fish habitat. BIO-MM#63 gives the Project Biologist the authority to halt work to prevent death or injury of a special status species. The construction contractor will be contractually obligated to adhere to all BIO IAMFs and BIO MMs, and is required to follow the Project Biologist's direction regarding avoidance of resource impacts including through implementation of BIO IAMFs and BIO MMs.

4494-9289

The commenter is asking who is responsible for compiling and reporting on implementation of mitigation measures (BIO-MM#61), and how does a report reduce impacts on special-status fish? Please see the full text of BIO-MM#61 on page 3.7-225 for a description of the compliance monitoring program. Regular monitoring and then reporting to the Authority and regulatory resource agencies is a tool to maintain and document compliance with IAMFs and mitigation commitments. Documentation and reporting allows the Authority to identify and track any potential non-compliance with these commitments, and regular reporting insures timely implementation of corrective actions and reducing the probably of repeating non-compliances in the future. Using this reporting method, the Authority will reduce impacts to special status fish species. The Authority as the lead agency for the project has the primary responsibility for ensuring compliance with the IAMFs and mitigation measures.

4494-9290

The commenter is asking for an example of a mitigation measure to reduce an impact on special-status fish should dewatering occur. Dewatering would be necessary prior to any construction activity that occurs within open or flowing water. A dewatering plan would be prepared and would be reviewed and approved by the applicable regulatory agencies prior to implementation. The plan will incorporate measures to minimize turbidity and siltation and the project biologist will monitor the dewatering. Please see the full text of BIO-MM#62 on page 3.7-227 for surveys and activities required for special-status species.

4494-9291

The commenter is asking how likely is it that work will be stopped for a fish species and references BIO-MM#63? As described in BIO-MM#63, in the event that any special-status wildlife (including fish) species is found in a work area, the Project Biologist will have the authority to halt work to prevent death or injury of the species. Any such work stoppage will be limited to the area necessary to protect the species. Work may be resumed once the Project Biologist determines that the individuals of the species have moved out of harm's way, or the Project Biologist has relocated them out of the work area (relocation not applicable to fully protected species). Any such work stoppages and the measures taken to facilitate the removal of the species, if any, will be documented in a memorandum prepared by the Project Biologist and submitted to the Authority within two business days of the work stoppage. Work stoppage is not anticipated for non-special status fish species.

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4494-9292

The commenter is asking what is meant by "relevant guidelines for all special-status fish species". Please see the full text of BIO-MM#76 on page 3.7-230 for a description of the wildlife rescue measures. "Relevant guidelines" consist of any CDFW guidance on addressing the process to manage injured or trapped wildlife species, including special-status fish. This includes the possession of a Wildlife Rehabilitation Permit and Memorandum of Understanding required for any person or facility to possess and rehabilitate wildlife in California. While project-specific guidelines have not been issued by CDFW, the following is a list of agency-wide source documents: Possession of Wildlife and Wildlife Rehabilitation; Restricted Species Laws and Regulations Manual; Importation, Transportation and Possession of Live Restricted Animals; Permits for Restricted Species; Humane Care and Treatment Standards; Release of Animals into the Wild.

4494-9293

The commenter asks how knowledgeable of three-spine stickleback the construction workers are expected to be, and how will workers demonstrate their knowledge from an awareness program. The commenter also asks why contaminants will be allowed to enter the Santa Clara River channel. Construction workers are expected to fully understand the site-specific restrictions including activities that may result in impacts to the species and those activities that are approved during construction. During WEAP training, photos of each of the sensitive species (including three-spine stickleback and their habitat) and resources (aquatic features including the Santa Clara River) are provided to each construction worker and applicable mitigation measures as described in Section 3.7 of the Draft EIR/EIS are detailed for the construction crews. Refresher WEAP training is provided to the construction crews during safety tailboards, which also includes clear guidance on when to ask the Project Biologist for clarification. The WEAP training will educate workers as to the restrictions on the introduction and handling of concrete or other contaminants, and debris and vegetation disposal. This will ensure that contaminants are not allowed to enter the Santa Clara River channel. The Authority will also implement as required by HMW-IAMF#6 a spill prevention, control and countermeasure plan to prevent hazardous material releases. In addition the Authority will implement BIO-MM#85 which requires the establishment of construction zones and environmentally sensitive areas around stickleback and its habitat (the Santa Clara River). This measure requires that no construction activity occur within 10 feet of the wetted channel and that barrier fencing being installed. These measures will ensure that contaminants, including workers will not enter the wetted channel of the Santa Clara River.

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4494-9294

The commenter asks for examples of expected weather or seasonal work restrictions. Weather restrictions are described as follows "Prior to scheduling any bridge or bank stabilization concrete pours for construction or maintenance, a clear weather window, defined for this project as a less than 40 percent chance or less of 0.10 inches or greater of precipitation in the next 48 hours as forecasted by National Oceanic and Atmospheric Administration, will be required. If a bridge or bank stabilization-related concrete pour is in progress and an un-forecasted rain event occurs, bridge or bank stabilization related concrete pours will be suspended." Seasonal work restrictions are "All permanent bridge pier and structure construction in the Santa Clara River riverbed will be completed during the dry season, defined as June 1 through November 1, and all work will completely avoid the wetted channel during construction and maintenance." Please see the full text of BIO-MM#86 on page 3.7-233 for weather and seasonal restrictions.

4494-9295

The commenter asks for examples of spill-proof measures. Spill containment may include installation of K-rail barriers at the perimeter of work areas, between work areas and the wetted channel and/or underslung tarps to intercept all potential uncured concrete flows to the Santa Clara River. Please see the full text of BIO-MM#87 on page 3.7-234 for details on spill prevention and containment measures.

4494-9296

The commenter asks which debris prevention measures in BIO-MM#88 are expected to be most effective. All preventative measures indicated in BIO-MM#88 (an underslung tarp, debris platform or equivalent barrier extending at least 10 feet beyond the width of the wetted channel) are anticipated to be effective in minimizing degradation of water quality and avoiding or minimizing impacts to special-status fish in the Santa Clara River.

4494-9297

The commenter asks for the seasonal restriction dates for the unarmored three-spine stickleback. Construction activities in areas susceptible to winter flood flows will be conducted from May 1 through November 30, when winter flood flows do not occur in the Santa Clara River. Other construction activities in areas not at risk of flood flows may be constructed year-round. Please see the full text of BIO-MM#89 on page 3.7-234 for details on seasonal restrictions.

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4494-9298

The commenter is asking if dewatering decreases water in the Santa Clara River and at what point will construction dewatering results begin again. The commenter also asked if pollutants expected to enter the river, and how planned mitigations result in less than significant impacts. Lastly the commenter asks how habitat areas are measured to determine whether mitigation measures have been successful, at what point does measurement take place, and who receives the compensation. While it isn't clear what the commenter means by " at what point will construction dewatering results begin again", the Authority will implement BIO-MM#90 which is intended to ensure that any dewatering is conducted in a manner that does not affect Santa Clara river flow (3.7-235).

The Authority will monitor daily surface water elevations upstream, adjacent to, and downstream of the extraction points, to assess any critical flow regimes susceptible to excessive draw down before, during, and after groundwater dewatering activities. This measure is also intended to prevent pollutants from entering the river during construction dewatering activities. Typical pollutants include oil and lubricants from construction equipment, contaminants on the surface of the equipment deposited when the equipment was previously used at a different construction location out of the project. BIO-IAMF#10 requires all construction equipment to be cleaned prior to arriving onsite or being used in project construction activities. This measure is intended to not only remove invasive species but mud and debris that could contain contaminants prior to entering the construction areas. BIO-MM#87 and BIO-MM#88 are intended to prevent discharge of chemicals or debris into the Santa Clara River. Specifically implementation of measures BIO-MM#62 would identify the presence of special status fish within the Santa Clara River and avoiding dewatering activities when fish are present, BIO-MM#86 would require seasonal no-work restrictions to avoid the wetted channel when special status fish are present, and BIO-MM#87 and BIO-MM#88 would avoid water quality degradation by restricting inadvertent discharges into the Santa Clara River and avoiding impacts to sensitive fish and their habitat. BIO-MM#90 would require monitoring of surface water levels within the Santa Clara River and halting dewatering if surface water levels in the river decrease the wetted channel where sensitive fish species are present.

The commenter asks who will "receive compensation" if the restoration of affected

4494-9298

habitat areas is not successful. The Authority refers to "compensatory mitigation" as efforts to compensate for the loss of habitat through purchase of mitigation bank credits or property with the same resource values as replacement for impacted resources.

4494-9299

The commenter asks how the mitigation measures listed on page 3.7-146 of Section 3.7 of the Draft EIR/EIS prevent construction activities, off-road traffic, and chemical runoff into habitats of special-status invertebrate habitats. Section 3.7 indicates that implementation of the listed IAMFs (BIO-IAMF#1, BIO-IAMF#2, BIO-IAMF#3, BIO-IAMF#5, BIO-IAMF#6, BIO-IAMF#7, BIO-IAMF#8, BIO-IAMF#9, BIO-IAMF#10, and BIO-IAMF#11) along with the listed mitigation measures (BIO-MM#3 and BIO-MM#4) will reduce or avoid impacts to special status invertebrates and their habitat. These measures, described on pages 3.7-18 to -19 and 3.7-213 of the Draft EIR/EIS, are designed to avoid construction activities when sensitive resources are present and provide qualified compliance monitors to oversee construction activities to insure adherence to the BIO IAMFs and BIO MMs listed above.

4494-9300

The commenter asks if surveying the area for wildlife species changes construction. Although BIO-MM#3, referenced by the commenter, addresses vernal pool wildlife species specifically, the comment references wildlife species generally. Pre-construction wildlife surveys will be conducted as described in the full text of BIO-MM#3, 7, 14, 15, 17, 20, 25, 28, 29, 52, 65, 96, and 102 of the EIR/EIS. The survey results will provide information that can lead to modification to construction activities, such as setting up exclusionary buffers to restrict ground disturbances in areas that are not authorized for disturbance or contain sensitive resources and are restricted during certain times of the year. Detection of the species during preconstruction surveys conducted according to these mitigation measures could also provide for restrictions on construction activities or changes to construction schedules, such as rescheduling activities to take place when vernal pools are not inundated and/or outside of the rainy season.

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4494-9301

The commenter asks for an example of vernal pool restrictions for a particular species and if work would stop during that period. To the extent feasible, ground disturbing activities will not occur within 250 feet of vernal pools or seasonal wetlands during the rainy season (October 15 to April 15). In the event ground disturbing activities are to occur within the buffer area during the rainy season, such activities should, to the extent feasible, be undertaken when the aquatic features are not inundated. Please see the full text of BIO-MM#4 on page 3.7-213 for potential vernal pool work restrictions.

4494-9302

The commenter asked how a revegetation plan, even if implemented, will bring back a butterfly, and when and how would its success be determined.

The Authority has revised BIO-MM#6 (Prepare and Implement a Restoration and Revegetation Plan) in the Final EIR/EIS to require the restoration and revegetation plan to include success criteria for re-established vegetation communities, including demonstration of an increase in density of host plants or overall acreage of vegetation communities compared to baseline conditions.

Restoring the habitat by providing additional host and nectar plants can support additional or expanded populations of a butterfly species. BIO-MM#6 will reduce direct and indirect impacts on the San Gabriel Mountains elfin butterfly and San Emigdio blue butterfly by replacing the removed or damaged host plants at a density or overall acreage greater than the pre-disturbance amounts. The Authority also revised BIO-MM#6 in the Final EIR/EIS to specify that the Restoration and Revegetation Plan will outline sources of plant materials containing host plants for native special-status invertebrates as well as success criteria for re-establishing vegetation communities, including an increase in density of host plants. BIO-MM#53 (Prepare and Implement a CMP for Species and Species Habitat) has been developed by the Authority to further offset impacts to species and species habitat, which will include butterfly habitat, through compensatory mitigation including offsite habitat restoration or enhancement. BIO-MM#53 indicates that where compensatory mitigation is identified as the preferred approach, mitigation ratios will be identified pursuant to regulatory authorizations issued under CESA (monarch butterfly) and USFS (San Gabriel Mountains elfin butterfly and San Emigdio blue butterfly). In addition, BIO-MM#54 (Prepare and Implement an Annual Vegetation Control Plan) and BIO-MM#55 (Prepare and Implement a Weed Control Plan) were modified to include specific limitations on the application of herbicides and pesticides within proximity to occupied Monarch butterfly habitats. BIO-MM#95 (Provide Compensatory Mitigation for Impacts on Monarch Butterfly Habitat) includes a compensatory mitigation ratio of 1:1 for impacts to occupied overwintering, breeding, and/or foraging habitat to offset impacts to monarch butterfly populations. Implementation of BIO-MM#6, BIO-MM#53, BIO-MM#54, BIO-MM#55, BIO-MM#94 (Avoid Direct Impacts on Monarch Butterfly Host Plant), and BIO-MM#95 would improve the quality and increase the quantity of suitable habitat for butterfly species. As a result,

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4494-9302

impacts on butterfly species and habitat would be reduced to less than significant.

4494-9303

The commenter asks generally what kind of compensatory mitigation can be expected under BIO-MM#39. BIO-MM#39 discusses that the Authority will provide compensatory mitigation for impacts on vernal pool fairy shrimp and tadpole shrimp habitat and refers to BIO-MM#53 for the compensatory mitigation methods. Please see the full text of BIO-MM#53 on page 3.7-222 and Appendix 3.1-C-23 for details on potential compensatory mitigation options. They include purchasing mitigation credits from an agency-approved mitigation bank, protecting habitat by acquiring it in fee or through a conservation easement, and paying into an existing in-lieu fee program.

4494-9304

The commenter asks for an example of an offset for a species. Offsets could include compensatory mitigation in the form of purchase of mitigation credits from an agency approved mitigation bank, protection of habitat through acquisition of fee-title or conservation easement and funding for long-term management of the habitat, or payment to an existing in-lieu fee program. Please see the full text of BIO-MM#53 on page 3.7-222 for details on potential compensatory mitigation options to offset impacts to a species.

4494-9305

The commenter asks who will supervise and carry out the mitigation measures and how will restoration be measured. As described on page 3.7-212 of the Draft EIR/EIS, the Authority will oversee the implementation of the mitigation measures. The Authority's contractor will generally be responsible for monitoring with Authority oversight. The Authority would be responsible for compensatory mitigation and long-term mitigation monitoring. BIO-MM#6 describes the requirement to prepare and implement a Restoration and Revegetation Plan and specification of success criteria, remedial measures, monitoring and reporting. The restoration plans will include annual and overall success metrics that must be met before the Authority will consider them complete.

4494-9306

The commenter asks for an example of a Compensatory Mitigation Plan for a specific species (BIO-MM#53).

The Authority has prepared Compensatory Mitigation Plan for other sections of the California HSR System. For an example, please see the Preliminary Compensatory Mitigation Plan prepared for the San Jose to Merced Project Section of the California HSR System, which is available at this link: https://hsr.ca.gov/wp-content/uploads/docs/programs/san_jose_merced/HSRA_JM_Checkpoint_C_2020_Summary_Report_Appendix_A_Redacted.pdf

This Preliminary Compensatory Mitigation Plan provides an example of several state and federally regulated fish and wildlife resources, including: Swainson's hawk, burrowing owl, and least Bell's vireo to name a few. Mitigation ratios for specific species will be identified pursuant to regulatory authorizations issued under FESA and CESA. Based on these ratios the Authority will purchase mitigation credits from an agency-approved mitigation bank. Alternately, this could take the form of protection of habitat through acquisition of fee-title or conservation easement and funding for long-term management of the habitat.

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4494-9307

The commenter requests further details regarding BIO-MM#55 on who would prepare and implement the Weed Control Plan. BIO-MM#55 in 3.7.7 on page 3.7-224 states the Project Biologist will develop the Weed Control Plan. The implementation of the plan will be the responsibility of the Authority.

4494-9308

The commenter asks about the relationship of authority between the Authority's contractors and the Project Biologist. As described in BIO-IAMF#1, BIO-IAMF#3 in Appendix 2-E, BIO-MM#61, and BIO-MM#63, the Project Biologist will be responsible for training the construction crews on compliance, monitoring compliance during construction, and reporting all compliance and non-compliance issues to the Authority in a timely fashion. In addition, as described in BIO-MM#63, the Project Biologist will have the authority to halt work to prevent death or injury of any special-status species found in a work area. The commenter also asks if the Project Biologist will be "present at all construction activities which could impact invertebrate species habitat." The Project Biologist or approved biological compliance monitors will be present during all construction activities near or within special status species habitats. A biologist may not be present in work areas that do not support, or are not near, a resource that requires construction monitoring in accordance with the measures included in the EIR/EIS.

4494-9309

The commenter asks what would be a "safe speed for a particular construction vehicle in an endangered butterfly zone." The appropriate speed depends on the type of road (two-track, unimproved gravel, paved, multilane highway) and the type of sensitive resources in a particular area. As described in the full text for BIO-MM#60, the Project Biologist will establish vehicle speed limits of no more than 15 miles per hour for unimproved access roads and for temporary and permanent construction areas within the construction footprint. Implementation of construction site and vehicle traffic limits will minimize special-status invertebrate species habitat degradation, including damage to host plants for the San Gabriel Mountains elfin butterfly and San Emigdio blue butterfly, from vehicles during construction. Therefore, impacts on special-status invertebrate species would be reduced.

4494-9310

The commentor asks how often compliance reports are prepared and to whom they are submitted. Please see the text of BIO-MM#61, on Draft EIR/EIS pages 3.7-225 to -227, for details on frequency of compliance reports and agencies that will receive them. It describes pre-activity reports, daily compliance reports, monthly compliance reports, and annual reports.

4494-9311

The commenter asks for an example of work stoppage or reduction. In the event that any special-status wildlife species is found in a work area, the Project Biologist will have the authority to halt work to prevent death or injury of the species. Any such work stoppage will be limited to the area necessary to protect the species. Work may be resumed once the Project Biologist determines that the individuals of the species have moved out of harm's way, or the Project Biologist has relocated them out of the work area (relocation not applicable to fully protected species). Please see the full text of BIO-MM#63 on page 3.7-227 for details on when a work stoppage may be implemented.

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4494-9312

The commenter asks how construction workers will recognize Monarch Butterfly host plants (BIO-MM#94) and about the kind of compensatory mitigation that would be provided for Monarch Butterfly.

BIO-MM#94 (Avoid Direct Impacts on Monarch Butterfly Host Plant) has been modified in the Final EIR/EIS to remove the reliance of host plant identification by construction personnel. BIO-MM#94 in the Final EIR/EIS includes the following sentence: "If monarch butterflies are observed in suitable habitat, the Project Biologist shall establish a 50-foot exclusion buffer from all identified host plants to ensure that construction personnel avoid these areas." Please see the full text of BIO-MM#94 of the Final EIR/EIS for details on surveys and identification of host plants prior to construction. BIO-MM#3 (Prepare WEAP Training Materials and Conduct Construction Period WEAP Training) and BIO-MM#4 (Conduct Operation and Maintenance Period WEAP Training) requires that Worker Environmental Awareness Program (WEAP) Training be provided to workers and include full text descriptions of plants along with photos of the plant in various vegetative and flowering stages. Therefore, if construction personnel remain outside of the exclusion buffer around the host plants identified and established by the Project Biologist, then impacts to the monarch butterfly host plants will be avoided. To answer the commenter's question, the Authority has included mitigation that would require an exclusion buffer to avoid impacts in the first place.

Compensatory mitigation for monarch butterfly would be provided with implementation of BIO-MM#95 (Provide Compensatory Mitigation for Impacts on Monarch Butterfly Habitat), which includes a compensatory mitigation ratio of 1:1 for impacts to occupied overwintering, breeding, and/or foraging habitat to offset impacts to monarch butterfly populations. The ultimate mitigation option, or a combination of options, shall be determined in coordination with CDFW and USFWS, and may include additional actions to guide management of habitats (e.g., grazing, weed control), monitor populations, and identify methods to establish or reestablish populations, as required.

4494-9313

The commenter asks how above ground mitigation measures are guaranteed to be effective and, thus, considered less than significant.

This comment is part of a series of comments on page 3.7-148 of the Draft EIR/EIS. Page 3.7-148 of the Draft EIR includes the significance conclusion for Impact BIO#5: Project Construction Effects on Special-Status Invertebrate Habitat. This section describes how each applicable mitigation measure would reduce surface construction impacts on special-status invertebrates. The suite of mitigation measures described in this section provides a multi-tiered approach to avoiding/minimizing impacts to special-status invertebrates and their associated habitat. This multi-tiered approach includes measures intended to avoid/minimize impacts, followed by restoration or relocation, as needed. Monitoring is applied where restoration/relocation occurs to ensure that mitigation efforts are successful. The measures listed below would be implemented to avoid and/or minimize impacts to special-status invertebrates. These measures would employ several approaches, including using presence determination to avoid species, avoiding identified habitat, and establishing compliance/work stoppage protocols as follows: BIO-MM#3 (Conduct Pre-construction Surveys for Vernal Pool Wildlife Species), BIO-MM#4 (Implement Seasonal Vernal Pool Work Restriction), BIO-MM#5 (Implement and Monitor Vernal Pool Avoidance and Minimization Measures within Temporary Impact Areas), BIO-MM#55 (Prepare and Implement a Weed Control Plan), BIO-MM#56 (Conduct Monitoring of Construction Activities), BIO-MM#58 (Establish Environmentally Sensitive Areas and Nondisturbance Zones), BIO-MM#61 (Establish and Implement a Compliance Reporting Program), BIO-MM#63 (Work Stoppage), BIO-MM#94 (Avoid Direct Impacts on Monarch Butterfly Host Plant), BIO-MM#102 (Conduct Surveys and Implement Avoidance Measures for Crotch Bumble Bee), and BIO-MM#60 (Limit Vehicle Traffic and Construction Site Speeds). If avoidance/minimization of impacts is not possible, compensatory mitigation would be applied as set forth in BIO-MM#47 (Prepare and Implement a Compensatory Mitigation Plan for Impacts on Aquatic Resources) and/or BIO-MM#53 (Prepare and Implement a Compensatory Mitigation Plan for Species and Species Habitat).

Implementation of mitigation, as well as implementation of IAMFs built in as part of project design, will ensure impacts remain less than significant. As described in Section 3.7.4.6 of the Draft EIR/EIS, construction and operation of the Project would result in a

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4494-9313

significant impact (pursuant to CEQA's mandatory findings of significance) if it would substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of an endangered, rare, or threatened species. The Draft EIR/EIS determined that, with implementation of mitigation, none of the Build Alternatives would result in a significant impact consistent with the conclusion identified herein.

4494-9314

The commenter asks about the likelihood of mountain lions straying into human-populated areas as a result of the construction disturbance and how loss of mountain lions will be determined and tabulated. Construction and operation of the project would not attract or result in mountain lions straying into populated areas. The EIR/EIS analysis indicates that the project would have minimal effects on wildlife movement because much of the project would be underground. In areas where the project would be above ground, there are either existing barriers to wildlife movement (SR 14 freeway), the project will include bridges and large culverts to facilitate movements; or, wildlife crossings are proposed to facilitate wildlife movement. The impact to mountain lions is based on the acreage of potential mountain lion habitat that would be directly affected by the project.

4494-9315

The commenter asked how project lighting could be changed and/or modified to discourage insects and prevent attracting and disorienting bats during construction and operation. The Authority is committed to avoiding construction and operational lighting from shining into adjacent wildlife habitat and modifying the use of that habitat by resident wildlife populations. The use of project lighting will be minimized by avoiding, to the extent feasible, any nighttime work. If nighttime work becomes required, the use of lighting will be limited to the shortest duration feasible, and all lighting will be shielded to minimize light trespass. The implementation of BIO-IAMF#3, BIO-IAMF#5, BIO-IAMF#12, BIO-MM#37, BIO-MM#99 and BIO-MM#100 is expected to reduce nighttime lighting effects through strategies including resource training for construction workers, use of sensors to reduce time that lights are illuminated, light shielding, and adherence to approved lighting levels and standards.

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4494-9316

The commenter is asking how listed BIO-IAMFs work for recognition of badger presence and survival (3.7-150). BIO-IAMF#1 includes having a Project Biologists onsite during construction. The biologist responsibility will be to review work areas ahead of ground disturbing construction activities that might crush an occupied badger burrow. If present, the burrows would be set with a no-work ESA buffer preventing construction activity from crushing the burrows. BIO-IAMF#3 includes the development and application of worker education program required by every construction worker prior to starting the job. This training will include photographs of American badger, badger dens and a complete description of have to recognize and the requirements to avoid badgers and their dens. BIO-IAMF#5 requires the development and implementation of a biological resource management plan with the objective of compiling and further defining biological resource avoidance and minimization measures including identification and avoidance of American badger and their dens during construction activities. Through recognition and avoidance of American badger and their dens, injury and death of individuals are not anticipated. The commenter also asks what does preservation "to the extent feasible" actually mean for a special-status mammal, such as a badger or bat. The Authority is committed to preserving natural badger and bat habitat within the project construction footprint and areas identified for permanent or temporary impacts. However, construction timing and methodology may result in damage or removal of these habitats and the restoration or compensatory mitigation to offset these impacts. The commenter asks what studies are referenced by "previous monitoring of tunnel effects?" Those studies are related to Arrowhead Tunnels in the San Bernardino Mountains in southern California (Berg 2012). Educating workers (BIO-IAMF#3 and BIO-IAMF#4), development of Biological Resources Management Plans (BIO-IAMF#5), preventing entrapment (BIO-IAMF#7), delineating work areas and traffic routes (BIO-IAMF#8) would assist in the recognition of badger presence and allow for their protection.

4494-9317

The commenter asks how revegetation plans could be made for ringtails. BIO-MM#6 requires the restoration and revegetation of areas temporarily disturbed during construction. While ringtail specific vegetation plans would not be developed, the revegetation plans would include area that may be habitat suitable for ringtail. Hence, revegetating the temporarily disturbed areas would restore habitat for ringtails where it had existed prior to construction.

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4494-9318

The commenter asks how mitigation will be determined to be successful for bats, specifically BIO-MM#25 (Conduct Surveys for Bat Species). Mitigation Measure BIO-MM#25 is intended to provide direction for performing surveys for bat species and include methods to avoid or minimize disturbance to bats. No more than one year (but with at least one maternity season remaining) prior to the replacement or modification of any bridges or removal of other structures (typically abandoned), and trees with large cavities or dense foliage identified as suitable bat habitat and where access is available, the Project Biologist will conduct a survey of the bridges and other suitable bat habitat looking for evidence of roosting bats within the expected project footprint and a 500-foot buffer. If bats or bat sign are detected, biologists will conduct an evening visual and acoustic emergence survey (with monitoring using full spectrum bat detectors) of the bridges, structures, and/or trees with large cavities or dense foliage for a minimum of two nights.

The purpose of these emergence surveys is to confirm presence/absence at each location, determine the species of bats, including whether the bats are non special-status species (not protected by any regulation) or special-status species (protected pursuant to the California Fish and Game Code; CFGC), and estimate population size. The biologists will analyze the bat call data using appropriate software and will prepare a report that will be submitted to the Authority, including an assessment of the significance of the roost relative to local bat populations, particularly if the bats present are special status-species, and thus protected pursuant to the CFGC. Because bats are highly cryptic, the visual and acoustic emergence surveys will be conducted during the appropriate time of year when bats are actively emerging from and returning to their roosts, generally March 1 –October 15, but may be extended outside of this timeframe depending on temperature and other weather-related factors.

Emergence surveys will not be conducted when bats are in torpor (i.e., hibernacula; semi-hibernating during months with colder temperatures) when detection is unlikely. If it is determined that bats are within the expected project disturbance footprint or 500-foot buffer, avoidance will be the first option considered. If avoidance is not possible, bats will be passively evicted using exclusion and deterrence methods, only when outside of hibernation (i.e., torpor) and maternity roosting periods as described in BIO-MM#27. Should hibernacula or maternity roosts be detected within the expected project

4494-9318

disturbance footprint or 500-foot, and avoidance will not be possible, the Authority will coordinate with CDFW regarding available options, as described in BIO-MM#26, with removal/relocation as a last and least preferred option. If removal/relocation is necessary, the Project Biologist will coordinate with CDFW to prepare and implement a bat removal/relocation plan. This approach would only be considered if feasible and anticipated to provide equivalent or superior protection for bats. Mitigation Measure BIO-MM#25 is anticipated to be effective because it would require identification and documentation of bat roosts (when bats are actively emerging/returning to the roost) within 500 feet of proposed construction work areas, determine if the bats are special-status or non special-status species, determine population size, and guide additional protective actions and next steps, such as avoidance, passive eviction or active relocation methods. BIO-MM#25 would have no impacts on roosting bats because non-invasive survey techniques would be used, and bats would not be disturbed during hibernating or maternity roosting periods before it can be determined if the bats are special-status species. Refer to Final EIR/EIS, Section 3.7.7, for the full text of mitigation measures pertinent to bats.

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4494-9319

The commenter asks what method the Authority would use to relocate bats. Mitigation Measures BIO-MM#27 (Implement Bat Exclusion and Deterrence Methods) and BIO-MM#26 (Bat Pre-construction, Avoidance, and Removal/Relocation Methods) were revised in the Final EIR/EIS to provide additional clarity regarding passive eviction and active relocation methods. BIO-MM#27 was revised to describe that during the survey efforts (whether the initial survey conducted well in advance of construction per BIO-MM#25 or the pre-construction survey per BIO-MM#26), if non-breeding or non-hibernating (i.e., non-torpid) individuals or groups of bats are found roosting within the project disturbance footprint or 500-foot buffer, the Project Biologist will facilitate the passive eviction (i.e., exclusion and deterrence) of the bats by either opening the roosting area to change the lighting and airflow conditions, installing one-way doors, or implementing other appropriate passive eviction methods used for evicting bats according to guidelines provided by CDFW. Typical ideal periods for successful eviction are March 1 –April 15 and September 1 – October 15, when outside of the hibernation period and when young bats are volant (capable of flying). Implementation of passive eviction may be extended outside of these timeframes depending on temperature and other weather-related factors. To the extent feasible, the Authority will leave the evicted roost area undisturbed by project activities for a minimum of one week after implementing passive eviction methods, and through follow-up monitoring, will ensure that all bats have left the roost area.

Exclusion and deterrence features will be left in place before and through construction to prevent bats from returning and re-occupying the previously evicted roost. Should hibernacula or maternity roosts be detected, if feasible and anticipated to provide equivalent or better protection, maternity roosts and hibernacula may be actively removed/relocated subject to the criteria outlined in a removal/relocation plan prepared and implemented in coordination with CDFW (refer to BIO-MM#26).

For special-status bat species, the removal/relocation plan will also cover passive eviction activities and require the identification of alternative suitable natural roosting habitat or construction of artificial roosting habitat. If bats are non-special-status, passive eviction activities do not require plan preparation. BIO-MM#26 was revised to describe that if avoidance is not possible and bats are actively emerging/returning from the roost (not hibernating and/or the young have actively begun flying), eviction methods will be

4494-9319

implemented. If avoidance is not possible and bats are not actively emerging, the Project Biologist will coordinate with CDFW to prepare and implement a bat removal/relocation plan. This plan would only be considered if feasible and anticipated to provide equivalent or superior protection for bats. The removal/relocation plan for removal and relocation of hibernacula and maternity roosts would include, but not be limited to, the following:

- Identification of alternative bat roost location(s) at least 500 feet outside of the work area and/or construction of artificial bat roosts (if needed, e.g., bat houses)
- Methods for removal/relocation, understanding that special-status bat species may addressed differently than non special-status species
- Timing for removal/relocation
- Responsibilities and oversight for implementing removal/relocation
- Success criteria and follow-up monitoring of the alternative bat roosts to ensure effectiveness
- Adaptive management and contingency measures should alternative methods be necessary to ensure effectiveness relevant to avoidance/minimization of impacts to bats
- Methods to be implemented relative to bat protection during future project operations and maintenance
- Coordination with CDFW to ensure acceptable methods are implemented
- If the bats species being addressed are special-status, eviction methods will also be included in a removal/relocation plan.

Any new roost sites (whether natural or artificially created) would provide a stable microclimate and be in place and functional prior to the commencement of construction activities to allow sufficient time for bats to become established at the new roost site. Implementation of BIO-MM#26 could trigger secondary environmental impacts to bats, if active relocation is necessary. However, to minimize impacts to bats subject to removal/relocation, particularly the protected special-status species, all eviction and/or removal/relocation methods would be guided and implemented in coordination with CDFW to ensure methods are acceptable and effective. Refer to Final EIR/EIS, Section 3.7.7. for the full text of mitigation measures pertinent to bats.

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4494-9320

The commenter asks how do bats get excluded (BIO-MM#27)? Please see the full text of BIO-MM#27 on page 3.7-217 for a description of bat exclusion measures. Bat exclusion involves attaching humane exclusionary netting or one-way flaps over the entrance to where bats enter the roosts. The bats can drop down and fly out, but are unable to crawl back in again.

4494-9321

The commenter asked how construction would be changed to avoid ringtails (BIO-MM#28). Before ground-disturbing activity, the Project Biologist will conduct pre-construction surveys for ringtail and ringtail den sites within suitable habitat located within the work area. The Project Biologist will establish 100-foot no-work buffers around occupied maternity dens throughout the pup-rearing season (May 1 through June 15) and a 50-foot no-work buffer around occupied dens during other times of the year. No-work buffers would alter construction by requiring the contractor to stay outside these areas to avoid killing or injuring ringtail. In addition, BIO-MM#63 also allows the Project Biologist to implement work stoppages to prevent death or injury of any special-status species, which would include ringtails. Conducting surveys before ground disturbing activities, establishing no-work buffers around maternity dens and occupied dens at other times of the year, and use of the work stoppage would all result in modifications in construction activity to ensure that impacts to ringtail are avoided.

4494-9322

The commenter asks if construction will cease when a badger den is spotted. Please see the full text of BIO-MM#29 in Section 3.7.7 for a description of pre-construction American badger den sites and implementation of minimization measures. If a badger den is found, the Project Biologist will establish a 100-foot no-work buffer around any occupied maternity dens and the buffer would remain in place throughout the pup-rearing season (February 15 through July 1). A 50-foot no-work buffer would be established around occupied dens during other times of the year. If non-maternity dens are found and cannot be avoided during construction activities, they will be monitored for badger activity. If the Project Biologist determines that dens may be occupied, passive den exclusion measures will be implemented for three to five days to discourage the use of these dens prior to project disturbance activities. These activities would occur ahead of ground disturbing activity and no-work buffers would be installed before construction starts. These measures will ensure that no badgers are killed during construction.

4494-9323

The commenter asks how deep into the ground aprons or barriers will be installed. The Authority has set the depth of these features, described in BIO-MM#36, to be at least 12 inches below the ground surface.

4494-9324

The commenter requests further detail regarding BIO-MM#47. As described in the full text of BIO-M#47 on page 3.7-220 of Section 3.7 of the Draft EIR/EIS, an example of aquatic resources compensatory mitigation would be the purchase of credits for stream restoration to replace the functions and values lost from unavoidable impacts to a stream within the project footprint. Additional potential options for compensatory mitigation, as described in BIO-MM#47, include preservation of aquatic resources through acquisition of property, the establishment, restoration and/or enhancement of aquatic resources, and the contribution of fees to an in-lieu fee program through consultation with the applicable regulatory agencies.

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4494-9325

The commenter requests further detail regarding BIO-MM#50. The Authority will oversee any off-site habitat restoration along with the regulatory agencies that require the mitigation or issue a permit for the mitigation action. Timing of off-site habitat restoration will be dependent on the specific restoration needs of the project, and any planning and permitting required for that project. However, the Authority anticipates off-site restoration will be implemented prior to the completion of project construction. As described in BIO-MM#47, mitigation plans specific to the restoration of offsite habitat will be developed in consultation with the applicable regulatory and/or resource agencies and will include a schedule for implementation that is specific to the type and location of the resource being restored. That plan will identify the required start of restoration activities, based on various milestones and factors, including but not limited to the issuance of the permit or authorization, start of project construction, and/or site specific factors such as seasonal constraints and the complexity of the restoration activities being implemented. The mitigation plans, including the schedule of implementation, will require agency review and/or approval prior to issuance of the project permits or authorizations.

4494-9326

The commenter requests further detail regarding BIO-MM#55. Weed control plans are specific to the weed species being treated. As described in BIO-MM#55, these may include chemical treatment, manual treatment, or a combination of both, depending on what has been identified to be the best method to control that specific weed species. Examples of these types of control may include mowing, grazing, plant removal, pre-emergent or post-emergent herbicide application.

4494-9327

The commenter requests further detail regarding BIO-MM#56. Specifically, it asks how many Project Biologists will be monitoring sensitive areas. The specific numbers are not reasonably foreseeable at this time. Nonetheless, a Project Biologist will be present to implement BIO-MM#56 at all initial ground disturbing activities. If multiple such initial ground disturbing activities occur at the same time, then a Project Biologist will be present in each area. The number of Project Biologists present will be determined by the need based on the work being initiated.

4494-9328

The commenter asks if different types of exclusionary barriers would be installed at the same locations to exclude different species, and how construction equipment would avoid crushing animal burrows. The Authority will typically install the most effective (or restrictive) barrier at any given location to address the different species that might be present. If necessary, however, the Authority will install different types of exclusionary materials in the same locations to exclude different species. The Authority has identified BIO-MM#20 and BIO-MM#21 to survey and map burrowing owl burrows and BIO-MM#29 to survey and map American Badger den sites to establish exclusionary buffers around active burrows to prevent the collapse of an occupied burrow.

4494-9329

The commenter asks if compliance reporting necessarily ensures that impacts to special status species will be reduced. The Authority will require compliance reporting to ensure all of the IAMFs and MMs are implemented correctly, and identify any non-compliances that may require additional mitigation to minimize the impacts to biological resources resulting from the non-compliance. In addition to reporting non-compliance events, further components of BIO-MM#61 require reporting on a daily, monthly, and annual basis that encompass details of day-to-day activities and the state of project sites. In short, compliance reporting helps ensure that impacts on special-status species are reduced by holding all parties involved with the project accountable for the actions occurring to minimize impacts on that on sensitive biological resources.

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4494-9330

The commenter asks how many times work stoppage under BIO-MM#63 is expected to minimize injury to mammals. BIO-MM#63 specifies that in the event any special-status wildlife species is found in a work area, the Project Biologist will have the authority to halt work to prevent death or injury of the species. The number of times work stoppage will be implemented cannot be determined at this time and will depend on specific site conditions. Any such work stoppage will be limited to the area necessary to protect the species. Work may be resumed once the Project Biologist determines that the individuals of the species have moved out of harm's way, or the Project Biologist has relocated them out of the work area (relocation not applicable to fully protected species). This is a standard mitigation measure utilized on many projects that involve work in within the range of special-status species. Stopping work in the area means that all construction activity will come to a halt including vehicle and equipment movement in the immediate area. This will allow the animal to leave the site before construction can begin again, and has been found to be a very effective method for preventing death or injury to species.

4494-9331

The commenter requests an example of a Wildlife Rescue Measure (BIO-MM#76). Wildlife rescue measures include relocating and releasing wildlife, or taking take the wildlife species to the nearest CDFW permitted rehabilitation center. If injured or trapped wildlife occur on the project right-of-way during construction, maintenance, or operation, the Project Biologist shall be notified immediately and will determine whether it is appropriate to relocate and release the individual(s) within adjacent habitat or, if the individual is injured, taken to the nearest CDFW permitted rehabilitation center. Most common trapped or injured wildlife in this area includes passerine birds, small mammals, or reptiles trapped in ditches, exclusionary bird netting, or fencing.

4494-9332

The commenter asks if cameras will be used when surveying for mountain lion dens. The Authority anticipates the use of a range of detection techniques and tools to determine the presence/absence of mountain lions in potential and known dens, including cameras. As explained in BIO-MM#96, surveys will be conducted by a qualified biologist (i.e., a biologist with demonstrated experience in mountain lion biology, identification, and survey techniques) and may involve the establishment of camera stations, scent stations, pedestrian surveys (looking for tracks, caches, etc.), or other appropriate methods. Survey methods used will be designed to avoid the disturbance of known or potential dens to the extent feasible. Please see BIO-MM#96 in the Final EIR/EIS for more detail on survey requirements and methods.

4494-9333

The commenter is referencing BIO-MM#97 providing compensatory mitigation for impacts on mountain lion habitat, specifically den sites. The commenter asks what the follow-up procedures the Authority would take once a mountain lion den is located, which falls under BIO-MM#96. The Authority has identified and quantified impacts to suitable habitat for mountain lion from the implementation of all build alignment alternatives. If a mountain lion den is documented during pre-construction surveys, the Project Biologist will set a 1,970-foot exclusionary no-work buffer until it can be determined if the den is occupied or not. If occupied, the buffer will remain until the den becomes unoccupied and the exclusionary no-work buffer removed. Compensatory mitigation for impacts to suitable habitat using one of the methods described in BIO-MM#53 would also be implemented.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9334

The commenter asks how implementing the lighting minimization measures during construction would have a different impact on resources accustomed to no nighttime lighting. The commenter also asks what type of lighting besides artificial lighting would be used (presumably at night since BIO-MM#99 references construction lighting during nighttime hours). BIO-MM#99 was developed to avoid or reduce illuminating habitat adjacent to the work area during nighttime construction activities. In addition, other related mitigation measures are provided, including BIO-MM#37 (Authority will avoid conducting ground disturbing activities in wildlife movement corridors during nighttime hours, to the extent feasible, and will shield nighttime lighting to avoid illuminating wildlife movement corridors in circumstances where avoidance of such activities is not feasible) and BIO-MM#100 (lighting minimization measures relating to operations). BIO-MM#99 was designed to reduce illuminating the habitat adjacent to the work area and not the work area itself. Artificial lighting is currently the only proposed lighting source for nighttime construction activities.

4494-9335

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter requests additional information regarding how groundwater-dependent surface water would be monitored during tunneling in the Angeles National Forest (ANF). The commenter also asks where needed supplemental water would be sourced and whether CHSRA can guarantee that the mitigation measures would make the impacts "less than significant."

Section 3 of Appendix 3.8-C describes the existing and pre-construction monitoring of groundwater-dependent surface features (springs, seeps, wells) and the metrics and data that would be measured and collected. The Authority would implement BIO-MM#93 (Adaptive Management Plan for Groundwater Effects on Species and Habitat) to provide supplemental water as necessary to support riparian vegetation, wildlife breeding cycles, aquatic wildlife, or protect tree health. Please also refer to Appendix 3.8-D provides a Supplemental Water Demand Analysis for Potential Impacts within the Angeles National Forest / San Gabriel Mountains National Monument.

The Supplemental Water Demand Analysis discusses the options, logistics, and feasibility of implementing the response actions that may be implemented in accordance with the Adaptive Management and Monitoring Plan (AMMP). Specifically, Appendix 3.8-D describes the methodology used to estimate potential remedial water needs and discusses various scenarios that would necessitate that supplemental water, the potential sources of that supplemental water, and the logistical considerations regarding the conveyance and delivery of that supplemental water. For additional information about water sources, please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The AMMP that will be implemented under BIO-MM#93 and HYD-MM#4 requires monitoring of groundwater-dependent surface water resources and associated habitat within the tunnel construction Resource Study Area (RSA), providing supplemental water where needed, and remediating or compensating for any adverse effects identified during monitoring. Thus, implementation of these measures would reduce the impact to a less-than-significant level. Please refer to Response to Comment #7962 for further discussion regarding monitoring of groundwater resources.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9336

The commenter is requesting information about BIO-MM#6 and how a plan reduces impacts. The Restoration and Revegetation Plan will address how temporary impacts to habitat for special-status species, wetlands, and other aquatic resources will be restored once construction is completed. Without active restoration of these areas, natural revegetation would occur but would take substantially longer than active restoration to return them to pre-construction conditions. In returning these areas to pre-construction conditions as described in BIO-MM#6 Prepare and Implement a Restoration and Revegetation Plan, the temporary impacts would be reduced in their duration. These actions, in addition to other substantive requirements outlined in BIO-MM#6, would ensure that impacts to plants and plant communities would be reduced.

4494-9337

The commenter asks how special status reptile and amphibian pre-construction surveys are conducted. The surveys would be conducted using USFWS, CDFW, or USFS protocol survey methods specific for each species. In the absence of prescribed protocol surveys, the method would include pedestrian surveys, during which a qualified biologist would visually examine the habitat suitable for reptiles and amphibians within the limits of disturbance. BIO-MM#7 was revised in Section 3.7.7, Mitigation Measures, of the Final EIR/EIS to include additional details about protocol level survey methodologies for sensitive species.

4494-9338

The commenter asks about the frequency of clearing of construction areas for sensitive amphibians. As described in BIO-MM#8 in the Draft EIR/EIS, clearance surveys will be conducted by the Project biologist prior to all ground disturbing activities within suitable amphibian habitat on a daily basis. If special status amphibians are observed, the Project biologist will first determine how best to avoid impacts on the species (such as establishing a temporary Environmentally Sensitive Area with a no-work buffer) and how to allow the individual(s) to leave the area of their own will. As required by BIO-MM#63, the Project Biologist will have "stop work authority" in the event that any special-status species is found in the work area. If the species does not leave the work area of its own volition, the Project biologist will relocate the individual(s) outside the work area and out of harm's way per the methodology of the most appropriate relocation plan and/or in accordance with regulatory authorizations issued under the Federal and/or California Endangered Species Act. The Project Biologist will be responsible for determining when work may resume. Please review BIO-MM#8 and BIO-MM#63 in the Final EIR/EIS.

4494-9339

The commenter asks about the most appropriate materials to be used as barriers to prevent special status reptiles from gaining access to the right-of-way. Typical materials include fine mesh fencing with holes less than 1/4 diameter extended at least 12 inches below ground to prevent burrowing and 12 inches above ground. A commonly used material for lizard barrier fencing is erosion or sediment cloth topped with a climbing barrier. These are standard requirements that are effective at excluding reptiles from work areas.

4494-9340

The commenter asks who will prepare the compensatory mitigation plan (CMP) for aquatic resource impacts and how the contractor would be involved. The Authority is responsible for preparing and implementing the CMP under BIO-MM#47 and will work with federal and state regulatory agencies to addresses temporary and permanent impacts to federal and state waters, as required under the Clean Water Act and/or the Porter-Cologne Act. The contractor(s) is not involved in the development of the CMP. The contractor will be responsible for compliance with any component of the CMP that involves on-site restoration or reporting activities associated with the construction site.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9341

The commenter asks about the differences between off-site mitigation and other mitigation measure as it relates to BIO-MM#50. This measure was developed to avoid adverse impacts to sensitive resources during off-site restoration and enhancement. Off-site mitigation is compensatory mitigation that is provided by the Authority to offset the impact of permanent habitat impacts that cannot be restored on site. Off-site compensatory mitigation is in the form of protecting existing habitat that is determined to be in good condition through establishment of conservation easements, or through restoring or enhancing lands that have been degraded such that those lands are returned to suitable conditions for species habitat. The Authority is sensitive to adverse impacts occurring with off-site restoration and enhancement activities and BIO-MM#50 includes measures to minimize those impacts. There is potential to restore or enhance disturbed areas on-site (i.e., BIO-MM#6) where impacts are temporary, but off-site mitigation may be required when on-site restoration or enhancement is not feasible, for permanent impacts for example. BIO-MM#50 will be implemented to reduce impacts to restoration or enhancement sites and act similarly to the mitigation requirements that will be implemented for impacts within the project site. Other measures related to on-site mitigation were developed to avoid, reduce or mitigate impacts within the limits of disturbance associated with construction and operation of the project.

4494-9342

The commenter is asking what specifically is done during lizard monitoring as it relates to BIO-MM#52. The Authority developed this measure to avoid impacts to special-status reptile species. BIO-MM#52 has been revised in the Final EIR/EIS to account for the correct known species occurring in the project area. San Joaquin coachwhip (*Coluber flagellum ruddocki*) is not present in the Resource Study Area, the Silvery legless lizard is a subspecies of the California legless lizard and has not been confirmed in genetic analysis as the subspecies present in the project area, and several special-status reptile species are not included in the Draft EIR/EIS. Therefore, the Authority has revised this measure to avoid impacts to California glossy snake, California legless lizard, coast patch-nosed snake, coastal rosy boa, coastal whiptail, Blainville's horned lizard, San Bernardino ringneck, San Bernardino mountain kingsnake, south coast garter snake, two-striped garter snake, and western pond turtle. Prior to ground disturbing activities, the Project Biologist inspects areas of suitable habitat and any inactive construction equipment for the presence of these species. The biologist may establish wildlife exclusion fencing to prevent species from entering the work area and/or if observed, the species will be avoided and allowed to exit the work area on their own or the individuals may be manually relocated out of the work area and into adjacent habitat. Relocation efforts would follow standard species-specific protocols, if applicable. Please refer to Section 3.7.7, Mitigation Measures, of the Final EIR/EIS, for the full text of BIO-MM#52, which was revised as indicated above.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9343

The commenter asks whether a mitigation plan always offsets impacts. The mitigation plan is designed to offset impacts, with criteria for success to ensure impacts are adequately mitigated/offset. The compensatory mitigation planning effort (e.g., refer to Final EIR/EIS, Section 3.7, Biological and Aquatic Resources, mitigation measures BIO-MM#47 and BIO-MM#53) specifically ensures mitigation measures are carried out to rectify, reduce, or compensate for impacts through outlining the conditions under which mitigation (e.g., restoration) is required, when it is required, how it will be conducted, and what success criteria must be met for the mitigation to be considered successful. The Compensatory Mitigation Plans (CMPs) overall strategy for mitigating effects on species will include the final ratios to be applied to determine mitigation levels and final compensatory mitigation acreage totals. The CMPs will compile required mitigation ratios established in other compensatory mitigation measures described in Section 3.7.7. In addition, the CMPs will include adaptive management approaches and a description of financial assurances that will be provided for successful implementation of the mitigation. In summary, the CMPs will ensure that impacts are successfully offset given the requirements of these plans and that they must be prepared in coordination with California Department of Fish and Wildlife, United States Fish and Wildlife Service, and other agencies with applicable regulatory oversight.

4494-9344

The commenter asks for an example of an invasive weed and an example of a WCP that would be implemented in reptile habitat. Yellow star thistle is an example of an invasive weed. Additional examples can be found on the California Invasive Plant Council website (https://www.cal-ipc.org/), as noted in BIO-MM#55 of the Draft EIR/EIS. The components of the WCP are included in BIO-MM#55. This plan may include physical or chemical treatment of weeds within reptile species habitat. If chemical treatments is used, treatments would consist of herbicides approved by the State of California and identified as safe for sensitive reptile species by the USFWS or CDFW.

4494-9345

The commenter asks what evidence there is that proposed mitigation measures will make biological and aquatic impacts identified in the Draft EIR/EIS less than significant. The mitigation measures described in the Draft EIR/EIS would avoid, minimize, or compensate for effects of the Palmdale to Burbank Project Section on biological and aquatic resources. Sections 3.7.6 and 3.7.8 of the Draft EIR/EIS provide detailed discussion of impacts to biological and aquatic resources, as well as the mitigation measures that would reduce the impacts below the significance thresholds identified in the EIR/EIS. The mitigation described includes a full range of proposed measures across multiple taxa and resources. For example, for those wildlife species that may be impacted by the Project, mitigation measures are provided that require the Authority to perform preconstruction surveys to detect the presence of wildlife (e.g., BIO-MM#3, #7, BIO-MM#14, BIO-MM#15, BIO-MM#20, BIO-MM#28) and construction monitoring (e.g., BIO-MM#5, BIO-MM#15, BIO-MM#34, BIO-MM#52, BIO-MM#56) to avoid or minimize impacts to wildlife if present. If wildlife species are present, avoidance and/or relocation would occur (e.g., BIO-MM#5, BIO-MM#8, BIO-MM#16, BIO-MM#18, BIO-MM#21, BIO-MM#26). By surveying prior to, and monitoring during construction to identify, if and when wildlife species are present, and subsequently implementing avoidance or minimization measures, potential impacts to wildlife, such as direct mortality, would be eliminated or greatly reduced. Additional mitigation such as restoration of impacted wildlife habitat to preconstruction conditions (e.g., BIO-MM#6, BIO-MM#32, BIO-MM#33, BIO-MM#50) would reduce the permanent loss of habitat to temporary habitat loss. Finally, mitigation to restore and revegetate aquatic resources, and to monitor construction adjacent to aquatic resources (e.g., BIO-MM#33, BIO-MM#34, BIO-MM#35) would reduce impacts to aquatic habitat and special-status plant species and communities that rely upon aquatic resources. As a result, the Authority has analyzed the impacts and potential measures to reduce those impacts, including consulting with CDFW, USFS, USFWS, and species-specific biologists, and these measures are appropriate to reduce potential impacts to less than significant. The Authority is currently implementing substantially the same mitigation measures during construction in the Merced to Fresno and Fresno to Bakersfield Project Sections and they have been effective at avoiding, minimizing and mitigating impacts.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9346

The commenter requests additional detail regarding wells in Kagel Canyon, north of Lake View Terrace, and potential effects from the E2 Build Alternative. The commenter also asks how much time is required for restoration of aquatic resources.

It is noted that the E2 Build Alternative is not the Authority's preferred alternative; the Authority's preferred alternative (SR14A Build Alternative) would avoid construction in the Kagel Canyon area. The resource study area (RSA) for tunnel construction is the area within 1 mile of the centerline of each of the six Build Alternatives, which includes a portion of Kagel Canyon. Portions of Kagel Canyon within 1 mile of the alignment were therefore considered in the impact analysis in Section 3.8, Hydrology and Water Resources, of the Draft EIR/EIS. Pursuant to the Authority's 2019 Preliminary Geotechnical Data Report for Tunnel Feasibility, Angeles National Forest and 2019 Geotechnical Tunnel Feasibility Evaluation for High-Speed Rail Tunnels Beneath the Angeles National Forest (referenced in Section 3.8 of the EIR/EIS), based on observed impacts on groundwater from past tunnel projects, no impacts to wells are expected to occur outside the tunnel construction RSA (more than 1 mile from the centerline of each Build Alternative). Section 3.8, Hydrology and Water Resources, of Final EIR/EIS has been revised to expressly clarify concerns related to private water supply wells. As stated in the Final EIR/EIS, because only limited information is available regarding the location of private wells, there is the potential that tunnel construction could result in the destruction of private water supply wells, including wells that have not been identified, if any wells are located directly in the path of the tunnels. HYD-IAMF#8: Private Well Monitoring and Minimizing Access Disruptions for Private Water Supply Wells Outside of the ANF has been added to the Final EIR/EIS to describe in detail how the Authority would address impacts to private water supply wells outside the ANF, including relocating the wells and ensuring similar pumping capacity and water quality in replacement wells. For wells within the ANF (including in Kagel Canyon) that are determined through modeling and monitoring to be adversely affected by groundwater reductions caused by the HSR, the Adaptive Management and Monitoring Plan (AMMP) included in Mitigation Measure HWR-MM#4 requires modifications to the affected wells or by providing supplemental water. Supplemental water would only be provided if monitoring indicates that the HSR construction caused groundwater impacts. However, the Authority has identified several IAMFs to avoid and minimize the potential for impacts to water supply wells and the need for supplemental

4494-9346

water. HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 require design features and construction methods to address potential groundwater intrusion, including the installation of a tunnel liner(s) capable of effectively controlling inflows into the tunnels. As such, groundwater inflow during construction would likely be minimal and temporary. Please refer to both Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest and Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the Angeles National Forest for additional information regarding impacts to wells and correlating mitigation measures and IAMFs.

In accordance with BIO-MM#32 and BIO-MM#33, restoration of aquatic resources temporarily impacted by the project will begin within 90 days of the completion of construction activities in a work area. As described in BIO-MM#6, the Restoration Revegetation Plan (RRP) will describe the maintenance, monitoring, and reporting schedules and those will be developed in accordance with the expected timeline for successful restoration of those areas based on the type and condition of the area. In addition, the RRP will establish success criteria which will be used to determine whether an area should be considered successfully restored. The timeline for an area being restored to meet the established success criteria varies, and can be from 1 year to multiple years, depending on the types of restoration and conditions. Additional requirements and conditions pertaining to success criteria, timelines for restoration, and approval of the restoration success may be included as conditions of authorizations issued by the aquatic resource regulatory agencies, such as the USACE, SWRCB, and/or CDFW.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9347

Refer to Standard Response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife.

The commenter references BIO-IAMF#11 and requests clarification on what is considered a "timely manner" for weed abatement that will reduce impacts on aquatic resources. The commenter asks what regulatory agencies would receive documentation, what data sources were used for previous monitoring of tunnel effects, and how these sources are pertinent to the ANF. BIO-IAMF#11 refers to maintaining construction sites and standard best management practices (BMPs) such as temporary soil stabilization, temporary sediment control, wind erosion control, non-storm water management, and waste management and materials control to avoid impacts to adjacent resources including aquatic resources. Weed abatement specifically is discussed in Section 3.7.6.3 (Operations Impacts), under Impact BIO#14, and is not specifically a component of BIO-IAMF#11. BIO-IAMF#5 and BIO-MM#55 address weed abatement and require the Authority to prepare and implement a Biological Resources Management Plan and Weed Control Plan. That plans outline requirements for a master schedule of events associated with the project phased (i.e., pre-construction, construction, etc.). Weed abatement would be required during pre-construction and construction phases to ensure weeds are not transported to or from the project site. Additionally, BIO-MM#54 requires the preparation of a vegetation control plan that will be implemented during the construction and operations and maintenance phases, and requires a vegetation control plan that will be updated each winter and completed in time to be implemented no later than April 1 of each year. Therefore, any required weed abatement would occur on project phase and yearly basis. Please refer to Standard Response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife for more information.

Documentation will be submitted to a wide variety of regulatory agencies depending on the document. For example, the State Water Resources Control Board, California Department of Fish and Wildlife, and U.S. Army Corps of Engineers will receive documentation related to wetlands and waters, and the California Department of Fish and Wildlife and U.S. Fish and Wildlife Service will receive documentation related to special-status species. Various plans will be developed for the project and will be submitted to the California High-Speed Rail Authority for review and approval. Some

4494-9347

plans, depending on the nature of the material (wetlands and waters or special-status species), will also be provided to regulatory agencies.

Numerous sources were referenced for an understanding of tunneling effects and are relevant to the HSR Palmdale to Burbank Project Section because of the tunneling activities required within the ANF. These sources utilize data for resources within the ANF to assess the risk of tunneling effects to change groundwater levels. References relevant to tunneling for the HSR Palmdale to Burbank Project Section can be found throughout the Draft EIR/EIS and are provided in Chapter 12, References/Sources Used in Document Preparation.

4494-9348

The commenter asked for the name of the "agency-approved mitigation bank." The commenter also asks how the Authority can justify destroying California and Federal wetlands and water, especially during an extreme drought. The Authority is considering a range of options and will work with the USACE and other relevant regulatory agencies to identify and confirm the appropriate agency-approved mitigation resource-specific bank(s), or other compensatory mitigation option, for the project. As part of the CWA Section 404 permitting process the Authority is preparing a preliminary compensatory mitigation plan (CMP), which is part of the Authority agreed-upon Checkpoint C process and includes considerations of agency-approved mitigation banks, such as the Petersen Ranch Mitigation Bank, as well as other possible compensatory mitigation options. As described in Impact BIO#8, implementation of the identified mitigation measures would result in impacts that are less than significant for all six Build Alternatives. As described in Impact BIO#8 on page 3.7-172, compensation to mitigate effects on aquatic resources would be coordinated with the USACE and SWRCB, and other relevant agencies, to ensure consistency with state and federal "no net loss" policies. BIO-MM#47 describes the requirements for development of a Compensatory Mitigation Plan that will address mitigation for permanent and temporary loss of aquatic resources and/or waters of the state. The CMP would discuss the compensatory mitigation options that would meet the no-net-loss standards, as well as financial assurances, success criteria, if warranted, and management actions.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9349

The commenter requests further detail regarding BIO-MM#4 and how the vernal pool restriction would be implemented and monitored. BIO-MM#4 would be implemented by scheduling work within 250 feet of mapped vernal pools or seasonal wetlands during the dry season (April 16-October 14) or when the pools are not inundated. The vernal pools or seasonal wetlands will be monitored by the Project Biologist.

4494-9350

The commenter requests further detail regarding BIO-MM#5. As stated in BIO-MM#5 in Section 3.7 of the Draft EIR/EIS, the Project Biologist will oversee or implement these measures. In addition, BIO-IAMF#1 in Appendix 2-E of the Draft EIR/EIS describes the various roles to be held by the Project Biologist, Designated Biologists, Species-Specific Biological Monitors and General Biological Monitors as they pertain to overseeing avoidance and minimization measures, construction activities and specific resource types, such as vernal pools and vernal pool species. The individuals to serve as Project Biologist and the other roles have not been identified at this time. As stated in BIO-IAMF#1, the names and qualifications for those roles will be submitted for written approval from USFWS, NMFS (where applicable) and CDFW prior to the start of ground disturbing activity. Additional approvals of staff qualifications may be required from additional agencies, such as the USACE; those approvals will be coordinated with the various regulatory and resource agencies during agency consultations and formal requests for agency authorizations. An example of one measure and how it protects aquatic resources would be BIO-IAMF#8 which would require clear identification of staging and access areas, including flagging and marking of access roads, to ensure that aquatic resources that are not authorized to be impacted are avoided by construction vehicles. The Project Biologist would be responsible for ensuring the flagging, marking, and delineation of staging and work areas is conducted and meeting the intent of the measure.

4494-9351

The commenter requests further detail regarding BIO-MM#32 and BIO-MM#33. It asks how the Authority will restore riparian and aquatic habitats, as described in BIO-MM#32 and BIO-MM#33 on page 3.7-172. The Project Biologist will direct the revegetation of any riparian areas that are temporarily disturbed as a result of the construction activities, using appropriate native plants and seed mixes. See Appendix 3.1-C-16 to -17. The Authority will also restore areas to their natural topography, will remove any gravel or geotextile fabrics added to protect substrate, and otherwise will restore the affected features.

4494-9352

The commenter asks if waters that are not considered jurisdictional will also be monitored during construction activities. The full text of BIO-MM#34 in Section 3.7 of the Draft EIR/EIS states that activities that occur within or adjacent to aquatic resources will be monitored by the Project Biologist. Jurisdictional waters consist of waters regulated under Sections 401 and 404 of the Clean Water Act, the Porter-Cologne Water Quality Control Act and Section 1600 of the California Fish and Game Code and include resources ranging from largely dry, intermittent or ephemeral washes to perennial streams, lakes and ponds. Waters not considered jurisdictional are largely limited to manmade structures such as cattle and stock ponds. Those resources may not be subject to construction monitoring unless those resources potentially support other resources, such as specific species habitat, that require construction monitoring. In those cases, the resources would be subject to monitoring in accordance with the applicable mitigation measures. In addition, measures HYD-IAMF#3 and HYD-IAMF#4, found in Appendix 2-E of the Draft EIR/EIS, would require the development of stormwater pollution prevention plans that would require monitoring of construction Best Management Practices and industrial facilities to ensure that water quality standards are being met across the project site, regardless of whether a water is identified as jurisdictional.

4494-9353

The commenter requests further detail regarding BIO-MM#39 and who will oversee the mitigation for impacts on habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp. As stated in the full text of the mitigation measure on page 3.7-220, the Authority will oversee all mitigation required under FESA.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9354

The commenter requests further detail regarding BIO-MM#47. Please see the full text of BIO-MM#47 on Page 3.7-220 and 3.7-221 where the mitigation plan is described in detail. The compensatory mitigation plans will be reviewed and approved by the appropriate federal and/or state agencies, such as the USACE and CDFW, in accordance with their jurisdiction over the impacted resource addressed in the plan. Compensatory mitigation will provided pursuant to regulatory authorizations issued under Sections 404 and 401 of the CWA and/or the Porter-Cologne Act. Compensatory mitigation for vernal pools (shrimp habitat) would be provided at a 2:1 ratio and would be identified in accordance with the appropriate resource or regulatory agency, depending on which agency(ies) has jurisdiction. As detailed in MM-BIO#47, if mitigation is required, compensatory mitigation options include purchase of credits from an agency-approved mitigation bank, preservation of aquatic resources through acquisition of property, establishment, restoration, or enhancement of aquatic resources, and/or in-lieu fee contribution determined through consultation with the applicable regulatory agencies.

4494-9355

The commenter asks how the avoidance and minimization measures listed in BIO-MM#50 would result in restoration of aquatic resources. Restoration, enhancement, or creation activities associated with implementation of mitigation measures has the potential to result in secondary impacts to biological and aquatic resources. BIO-MM#50 requires, prior to ground disturbing activities associated with habitat restoration, enhancement, and/or creation actions at a mitigation site, that the Authority conduct a site assessment of the work area to identify biological and aquatic resources, including vegetation communities, landcover types, and the distribution of special-status plants and wildlife. The IAMFs and BIO-MMs listed in BIO-MM#50 would ensure that actions to minimize and avoid impacts are applied to areas that are impacted by restoration, enhancement, or creation activities, as well as project construction and operation.

4494-9356

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter asks who will be in charge of implementing mitigation measures BIO-MM#56 and BIO-MM#58, the source of supplemental water, and whether/how the mitigation measures change the impacts under CEQA.

The Authority will be responsible for implementing the mitigation measures in coordination with the Project Biologist.

Regarding the source of supplemental water; as a matter of clarification, it is currently not known whether supplemental water would be needed. As explained in Impact BIO#1 in Section 3.7, Biological and Aquatic Resources of the Draft EIR/EIS, the Authority would implement IAMFs (HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7) that would reduce groundwater inflow from tunneling (see page 3.7-108 of the Draft EIR/EIS). Through these design features, the Authority would minimize the event that supplemental water would be needed by the Adaptive Management and Monitoring Plan (AMMP). In addition, the Authority has identified that their Preferred Alternative, the SR14A Build Alternative, poses the least risk of hydrologic impacts occurring among the Build Alternatives (see page 3.8-55 in Section 3.8, Hydrology and Water Resources of the Draft EIR/EIS). Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, for additional information regarding the sources of water for the HSR Palmdale to Burbank Section.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9357

The commenter asks who will design, monitor, and implement the mitigation measures to be applied to construction activities that could impact fish and wildlife species in aquatic features. As described in the Draft EIR/EIS, the Authority, as the lead agency under CEQA and NEPA and, in conjunction with the Project Biologist, will have ultimate responsibility for designing, monitoring, and implementing the project mitigation measures. The Authority has ultimate responsibility for ensuring the mitigation measures are followed as required and for ensuring that the Project Biologist is properly qualified and implementing their duties as required. Cooperating and responsible agencies, such as the USFWS, the USFS, the USACE, the CDFW, and the SWRCB will issue permits for the project that will have required measures in addition to the Final EIR/EIS. The Authority will likewise be responsible for ensuring the measures from regulatory permits are implemented as required.

This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

4494-9358

The commenter asks if changes in groundwater levels caused by tunnel construction would be permanent. As discussed in the Impact HWR-MM#5 (pages 3.8-49 to 3.8-65) in Section 3.8, Hydrology and Water Resources of the Draft EIR/EIS, it is not anticipated that changes in groundwater due to tunneling would be permanent. Once the tunnel is constructed and the second lining installed, the tunnel will be watertight. Any groundwater intrusion between the first and second lining is expected to be minimal and any changes in groundwater levels are expected to return to pre-construction conditions. This conclusion is based on an assessment of information and data regarding the hydrogeological and hydrologic conditions of the western San Gabriel Mountains developed during preliminary geotechnical investigations, professional judgement of experts in the field of hydrogeology, hydrology and tunnel construction, and case studies of prior tunnel construction projects (Authority 2020c). Furthermore, as required by HWR-MM#4, groundwater monitoring activities would continue for a period of 10 years after completion of the Palmdale to Burbank Project Section to provide for timely detection of hydrological changes and, if necessary, appropriate remediation.

4494-9359

The commenter asks if tunneling is allowed in the SGMNM. The Authority has been consulting with the United States Forest Service (USFS) since 2017 on the project and the USFS is a cooperating agency in the preparation of this EIR/EIS document. The Authority believes that tunnel construction in the national monument would not be inconsistent with the management plan for the monument or the requirements of the Antiquities Act. Appendix 3.1-B, USFS Policy Consistency Analysis, provides an analysis of the consistency of the six Build Alternatives with these laws, regulations, policies, plans, and orders. Refer to Section 3.8.3, Consistency with Plans and Laws and Appendix 3.8-C for a discussion of specific standards that would apply to the tunneling activities associated with each of the six Build Alternatives in the ANF, including the national monument. To construct the Build Alternatives in the ANF, the Authority would need to obtain a Special Use Authorization from the USFS, which would require the Authority to, among other things, demonstrate that the proposed use would be consistent with USFS laws, regulations, plans, and policies.

4494-9360

The commenter asks how a revegetation plan will affect wildlife and fish dependent upon streams during project construction. The revegetation plan is intended to facilitate the restoration of temporarily impacted areas back to preconstruction conditions once construction is complete. These include areas that support special-status species, wetlands, or other aquatic resources. The restoration plan will include parameters for maintenance and monitoring of re-established habitats, including weed control measures, frequency of field checks, and specification of success criteria for re-established vegetation communities. Additional restoration measures such as BIO-MM#32 and BIO-MM#33 require the restoration of riparian and aquatic habitats as well. Through the successful restoration of upland, riparian and/or aquatic habitats, impacts from construction to both fish and wildlife will be mitigated. Impacts during construction will be mitigated through multiple measures such as BIO-MM#34 that require monitoring of construction activities within aquatic habitats, BIO-MM#85 that delineates establishes environmentally sensitive areas that will be avoided during construction activity to limit inadvertent impacts to areas outside of construction.

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4494-9361

The commenter asks for an explanation of "long-term" as it relates to BIO-MM#32. The term "long-term" is not used in BIO-MM#32; however, a response to how this term is used in relation to restoration is provided as follows. The restoration of temporary impacts to riparian habitat is intended to facilitate the return of habitat function back to preconstruction conditions once construction has ended. Long-term refers to an extended period beyond the end of construction when the habitat is naturally self-sustaining with no further restoration intervention and returned to preconstruction conditions. Long-term does not necessarily equate to a specific amount of time and varies dependent on the type of restoration. Typical restoration monitoring is 3 -5 years for many habitats. In some cases, with slow growing habitats, this may extend to 10 years. The intent however is for the restored habitat to meet restoration criteria, whenever that is achieved (this could be as soon as 2-3 years in some cases). The duration of restoration monitoring would be determined by the Authority based on habitat type and in consultation with the appropriate resource agency(s) (e.g., USFWS, USFS, CDFW, ACOE).

4494-9362

The commenter asks how temporary is defined in terms of timing of the impact as it relates to BIO-MM#33. BIO-MM#33 requires the Authority to restore aquatic resources subject to temporary impacts from project construction. Temporary is defined by CDFW as an impact that occurs and is mitigated within one year of initial disturbance. Other agencies do not have specific definitions and generally refer to the time between initial ground disturbance and when the habitat is restored to preconstruction conditions. It would be reasonable to consider a temporary impact to be an impact that occurs for a short duration of time such that it does not disrupt the natural life cycle of a biological resource in a given reproductive cycle. A biological meaningful definition of "temporary" has not been universally agreed upon by regulatory agencies and would depend on the resource in question and the relative length of time of that resource's reproductive cycle. Due to the overall length of time construction is expected to take for the HSR Palmdale to Burbank Project Section, and specific success criteria (e.g., BIO-MM#6, BIO-MM#53, BIO-MM#93) that must be achieved for areas to be considered restored or revegetated, temporary may be longer than one year and could be as long as 3 to 5 years. Consequently, in terms of compensatory mitigation requirements, the Project's temporary effects are considered permanent due to the potential extended length of time of impact. In other words, temporary impacts occurring for an extended period of time are not mitigated at a lesser level than permanent impacts.

4494-9363

The commenter asks how construction monitoring is different in jurisdictional waters as opposed to non-jurisdictional waters. Jurisdictional waters, including those considered jurisdictional under the Clean Water Act and Porter-Cologne Act, have more regulatory restrictions on the type and amount of impacts. BIO-MM#34 requires monitoring of construction activities within or adjacent to aquatic resources, and documenting compliance with applicable avoidance and minimization measures. Monitoring of jurisdictional waters will include implementing and documenting compliance with additional measures set forth in regulatory authorizations issued under the CWA and/or Porter-Cologne Act. Activities in non-jurisdictional waters may be monitored depending on the specific resource or other resource values present, including habitat for sensitive species, but may not require monitoring of additional measures set forth in jurisdictional regulatory authorizations.

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4494-9364

The commenter is asking how compensatory mitigation offsets permanent impacts relative to BIO-MM#46. The compensatory mitigation would provide either habitat restoration, acquisition of mitigation bank credits, or participation in an in-lieu fee program. The types of mitigation provide conservation of in-kind habitats at a greater acreage (2:1 or higher in this case) than the area impacted by the project. That habitat conservation is intended to exchange permanent impacts resulting from the project for long term habitat protection and management outside the project footprint but in the same general geography as the project.

4494-9365

The commenter asks who prepares and oversees the CMP for aquatic resources relative to BIO-MM#47, BIO-MM#50, and BIO-MM#53 and how a CMP ensures mitigation. The Authority, with the assistance of the Project Biologist, will prepare and implement the CMP for aquatic resources as described in the Draft EIR/EIS under BIO-MM#47, BIO-MM#50, and BIO-MM#53. The CMP will identify mitigation required to address temporary and permanent loss, including ecosystem function and value, of aquatic resources defined as WOTUS under the CWA and/or waters of the state under the Porter-Cologne Act. If necessary, additional mitigation in the form of offsite habitat creation, enhancement, or restoration (BIO-MM#50) or compensatory mitigation (BIO-MM#53) will be implemented to ensure that impacts from construction are mitigated as required. The CMP specifically ensures mitigation through outlining the conditions under which mitigation (e.g., restoration) is required, when it is required, how it will be conducted, and what the success criteria are that must be met for the mitigation to be considered successful in qualifying as mitigation. In addition, the CMP will include adaptive management approaches and a description of financial assurances that will be provided for successful implementation of the mitigation. To provide further clarification regarding responsibility for implementing these measures, the title of Mitigation Measure BIO-MM#53 has been revised in Section 3.7, Biological and Aquatic Resources, of the Final EIR/EIS to "Prepare and Implement a CMP for Species and Species Habitat." The Authority will prepare and implement a CMP that sets out the compensatory mitigation.

4494-9366

The commenter requests information about the type of weeds expected to occur with each build alignment alternative. These include, but are not limited to: Spanish broom, French broom, sweet clover, Mediterranean mustard, African mustard, perennial pepperweed, cape ivy, giant reed, Pampas grass, wild oat, red brome, ripgut brome, tree spurge, salt cedar, fennel, poison hemlock, gum tree, tree of heaven, tree tobacco, smilo grass, and fountain grass.

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4494-9367

Refer to Standard Response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife, PB-Response-PUE-3: Water Demand and Usage.

The commenter asks about the time it would take to determine special-status species presence within suitable aquatic habitats. The commenter also asks about special-status species avoidance measures that would be applied to dewatering activities, and if these measures are known to be effective within other HSR project segments. Lastly, the commenter asks how supplemental water would be supplied, if required as part of mitigation measures.

As discussed in Section 3.7.6.3 of the Draft EIR/EIS, special-status species have the potential to occur in all six Build Alternative footprints due to the presence of suitable habitat. If avoidance of the waterbodies is infeasible or dewatering is required, the Authority would conduct pre-activity surveys of the suitable aquatic habitats (e.g., streams, ponds, vernal pools) prior to any ground disturbing or dewatering activities (BIO-MM#62: Prepare Plan for Dewatering and Water Diversions). The timing and duration of the pre-activity surveys would be based on the type of species with potential suitable habitat at that location, as well as the type of project activity. PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife provides an overview of the suite of general and species-specific Mitigation Measures (MMs) that when implemented would determine presence of a species and a set of MMs that outline specific avoidance and minimization steps for certain species and/or activities, if presence is confirmed.

The requirements for pre-construction surveys for vernal pool wildlife species and special-status reptile and amphibian species are detailed in BIO-MM#3: Conduct Pre-construction Surveys for Vernal Pool Wildlife Species and BIO-MM#7: Conduct Pre-construction Surveys for Special-Status Reptile and Amphibian Species, respectively. These measures detail the required survey areas, timing, and frequency of the required surveys, and any reporting requirements. If aquatic species (e.g., fish, amphibians, or turtles) are present, the dewatering would occur in conjunction with biological monitoring by a qualified biologist (BIO-IAMF#1: Designate Project Biologist, Designated Biologists, Species-Specific Biological Monitors, and General Biological Monitors) to observe the waterbody being dewatered and to identify and, if necessary, relocate any species that

4494-9367

might become stranded, as provided by regulatory authorizations. Rescued species would be relocated to the nearest suitable habitat outside of the construction footprint and where the species would be out of the way of further harm. If it is infeasible for dewatering activities to avoid vernal pools, species protection will be conducted in accordance with BIO-MM#5: Implement and Monitor Vernal Pool Avoidance and Minimization Measures within Temporary Impact Areas, which includes soil collection from the vernal pools and may include installation of measures to minimize damage to the soils and protect the pools' contours. If special-status reptile and amphibian species are observed during pre-activity or clearance surveys, the Project Biologist will identify actions, to the extent feasible, to avoid impacts on the species and to allow it to leave the area of its own volition, as described in BIO-MM#8: Implement Avoidance and Minimization Measures for Special-Status Reptile and Amphibian Species. This may include establishing a temporary Environmentally Sensitive Area and a buffer or relocation of the species, if necessary.

In addition, as summarized in PB-Response-BIO-2, there are a variety of MMs that are specific to work in aquatic resources and general construction areas that will minimize or avoid impacts to waterways and aquatic resources, further protecting species during dewatering activities. These include, but are not limited to, (BIO-MM#32 (Restore Temporary Riparian Habitat Impact), BIO-MM#33 (Restore Aquatic Resources Subject to Temporary Impacts), monitoring of construction restoration activities within waters that may include species habitat (BIO-MM#34 (Monitor Construction Activities within Jurisdictional Waters), installation of barriers within security fencing (BIO-MM#36 (Install Aprons or Barriers within Security Fencing), measures to minimizing secondary impacts form off-site restoration that could include waterbodies (BIO-MM#50 (Implement Measures to Minimize Impacts During Off-Site Habitat Restoration, or Enhancement, or Creation on Mitigation Sites), requirements for construction site vehicles (BIO-MM#60 (Limit Vehicle Traffic and Construction Site Speeds)), requirements in the event that special-status wildlife is found in the work area (BIO-MM#63 (Work Stoppage)), removal of carrion (BIO-MM#73 (Implement Removal of Carrion that may Attract Condors and Eagles)), height requirements for security fencing (BIO-MM#77 (Implement Wildlife Height Requirements for Enhanced Security Fencing)), wildlife rescue measures (BIO-MM#76 (Implement Wildlife Rescue Measures) and BIO-MM#78 (Install Wildlife Jump-outs)), spill prevention and containment measures (BIO-MM#87 (Prepare and

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Implement Spill Prevention and Containment Measures)), and construction or maintenance activity debris prevention measures (BIO-MM#88 (Implement Construction or Maintenance Activity Debris Prevention Measures)).

Biological monitoring of dewatering and species relocation has been conducted during construction of other project sections of the California High-Speed Rail and on numerous other projects throughout California. The survival rate of individuals during capture and relocate is high; however, few studies and little data exist on the long-term survival of individuals after relocation (but see, Mosser et al. 2013). Generally, relocation efforts (i.e., moving an animal out of harm's way but keeping within its home range) are thought to be more successful than translocation efforts (i.e., moving an animal out of harm's way and to an entirely new location), and the Authority only proposes to relocate species.

Supplemental water would be provided, as needed, for changes in groundwater levels due to tunnel construction activities. Supplemental water is not anticipated for surface waters. Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which provides additional information about water supplies for the project.

4494-9368

Refer to Standard Response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife.

The commenter asks what evidence exists of BIO-IAMF#1 through BIO-IAMF #5 and BIO-IAMF#12's effectiveness until they have been executed.

The Authority has pledged to integrate programmatic impact avoidance and minimization features (IAMF) consistent with the 2005 Statewide Program EIR/EIS, the 2008 Bay Area to Central Valley Program EIR/EIS, and the 2012 Partially Revised Final Program EIR into the High Speed Rail (HSR) project. The Authority will implement these features, along with other IAMFs and resource/species-specific mitigation measures during project design, construction, and operation, as relevant to the Palmdale to Burbank Project Section, to avoid or minimize impacts. These same IAMFs are being successfully implemented for other California HSR System project sections, specifically the Merced to Fresno and the Fresno to Bakersfield Project Sections that are permitted and are in the construction phase. These measures will be effective. As an example, BIO-IAMF#1 (Designate Project Biologist, Designated Biologists, Species-Specific Biological Monitors and General Biological Monitors) will reduce potential biological resource impacts through designating Project Biologist(s), Designated Biologist(s), Species-Specific Biological Monitor(s), and General Biological Monitor(s) retained to conduct biological resource monitoring activities and implement avoidance and minimization features. These positions are approved by the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and California Department of Fish and Wildlife (CDFW). The positions are responsible for overseeing timely implementation of biological resource mitigation features and permit conditions, overseeing regulatory compliance, and monitoring construction activities. The positions provide on-the-ground field inspection to verify that the project is implemented consistent with all biological resource terms and conditions. BIO-IAMF#2 (Facilitate Agency Access), (BIO-IAMF#3 (Prepare WEAP Training Materials and Conduct Construction Period WEAP Training), BIO-IAMF#4 (Conduct Operation and Maintenance Period WEAP Training) are standard measures for projects involving biological construction monitoring as well as permit conditions issued by regulatory agencies, which demonstrates they have been effective over time through repeated use and preference from regulatory agencies. As another example, BIO-IAMF#5 (Prepare

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4494-9368

and Implement a Biological Resources Management Plan) requires the preparation of a Biological Resources Management Plan (BRMP), which would reduce potential impacts on biological resources by detailing an implementation strategy for biological resource conservation and mitigation features, and tying implementation of the features to discrete steps in the construction process. The BRMP would define responsibilities and timing to allow for the timely and appropriately implemented conservation and mitigation features. Please refer to Standard Response PB-Response-BIO-2, which provides additional information about the effectiveness of IAMFs.

4494-9369

The commenter asks who prepares, implements, and evaluates success metrics of the Restoration and Revegetation Plan. The Project Biologist will prepare the RRP with Authority oversight. The Authority will be responsible for implementing the RRP in coordination with the Project Biologist. The Authority will determine when success metrics have been met through coordination with the Project Biologist.

4494-9370

The commenter asks how implementation of BIO-MM#47 would provide additional benefits to critical habitat. The CMP developed under BIO-MM#47 would identify mitigation, including habitat restoration, establishment, and enhancement; preservation; or in-lieu fee for impacts to aquatic resources. This includes aquatic resources that are also critical habitat for ESA-listed species which would benefit through these additional conservation measures. Other measures such as BIO-MM#32, BIO-MM#33, BIO-MM#38, BIO-MM#39, BIO-MM#43, BIO-MM#44, BIO-MM#46, BIO-MM#53, and BIO-MM#70 have requirements to create/restore/enhance habitat for sensitive resources or habitat types (i.e., critical habitat) at various ratios. For example, impacts occurring to riparian forest within arroyo toad critical habitat would be compensated at a ratio of 2:1. In-lieu fees would be used for creation, restoration, or enhancement of the type of resource/habitat being impacted (i.e., critical habitat). Creation, restoration, or enhancement of aquatic resources within critical habitat will improve the habitat value for special-status species.

4494-9371

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter asks how implementation of BIO-MM#50 and off-site habitat mitigation can restore fish and ensure no adverse effects. The commenter also requests information regarding the source of supplemental water, who would administer the supplemental water, and if importing water to implement the mitigation justifies the no adverse effects determination.

Mitigation Measure BIO-MM#53 of the Draft EIR/EIS requires that the Authority prepare and implement a Compensatory Mitigation Plan for impacts to special-status species, including fish species, and their associated habitats. Through the efforts to implement off-site habitat restoration, enhancement, and/or creation, as well as restoration of temporary disturbance areas, while beneficial, this too can potentially result in impacts to species. As such, Mitigation Measure BIO-MM#50: Implement Measures to Minimize Impacts During Off-Site Habitat Restoration, or Enhancement, or Creation on Mitigation Sites will be implemented to address these types of impacts that can occur later during the mitigation efforts. BIO-MM#50 begins with conducting a site assessment of work areas in coordination with the Project Biologist to identify biological and aquatic resources, including vegetation communities, landcover types, and the distribution of special-status plants and wildlife. Based on the results of the site assessment, the Authority will obtain any necessary regulatory authorizations, specifically applicable to conducting habitat restoration, enhancement, and/or creation activities, and pursuant to the federal and state Endangered Species Acts, California Fish and Game Code Section 1600 et seq., Clean Water Act, and Porter-Cologne Act. BIO-MM#50 is intended to protect all species habitat and aquatic biological resources, including special-status fish species, in areas where off-site mitigation activities occur, as well as where temporary disturbance areas are subject to restoration. Implementation of BIO-MM#50 does not require supplemental water given that off-site habitat restoration, enhancement, or creation would involve establishing sufficient water needs to support the habitat being created in advance of implementation. Instead, the Draft EIR/EIS discusses the supplemental water in the context of groundwater levels changing as a result of tunneling, when adaptive management is triggered (as described in BIO-MM#93 and HWR-MM#4), and, when triggered, response actions to be implemented, as outlined in Appendix 3.8-C of the Draft EIR/EIS. One of these response actions includes adding

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supplemental water to sustain habitat similar to baseline (i.e., pre-construction) conditions. Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which provides additional information about water supplies for the project. The analysis of Impact BIO#4 in the Draft EIR/EIS Section 3.7, which also requires implementation of numerous applicable Impact Avoidance and Minimization Features, concludes that the impact to special-status fish and their habitats would be significant prior to the implementation of mitigation. Therefore, measures, such as BIO-MM#50, as well as BIO-MM#93, would be implemented not only to avoid/minimize impacts to the fish and their habitats, but also to restore, enhance, and/or create habitats for these species should the habitats that support them be impacted. Implementation of these measures ensures that any impacts to special-status fish species and their habitats are mitigated to less than significant levels.

4494-9372

The commenter asks how much acreage of the Hansen Spreading Grounds would be affected and how would any birds be affected by construction here.
The HSR Build Alternative alignments would impact a total of 4.61 acres of the Hansen Dam Spreading grounds. The spreading grounds do not provide significant biological habitat as they are actively maintained and contain little to no vegetation. The primary habitat areas associated with the Hansen Dam area are located to the east of the Dam and would not be affected by construction of the Preferred Alternative (SR14A). Because the construction would not affect that primary habitat area, no impacts on the birds is expected. As described in Impact Bio#11 in Section 3.7.6.3, the area that would be filled is along the southernmost perimeter and is a fraction of the total spreading grounds, and would not affect connectivity with other portions of the Spreading Grounds.

4494-9373

The commenter asks if BIO-MM#6, BIO-MM#47, and BIO-MM#50 would be implemented during construction. The commenter also requests information about success metrics and how these would be determined. The commenter asks for examples of how the mitigation measures would be implemented within the Hansen Dam SEA. These mitigation measures will be implemented during construction, prior to ground disturbance. The mitigation measures contain success metrics including identifying the source and type of native seed, along with the degree of species richness, amount of basal coverage, the percentage of non-native species within each community and the required mix of herbaceous to woody species within each year of a multi-year restoration success evaluation process. As described in Impact BIO#11 in Section 3.7, Biological and Aquatic Resources, functionality of the Tujunga Valley/Hansen Dam SEA as habitat for protected fish species and sensitive vegetation would be degraded by surface impacts resulting from construction of the E2 and E2A Build Alternatives. Implementation of mitigation measures BIO-MM#6, BIO-MM#47, BIO-MM#50, and BIO-MM#53 would reduce direct and indirect impacts on SEAs during construction such that this impact would no longer result in a substantial adverse effect on SEAs. Also of note is that impacts to the Tujunga Valley/Hansen Dam SEA would not occur with the Authority's preferred alternative (SR14A) as it avoids the Big Tujunga Wash area.

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4494-9374

The commenter inquires what specific mitigation measures would protect native oaks. The commenter also notes its perspective that implementing mitigation plans to relocate oak trees is not viable as oak trees are not known to survive transplant well. In addition, the commenter asks what measures the Authority will take to mitigate for each kind of tree that will be permanently uprooted during construction, what methods of compensation are offered through BIO-MM#35, potential secondary environmental effects of implementation of BIO-MM#50, what are the measures proposed to prevent impacts from mold, and if the Authority is aware that many oak trees are over 100 years old. Lastly, the commenter asks if preserving native trees is important.

The Authority has developed a number of mitigation measures (BIO-MM#6, BIO-MM#35, BIO-MM#50, BIO-MM#55, BIO-MM#56, and BIO-MM#58) to avoid or mitigate potential impacts to native oak trees. BIO-MM#35 requires the Project Biologist to identify protected trees within the project work areas, establish exclusionary zones around those that do not require removal, and mitigate for those that are removed. The Authority will implement compensatory mitigation, and one of the forms of compensatory mitigation is through replacement or preservation of protected tree species at an offsite location or contributing to a fund to plant trees in near adjacent habitat at a ratios specified in the mitigation measure, unless higher ratios are required by local government agencies. Potential secondary impacts of implementing BIO-MM#50 are described in the Draft EIR/EIS at page 3.7-242. No adverse impacts from potential root mold are anticipated and any supplemental water would mimic the natural precipitation rate and seasonality. The Authority is aware of native oak tree longevity and the importance in preserving native trees as part of the project implementation and compensatory mitigation.

4494-9375

The commenter asks about BIO-MM#56 construction period monitoring and how close construction machinery will be allowed to trees, given that soil compaction is harmful. The commenter also asks what kinds of fencing will be used around portals and adits.

The Authority is aware of the harm that can occur to trees if soil is compacted because Impact BIO#19 (Project Operation Effects on Protected Trees) on page 3.7-211 of the Draft EIR/EIS describes the effects to trees and root structure that heavy equipment and heavy foot traffic can cause. BIO-MM#56 (Conduct Monitoring of Construction Activities) is not specific to trees. BIO-MM#35 (Implement Transplantation and Compensatory Mitigation Measures for Protected Trees) is specific to protected trees and specifies that ESAs will extend outward 5 feet from the drip lines of protected trees. Implementation of BIO-MM#35 and BIO-MM#56 includes the Project Biologist using flagging and temporary fencing to mark and preclude access to ESAs that support special-status species, including protected trees. Therefore, construction machinery will not be allowed within 5 feet of the drip line of protected trees. The establishment of ESAs would reduce impacts on protected trees and their roots during construction activities.

The commenter also asks how it can be concluded that unnamed mitigation measures will be successful. It is not clear what the commenter means by "unnamed mitigation measures". As described above, the Authority has identified specific mitigation measures in the Draft EIR/EIS that would minimize impacts. This response, which provides information already provided in the Draft EIR/EIS, explains how mitigation measures would minimize impacts to trees.

Because the comment is associated with BIO-MM#56, it is assumed the question about fencing around portals and adits corresponds to the type of wildlife exclusion fencing that would be installed. BIO-MM#36 (Install Aprons or Barriers within Security Fencing) on page 3.7-219 of the Draft EIR/EIS specifies that prior to final construction design, the Project Biologist will review the fencing plans along any portion of the permanent right-of-way that is adjacent to natural habitats and confirm that the permanent security fencing will be enhanced with a barrier (e.g., fine mesh fencing) that extends at least 12 inches below-ground and 12 inches aboveground to prevent special-status reptiles, amphibians, and mammals from moving through or underneath the fencing and gaining access to areas within the ROW. At the 12-inch depth of the below-grade portion of the

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apron, the barrier will extend or be bent at an approximately 90-degree angle and oriented outward from the ROW by a minimum of 12 inches to prevent fossorial mammals, reptiles, and amphibians from digging or tunneling below the security fence and gaining access to the right-of-way. The Project Biologist will ensure that the selected apron material and climber barrier do not cause harm, injury, or entanglement to, or entrapment of wildlife species. It also specifies that the specific design and method of installation of an apron or barrier may vary as required by regulatory authorizations issued under FESA and/or CESA. In addition, BIO-MM#77 (Implement Wildlife Height Requirements for Enhanced Security Fencing) on page 3.7-230 of the Draft EIR/EIS specifies that security fencing height will be increased to a minimum of 10 feet in mountain lion-suitable habitat and the final design will be approved by the Project Biologist. The kind of fencing was not specified in the measure, only the height. Installation of wildlife exclusion fencing to prevent special-status wildlife from entering the right-of-way (including adits and portals) would prevent injury or death that may occur during project construction and operation.

4494-9376

The commenter requests additional details regarding construction activities, specifically how much soil will be displaced and allowed to cover areas around open-cut activities (3.7-188) . Appendix 2-I, Potential Disposal Plan for Spoils Generated during Construction Activities, includes a table with information on the quantities of material generated during construction for each Build Alternative. The amount of time spoils would stay in one spot before moving will be determined by the contractor. Taking into account the bulking factor for spoils, an estimated bulk volume of 39-47 million cubic yards of spoils are anticipated for each Build Alternative. The comment asks how wide the Authority would grade for a footprint. The width of the footprint when on the surface varies depending on location, topography, and construction approach. For example, when constructing a bridge or viaduct the construction footprint may be 60-100 feet wide. At grade footprints may vary depending on topography and can be several hundred feet wide in specific locations. Appendix 3.1-A Palmdale to Burbank: Footprint Mapbook includes the construction footprint for each Build Alternative.

4494-9377

The commenter inquires how the Angeles Forest Highway is a constraint. One of the ways that movement corridor effects were analyzed was the assessment of effects to least-cost corridors and wildlife linkage design that were identified in a regional wildlife study for the San Gabriel-Castaic Connection of the South Coast Missing Linkages Project (Penrod et al. 2004). Least-cost corridor modeling is a GIS technique that analyzes the resistance or relative movement "cost" for a species to move between target areas. The width of the Los Angeles Forest Highway is not a barrier to wildlife; however, all roads and the associated vehicles create some level of deterrence to wildlife use, which is taken into account during the least-cost corridor analysis. The discussion on pg. 3.7-193 of the Draft EIR/EIS references the functionality of a wildlife crossing near the convergence of the SR 14 freeway, Los Angeles Forest Highway, and Sierra Highway.

4494-9378

The commenter asks what would inundate the undercrossing as describe on page 3.7-198 of the Draft EIR/EIS. The E2A Build Alternative describes that the undercrossing could be inundated by water, but if it is likely to be inundated for longer than 24 hours at least once a year, a dry ledge would be incorporated into the undercrossing structure to facilitate safe passage of small wildlife.

4494-9379

The commenter requests further detail regarding BIO-MM#36. BIO-MM#36 says the following "Although fencing would impede wildlife movement, it would prevent wildlife injury or death (i.e., vehicle and rail strikes) resulting from encroachment into the HSR operations zone. Fencing and berms would direct animals toward crossing structures where there would be no threat of injury or death from rail and vehicular strikes. As a result, impacts on wildlife that move through the area, such as mortality, injury, and harassment would be reduced." This fencing would be introduced during construction and operation of the project. This would be the same for wildlife crossings that are recommended for the project; wildlife crossings and fencing would be constructed as part of the project.

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4494-9380

The commenter asks how effects on wildlife movement corridors would be minimized during construction. The specific ways in which the effects on wildlife movement corridors would be minimized during construction are included in the text of BIO-MM#37. BIO-MM#37 specifies that the Authority will: (1) avoid placing fencing, either temporarily or permanently, within known wildlife movement corridors in those portions of the alignment where the tracks are elevated (e.g., viaducts or bridges), to the extent feasible; (2) keep wildlife crossing structures, land above tunnels, and other potential wildlife movement areas as free as practicable of equipment, storage materials, construction materials, and other potential impediments during ground disturbing activities; (3) require that before ground disturbing activities the contractor submit a construction avoidance and minimization plan for potential wildlife movement areas to the Project Biologist for concurrence; and (4) avoid conducting ground disturbing activities in wildlife movement corridors during nighttime hours, to the extent feasible, and will shield nighttime lighting to avoid illuminating wildlife movement corridors in circumstances where avoidance of such activities is not feasible.

4494-9381

The commenter requests further detail regarding BIO-MM#60 and asks what specific speeds are mandated for vehicle traffic at construction sites. Vehicle speed limits would be no more than 15 miles per hour for unimproved access roads and for temporary and permanent construction areas within the construction footprint. Please see the full text of BIO-MM#60 on page 3.7-225 where these details are provided.

4494-9382

The commenter asks for information about the appearance and function of the wildlife jump-out as described in BIO-MM#78. These are measures built into fencing plans that provide large wildlife an escape ramp built into the fencing, allowing them to exit out of the right of way but not re-enter. The jump-outs or ramps would allow wildlife to exit the right-of-way on their own.

4494-9383

In the context of BIO-MM#83, the commenter requests examples of specific measures for three kinds of special status wildlife as it relates to effects on wildlife movement. In addition, the commenter asks about the difference between construction and operational WEAP materials. The specific types of measures to avoid, minimize, or reduce adverse effects on wildlife movement include directional fencing to direct wildlife to wildlife movement corridors (large mammals), revegetating temporary disturbance areas beneath viaduct sections of the alignment to encourage wildlife movement (medium mammals, reptiles and amphibians), and vegetation of entrances to wildlife crossings using native vegetation (small mammals, reptiles and amphibians). Construction WEAP training focuses on avoidance, minimization and mitigation primarily resulting from ground disturbing (vegetation removal, earth moving, materials storage and assembly activities including a greater intensity of a large volume of equipment used in construction, a larger number of personnel moving within the footprint). The focus of a construction WEAP is identifying existing resources within the native habitats prior to and during construction activities. Operational WEAPs focus on less intensive activities with fewer people and less equipment moving within now existing permeant disturbance areas including vegetation management. With the exception of wildlife movement corridors, operational maintenance is not expected to occur within native habitats and therefore lack populations of sensitive species. The focus of the operational WEAP is avoidance of remaining habitats within wildlife movement corridors, staying within existing maintenance area, and preventing any additional disturbances to adjacent habitats.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9384

The commenter is asking for examples of herbicides and pesticides that would be used for weed abatement for different species needing protection, why trash and chemicals would accumulate with the alignment after construction, and if hazardous materials would be an issue after mitigation. The specific types of herbicides to be used on the project have not been determined. As explained in BIO-MM#54, the Authority will generally follow the procedures established in Chapter C2 of the Caltrans Maintenance Manual to manage vegetation on Authority property (California Department of Transportation [Caltrans] 2010), including the use of Caltrans-approved herbicides. Pesticide application will be conducted in accordance with all requirements of the California Department of Pesticide Regulation and County Agricultural Commissioners by certified pesticide applicators. USFWS, CDFW, USFS, and USACE will provide feedback regarding the use of herbicides, especially in the vicinity of sensitive biological resources. The permitted herbicides will be restricted in their use within environmentally sensitive areas and environmentally restricted areas. Ongoing train operations and maintenance activities could directly or indirectly affect special-status species and habitat as activities may occur in areas where impacts on special-status species habitat had previously been restored.

The Draft EIR/EIS analyzes project impacts associated with the use and generation of hazardous materials and wastes, pollutants (including trash and chemicals), and herbicides in Section 3.7, Biological and Aquatic Resources; Section 3.8, Hydrology and Water Resources, and Section 3.10, Hazardous Materials and Wastes. Trash and chemicals associated with operational activities could accumulate within the project build alternative alignment footprint over time from several sources including pollutant generating surfaces like trains, stations and associated parking lots, access roads, and new overpasses or underpasses. HYD-IAMF#1 will require on-site stormwater management facilities to capture runoff from pollutant-generating surfaces, including station areas, access roads, new road overpasses and underpasses, reconstructed interchanges, and new or relocated roads and highways. HMW-IAMF#9 will minimize the hazardous materials selected for use throughout HSR operations and maintenance and HMW-IAMF#10 will implement hazardous materials plans to provide for the correct handling of hazardous materials throughout operations and maintenance activities. With implementation of these IAMFs, the project's operational impacts on water quality and habitat for special-status species, as well as the project's impacts associated with the use, transport, storage, and disposal of hazardous materials, would result in less-than-significant impacts under CEQA and no adverse effects under NEPA. No further mitigation would be required.

4494-9384

use, transport, storage, and disposal of hazardous materials, would result in less-than-significant impacts under CEQA and no adverse effects under NEPA. No further mitigation would be required.

4494-9385

The commenter is asking how lighting from the catenary system will affect birds flying at night. Also, the commenter is asking how light and noise at portals in the vicinity of the ANF and SGMNM will affect wildlife. During final design, the Project Biologist will verify that the catenary system is designed to be passerine and raptor safe in accordance with the BIO-IAMF#12 Design the Project to be Bird Safe and the applicable recommendations presented in Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006 (APLIC 2006) and Reducing Avian Collisions with Power Lines: State of the Art in 2012 (APLIC 2012). BIO-IAMF#12 will be implemented requiring the design of the catenary system, masts, and other structures such as fencing, electric lines, communication towers, and facilities to be bird and raptor safe. The Project Biologist will check the final design drawings and submit a memorandum to the Authority to document compliance with this measure. While no portals are included within the ANF or SGMNM, lighting and noise at the portals are expected to cause wildlife to avoid these portals during construction based on duration, intensity, and ambient noise and light levels. BIO-IAMF#12 was also developed to avoid and minimize impacts from operational lighting sources by several methods, including using appropriate shielding to reduce horizontal or skyward illumination and avoiding the use of high intensity lights (e.g., sodium vapor, quartz, and halogen). Additionally, BIO-IAMF#12 specifies that no lighting will be installed under viaduct and bridge structures in riparian habitat areas.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9386

The commenter asks how prevailing wind patterns, including Santa Ana winds, affect seed settlement. The commenter also asks for an explanation about how short duration noise affects amphibians relative to existing effects from water contamination and the presence of invasive species. The commenter also asks what spacing of the electrical system is considered effective in preventing electrocutions, how marking electrical line protects birds at night, what types of flight diverters besides fences are proposed, and what distance from a moving train is required to protect bird habitat. The Authority considers plants within the project footprint to be acclimated to prevailing wind patterns including seed dispersal. No changes in seed dispersal are anticipated from reasonably foreseeable future wind patterns. While avoidance of the work area during construction due to noise and permanent exclusion of individuals during operations by a fenced right-of-way are expected to have direct effects on the population, additive impacts are not currently anticipated. The Authority will implement BIO-IAMF#12 utilizing the Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006 and Reducing Avian Collisions with Power Lines: State of the Art in 2012 to prevent bird electrocutions. The Authority will use line markers to increase visibility, even in low light conditions, and avoid or reduce potential bird strikes. The type of flight diverters used for the project has not been determined. The Authority convened a working group of biologists and engineers in 2020 to investigate the electrical components of the HSR system to determine if they had the potential to result in electrocution hazards for birds. Among other findings, the Authority found that the preliminary Overhead Contact System (OCS), with a maximum separation of electrified or electrified and grounded elements of 20.7 inches, posed a risk of electrocution to some birds, in particular large species such as golden eagle and California condor. The working group recommended a number of design changes to the OCS configuration to increase the separation of elements to avoid and minimize electrocution risk. The Authority presented the draft findings to CDFW, which included two new OCS configurations for eagles (and all other raptors smaller than eagles) and for California condor, and solicited comments, which were received by the Authority on February 18, 2021 as noted by the commenter. The Authority carefully considered each of the comments provided by CDFW, made several additional design changes, and produced a final Bird Electrocution Avoidance Configuration memo which provides guidance and recommendations for the OCS to minimize the risk of large raptor and condor electrocutions (Authority 2021).

4494-9387

The commenter requests information about how implementing BIO-IAMF#12 will minimize the changes to melatonin metabolism caused by artificial light at night. Since melatonin is produced in the pineal gland of mammals in response to darkness and is inhibited by light, the presence of intermittent artificial light has been shown to cause changes in blood melatonin levels, blood glucose levels, metabolism, and circadian rhythms. These changes can induce stress-related metabolic impacts, changes in forage patterns, reduced reproductive abilities, and reduced life cycles. In addition to BIO-IAMF#12, the Authority developed BIO-MM#37, BIO-MM#99, and BIO-MM#100 to further minimize potential effects to wildlife from construction and operations night lighting, including melatonin production in mammals. The design features required under BIO-IAMF#12 include using motion or heat sensors and switches to reduce the time when lights are illuminated, shielding and avoidance of high-intensity lights, and prohibiting night lighting under viaducts and bridges.

4494-9388

The commenter asks which reptiles are the most sensitive to vibration and if those species are inactive during the day in all seasons. The Authority did not evaluate a ranking of reptiles' sensitivity to vibration. Most reptiles are sensitive to vibration but generally acclimate to the presence of changing vibrations within their habitat. Reptiles tend to be diurnal or nocturnal no matter the season and tend to increase activity during warm weather and summer months.

4494-9389

The commenter asks about the amount of noise reduction that would result from the installation of an apron and fence. The Authority considers the implementation of BIO-MM#36 as a measure that will restrict wildlife from accessing the right-of-way, including burrowing wildlife that might dig under the fencing. By restricting access to the right-of-way, potential wildlife death or injury from interactions with moving vehicles and trains are avoided. With implementation of N&V-MM#3, the Authority anticipates an exterior noise reduction of 5-15dB from the installation of noise barriers.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9390

The commenter requests further detail regarding BIO-MM#53. Please refer to BIO-MM#53 in 3.7.7 on page 3.7-222 for the detailed CMP requirements. As stated therein, the California High Speed Rail San Jose to Merced Preliminary Compensatory Mitigation Plan is an example of a plan that includes state-listed fish.

4494-9391

The commenter is asking about the effectiveness of weed control relative to injury and death of invertebrates, especially those invertebrates already killed by equipment maintenance. The commenter mentions BIO-MM#54 and BIO-MM#55 on page 3.7-207, which were developed by the Authority to address vegetation removal within the permanent and temporary disturbance areas to prevent the risk of wildland fire and subsequent wildlife habitat impacts, and the preparation and implementation of a weed control plan to minimize the spread of invasive plants during construction and operation. The intent of BIO-MM#55 is also to reduce construction and operational impacts to wildlife habitat from the spread of weeds. While BIO-MM#54 and BIO-MM#55 were not developed to prevent invertebrate mortality from interactions with maintenance equipment, they are effective in maintaining natural plant communities by providing host and nectar species for invertebrate populations and preventing catastrophic wildland fires that can remove all invertebrate habitat and reduce the local and regional populations for extend periods of time, both of which often take years to recover.

4494-9392

The commenter asks about the frequency of carrion removal described in BIO-MM#73 (Implement Removal of Carrion that may Attract Condors and Eagles). BIO-MM#73 is designed to reduce potential impacts to condors and eagles that may be attracted to dead or injured animals found within the right-of-way. Carrion detection will occur via automated security monitoring, manual track inspections, and observation reports from HSR operations and maintenance workers. BIO-IAMF#4 (Conduct Operation and Maintenance Period WEAP Training) will provide training to HSR operations and maintenance workers on regulatory agency terms and conditions contained in permits and approvals, federal and state environmental regulations, and project avoidance features and mitigation features. The automated security monitoring will occur on a continuous basis and the manual track inspections will occur monthly or more frequently based on automated security alerts and observation reports from train operators. BIO-MM#73 has been revised in the Final EIR/EIS to clarify this point.

4494-9393

The commenter asks for an example of a wildlife rescue measure for a specific endangered mammal, how would it be implemented, and who would oversee the work as part of BIO-MM#76. The Authority would implement wildlife rescue measures for any injured or trapped wildlife species. This typically includes the Project Biologist coordinating with the USFWS and CDFW specifically about the health of the injured animal and the approved wildlife rescue facilities available to rehabilitate it. The Project Biologist would coordinate with the wildlife rescue facility about either transportation to the facility or pickup by facility staff. The Project Biologist would ensure the injured animal is protected from construction activities and move the animal to a shaded area away from construction activities (if it doesn't further threaten the health of the animal), provide protection from heat and inclement weather, and typically deliver the injured animal to the designated rescue facility or turn it over to the facility technician that arrives to pick it up. Each species and circumstance of injured wildlife is treated separately and always in coordination with the USFWS and/or CDFW biologist.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9394

The commenter is asking for a specific example of weather-related work restriction that would be included in BIO-MM#86 for the Santa Clara River construction and maintenance weather and seasonal work restriction. One weather restriction example is only scheduling concrete pour for bridge or bank stabilization when there is less than a 40% chance of 0.10 inches or more of precipitation within a 48-hour period.

4494-9395

The commenter asks who will be responsible for overseeing the debris prevention measures in BIO-MM#88. The commenter also asks for an example of this measure.

The Authority will ultimately oversee the implementation of the measure. The Authority anticipates the Project Biologist will make field inspections of the barrier to ensure it is properly installed and working correctly. BIO-MM#88 involves the installation of an underslung tarp, debris platform, or equivalent barrier to prevent the inadvertent discharge of equipment, chemicals, or debris into the wetted channel. This would ensure that debris associated with construction activities would be caught by the tarp or platform, preventing any discharge to the wetted channel.

4494-9396

The commenter asks what measures the Authority proposes to implement to avoid impacts to the Santa Clara River during operation and maintenance.

The Authority is proposing the following measures that would apply during operation and maintenance: HYD-IAMF#1, BIO-IAMF#4, BIO-MM#88 (which applies to maintenance activities), and BIO-MM#92. The avoidance measures included as part of BIO-MM#92 relate to timing and work area restrictions for maintenance, including that no maintenance work will occur within 10 feet of the wetted channel, no maintenance activities will occur in the Santa Clara River wetted channel, and repair or replacement of bridge structures requiring access to the 25-year flood zone of the riverbed will be restricted to the period from June 1 to September 30, except in the case of an emergency. These measures are intended to avoid direct and indirect impacts to unarmored three-spine stickleback and stickleback habitat within the Santa Clara River during project operations and maintenance.

4494-9397

The commenter is asking about BIO-MM#89 and how impacts to aerial species wildlife movement from train strike and entrapment can be minimized. The Authority developed BIO-MM#89 to minimize intermittent impacts to aerial wildlife movement by installing features to discourage birds perching on overhead structures, placing flight barriers to prevent birds from flying into the train in selected locations, modifying some project infrastructure to reduce bird entrapment in hollow poles, and designing features for aerial structures and portals to discourage bats from roosting in expansion joints and tunnel crevices.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9398

Refer to Standard Response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife, PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter asks how the Authority measures conditions for noise reduction in areas with special-status bird habitat. Additionally, the commenter questions how successful proposed mitigation measures (BIO-MM#101) can be, since project construction and operation have not begun; when effectiveness monitoring would be implemented; and how the Authority manages mitigation measures that are determined to be ineffective.

The Authority has undertaken a detailed analysis of the impacts of noise on birds and bird habitat, which is disclosed in the Draft EIR/EIS in Section 3.7, Impact BIO#14. Noise measurements are based on the noise generated by the train traveling at top speed (approximately 220 miles per hour) at a specific point. Noise measurements are taken in the universal descriptor for environmental noise, the A-weighted sound pressure level expressed in A-weighted decibels (dBA). Federal and State wildlife resource agencies and academic literature generally agree that noise above 65 dBA is harmful to wildlife, including birds. As disclosed in the Draft EIR/EIS (page 3.7-204): "because all areas inside the fenced right-of-way would no longer be suitable habitat due to construction of facilities, this analysis focuses on noise impacts on special-status birds beyond the fence line. The effect of operational noise on birds depends on the interaction of existing noise conditions relative to the published thresholds for noise impacts. At the noise levels that would be generated outside the fence line, masking is the primary impact on birds. Masking occurs when new noise sources make bird calls inaudible due to the greater volume of the new sound. Dooling and Popper identify the conservative threshold of 60 A-weighted decibels for masking effects (Dooling and Popper 2007). This threshold must be considered relative to existing conditions, such as existing ambient noise sources. For example, on the Burbank to Los Angeles Project Section, the USFWS noted that for least Bell's vireo that are habituated to existing conditions of 63-73 A-weighted decibels of ambient noise, an increase due to train operations, of 67-77 A-weighted decibels is not likely to adversely affect the species (USFWS 2021). Because the area of operational impact has some ambient noise but is generally not subject to high levels of ambient noise, the conservative threshold of 65 A-weighted decibels is used for this analysis."

4494-9398

Success of BIO-MM#101 is based on demonstrable reduction of noise generated by the train measured at adjacent bird habitat. BIO-MM#101 is based on the best professional technical judgment developed by experienced biologists and best available science for reduction of noise impacts to special-status bird species. While detailed studies have not been published regarding the efficacy of these measures, the measures are often used by CDFW and USFWS to avoid, minimize or mitigate species impacts. Noise barriers are known to successfully reduce noise trespass on areas adjacent to a source and are commonly used and approved by federal and State wildlife resource agencies. The location, length and height of the barriers will be determined based on detailed noise modeling for areas of suitable special-status bird habitat, and measurement of existing conditions so that the noise-attenuating effects of topography and other existing features can be accounted for during the final design phase. After mitigation, the area of bird habitat expected to be exposed to noise levels above 65 dBA after implementation of noise barriers is considered to be permanently impacted as disclosed in the impact assessment provided in the Draft EIR/EIS, Table 3.7-30 (page 3.7-204). Where permanent impacts to special-status bird habitat would occur, BIO-MM#53 would require the preparation of a compensatory mitigation plan. Please see standard responses PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife and PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife for additional details on impacts to wildlife related to noise.

4494-9399

The commenter asks if noise will be measured during project operations further than 50 feet from the project's above ground centerline, who would conduct the measurements, and how often they would be recorded. As noted in Section 3.4, Noise and Vibration, the Authority would typically measure noise levels during operation 50 feet from the noise barrier or right-of-way fence (BIO-MM#101). If noise levels higher than 65 dBA occur at 50 feet, noise measurements may be taken by the project Qualified Biologist farther away than 50 feet to determine the noise attenuation range and potential need for additional noise mitigation. Generally, noise measurements would be taken during routine maintenance by a project engineer.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9400

The commenter asks for examples of herbicides and pesticides that would be applied and who would determine the compensation for impacts to trees. The Authority has not determined the specific types of herbicide that would be used in the implementation of the weed control program. The Authority would only use herbicides approved by the State of California and identified as safe for sensitive species habitats by the USFWS, CDFW, or USFS and safe for protected trees by the Los Angeles County or other local jurisdiction. BIO-MM#35 outlines transplantation and compensatory mitigation requirements for protected trees. Replacement of protected trees will be at a ratio not to exceed 3:1 for native trees or 2:1 for ornamental trees. While the Authority as a state agency is not subject to local requirements or ordinances, BIO-MM#35 does require the Authority to use higher ratios for native and ornamental tree replacement if required by local government ordinances or regulations. As such, final compensation for impacts on protected trees will be determined by the Authority in conjunction with the local jurisdictions.

4494-9401

The commenter ask how a less than significant determination is made when a protected tree has to be removed and transplanting that tree is not possible. The commenter also asks if the contractor, who is responsible for the tree removal and mitigation, will be knowledgeable about tree conservation. Lastly, the commenter asks who within the Authority will be responsible for overseeing this contractor. Protected trees that would be permanently impacted and are not suitable for transplanting would be mitigated under BIO-MM#35 which requires replacement of protected trees at an off-site location, based on the number of protected trees impacted, at a ratio not to exceed 3:1 for native trees or 1:1 for ornamental trees. Replacing affected trees at the ratios cited in BIO-MM#35 would offset the impact and result in the same, if not higher number of trees and thus would result in mitigating the impact to less-than-significant. The Authority is responsible for overseeing and ensuring mitigation measures are implemented and effective. The Authority will hire qualified contractors with specific expertise to determine which trees can be translocated and which cannot.

4494-9402

The commenter asks who will determine the appropriate planting areas for growth of new plants when plants cannot be salvaged, who will attend to that new plant growth, and who will approve the Salvage and Relocation of Special-Status Plant Species Plan prepared by the Project Biologist. BIO-MM#2 describes that special-status plant seed and plant materials will be collected and stockpiled and the top four inches of topsoil from locations will be segregated for use on off-site locations. Those offsite locations include Authority mitigation sites, refuges, reserves, federal or state lands, and public/private conservation and mitigation banks. The Authority will work with the appropriate regulatory agency, mitigation bank staff, and/or agency or party managing the offsite location, as well as the Project Biologist, to identify the appropriate replanting areas and to determine responsibility for attending to new plant growth prior to installation of any salvage or new planting materials. The replanting areas and responsibility for attending to new growth are expected to vary, depending on such factors as offsite location, plant species and which agency has jurisdiction or oversight for that species. The Salvage and Relocation of Special-Status Plant Species Plan will be subject to review and approval by the Authority but is also expected to be reviewed and subject to approval by resource agencies with jurisdiction or oversight over the plant species addressed in the plan, which may include but is not limited to USFWS, CDFW and USFS, as appropriate.

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4494-9403

The commenter asks what the word "work" is referring to in BIO-MM#3. The commenter also asks if ground disturbing activities would occur between October and April. BIO-MM#3 includes the word "work" in two separate sentences: "Prior to any ground disturbing activities, the Project Biologist will conduct an aquatic habitat assessment and survey for vernal pool wildlife species in seasonal wetlands and vernal pools that occur within both the work area and the area extending 250 feet from the outer boundary of the work area where access is available, consistent with USFWS vernal pool survey protocols." and "The Project Biologist will submit a report to the Authority within 30 days of completing the work." Work in the first excerpt refers to the construction work area. Work in the second excerpt refers to the completion of the Project Biologist conducting seasonal wetland and vernal pool surveys in pools that have been determined to be inundated; a report on the findings would be submitted to the Authority within 30 days of completing that survey work. Ground disturbing construction activities would occur between October and April unless preconstruction surveys determine the presence of regulated species which require exclusionary buffers and seasonal closures of certain areas of the project work areas.

4494-9404

The commenter notes that the requirements in BIO-MM#6 are very general since a specific Build Alternative has not been chosen. The commenter asks where the Project Biologist would procure the procedures for a variety of vegetation communities. BIO-MM#6 describes the purpose of the Restoration and Revegetation Plan (RRP), examples of restoration activities that may be required (e.g. grading), and the minimum requirements of topics that must be included in the RRP. Detailed planning for restoration and revegetation will begin after the preferred alternative alignment is chosen. Details for the RRP will be developed based on findings from preconstruction surveys within temporary impact project areas. The RRP will identify the types of vegetation communities and resources being subject to impacts and subsequent restoration and revegetation, how the pre-construction conditions of those temporary impact areas are being documented, the specific restoration and revegetation activities that will be implemented and the monitoring, maintenance, reporting, success criteria and adaptive management process that will be implemented to facilitate successful restoration and revegetation. These items will be prepared to be specific to the resource being restored and/or revegetated (e.g. different vegetation communities or types of aquatic resources), as appropriate and the RRP, and all procedures in the RRP, will be developed in coordination with, and approved by, the relevant regulatory agencies such as the USFWS, USACE and CDFW, as appropriate. Each of the agencies that will review and/or approve the RRP will provide input, suggestions and guidance on the procedures and all other content within the RRP that are specific to their jurisdiction or agency responsibilities.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9405

The commenter is asking about the process of conducting preconstruction surveys as required under BIO-MM#7. The surveys are conducted to determine the presence/absence survey of special status reptiles and amphibians, including the time spent at each survey location. The Authority utilizes USFWS or CDFW sensitive species protocols (if they have been developed by the agencies) to develop, conduct, and report the results of these surveys. The agencies have detailed requirements, including seasonality, duration, time spent at each location, and reporting requirements. The Authority will continue to utilize the survey protocols to conduct presence/absence preconstruction surveys. If the USFWS or CDFW do not have published survey protocols, the Authority will utilize a focused survey approach that includes wildlife biologist walking meandering transects through suitable habitat looking for both visual and auditory cues of the species presence. If the biologist has a visual or auditory detection of the species presence, they will document the locations and suitable habitat boundaries. In some cases this may require both daylight and night-time surveys to adequately complete the preconstruction surveys.

4494-9406

The commenter is asking how relocation of special status reptile and amphibians is conducted under BIO-MM#8: Implement Avoidance and Minimization Measures for Special-Status Reptile and Amphibian Species. Each species of special status amphibians has their own protocol for relocating individuals out of the work area and into adjacent suitable habitat. These protocols are coordinated between the Project Biologist, the Authority, and the resource agencies. In some cases the individuals are placed in 5-gallon buckets, carried outside the work area and into suitable habitat before being released. For federal or state-listed species, relocations will be undertaken in accordance with regulatory authorizations issued under the project biological opinion and/or the incidental take authorization. While non-federally or state listed species may not require specific approvals for relocation, they would be relocated using the same or similar methodology as the listed reptile and amphibian species.

4494-9407

The commenter requests further detail regarding BIO-MM#14 and asks if birds will remain in nests within 75 feet of construction and if construction will occur between February and September. All exclusionary or no-work buffers will be set at a distance of 75 feet unless a larger buffer is required pursuant to species tolerances and regulatory authorizations by CDFW and USFWS. Construction will take place between February and September, but the no-work buffer and monitoring by the Project Biologist is expected to prevent the loss of active bird nests. Please see Impact BIO#3 Project Construction Effects on Special-Status Bird Habitat for more details.

4494-9408

The commenter asks how effective buffers are for raptor nests. Exclusionary buffers for raptors are effective with considerations of species, the life history of the individual birds, the size of the buffers, and the type of activities being conducted. An example of exclusionary buffers for raptors being effectively used is the Southern California Edison Tehachapi Renewable Transmission Project in Los Angeles County, California. Regulatory agencies that protect raptors and raptor nests, such as CDFW and USFWS, routinely use buffers as an effective method to reduce impacts on raptors and their nests.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9409

The commenter asks if construction activities will occur before sunrise or after sunset in areas of California Condor roosting, if there be more than one Project Biologist overseeing multiple work areas being constructed simultaneously, if the Project Biologist will have experience identifying Swainson's Hawks and their nests, and what kinds of trees Swainson's Hawks typically nest in. While the commenter refers to BIO-MM#16, both BIO-MM#16 and BIO-MM#17 include this information. As explained in BIO-MM#16, if USFWS informs the Authority or if the Authority is otherwise made aware that California condors are roosting within 0.5 mile of a work area, no construction activity will occur during the period between one hour before sunset and one hour after sunrise. It is not anticipated that there would be more than one Project Biologist per segment even if multiple spreads with active construction are working at the same time. As explained in BIO-IAMF#1, the Project Biologist is responsible for ensuring the timely implementation of the biological avoidance and minimization features as outlined in the Biological Resources Management Plan, and for guiding and directing the work of the Designated Biologists and Biological Monitors. Accordingly, in addition to the Project Biologist, each segment will include (as appropriate) designated species biologists, species-specific biological monitors, and general biological monitors reporting to the Project Biologist. This includes USFWS approved California condor species biologist on site during work within 0.5 mile of habitat. Utilizing the range of monitors during construction allows the Project Biologist to oversee a large area of work consisting of multiple construction crews.

The Project Biologist will be experienced with Swainson's Hawk identification including breeding and nesting. Swainson's Hawk nest in a variety of trees, including Joshua Tree, depending on the available habitat where they are breeding. They breed in isolated western cottonwood, and mesquite trees in areas adjacent to irrigated agricultural fields.

4494-9410

The commenter is asking how often burrowing owls return to relocated burrows. Since not all burrowing owls migrate annually, individual birds or dispersing chicks can utilize area burrows repeatedly during the course of a year. Burrowing owl passive relocations and associated burrows are frequently used if they are no more than 50-100 meters from the original burrows and consist of the required nest properties (CDFW 2012).

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4494-9411

The commenter asks what factors are used to determine the feasibility of relocating a bat roost, to provide an example of an exclusionary technique, whether construction activities continue to occur during the week after implementing exclusionary activities, and what kind of exclusionary plans exist for bats.

Bats may relocate on their own after passive eviction (using exclusion/deterrence methods) or be actively relocated as a last and less preferred option. Addressing bats and potential impacts to them involves a series of steps, and these steps need to be explained and implemented first before determining the feasibility of removal/relocation options.

Well in advance of construction, with at least one maternity season remaining prior to construction, the Project Biologist will assess existing bridges, structures (typically abandoned), and trees with large cavities or dense foliage identified as suitable bat habitat and where accessible, at a minimum, within the project's disturbance limits and 500-foot buffer. If bats or bat signs are observed, the next step would be to conduct an evening visual and acoustic emergence survey per Mitigation Measure BIO-MM#25 (Conduct Surveys for Bat Species), amended for clarity in the Final EIR/EIS (refer to Section 3.7.7).

The purpose of these emergence surveys is to confirm presence/absence at each location; determine the species of bats, including whether the bats are non special-status species or special-status species and estimate population size. The biologists will analyze the bat call data using appropriate software and will prepare a report that will be submitted to the Authority, including an assessment of the significance of the roost for local bat populations.

Because bats are highly cryptic, the visual and acoustic emergence surveys will be conducted only during the appropriate time of year when bats are actively emerging from and returning to their roosts, generally March 1 –October 15, but may be extended outside of this timeframe depending on temperature and other weather-related factors. Emergence surveys will not be conducted when bats are in torpor (i.e., in hibernacula; semi-hibernating during months with colder temperatures) when detection is unlikely.

4494-9411

If it is determined that bats are within the project disturbance limits or 500-foot buffer of the boundary of upcoming construction activities, avoidance will be the first option considered. If avoidance is not possible, bats will be passively evicted using exclusion and deterrence methods, only when outside of hibernation and maternity roosting periods as described in BIO-MM#27 (Implement Bat Exclusion and Deterrence Methods), amended for clarity in the Final EIR/EIS (refer to Section 3.7.7). Should hibernacula or maternity roosts be detected during pre-construction surveys (generally 30 days prior to ground disturbance) within project disturbance limits or 500-foot buffer of the boundary of construction work areas, and avoidance and/or eviction (exclusion/deterrence methods) are not possible, the Authority shall coordinate with California Department of Fish and Wildlife (CDFW) regarding available options, including preparation and implementation of a removal/relocation plan, as described in BIO-MM#26 (Bat Pre-construction, Avoidance, and Removal/Relocation), with removal/relocation as a last and least preferred option, particularly if the bats in a hibernaculum or maternity roost are special-status. BIO-MM#26 has been amended for clarity in the Final EIR/EIS (refer to Section 3.7.7).

To address the commenter's question regarding exclusion/deterrence methods, examples include opening the roosting area to change the lighting and airflow conditions or installing one-way doors (refer to BIO-MM#27). To the extent feasible, the Authority would leave the roost undisturbed by project activities for a minimum of one week after implementing passive exclusion/deterrence methods to ensure that all bats have left the roost. Because it's anticipated that any exclusion features, installed well in advance of construction to evict bats and deter them from returning to work areas and the 500-foot buffer, exclusion features would remain in place from the time they are installed through construction to ensure that bats are not present and thus not harmed by construction activities.

To address the commenter's question regarding determining the feasibility of relocation, factors considered include but are not limited to: population size; time of year when bats are active versus in hibernacula or maternity roosts; project schedule; effectiveness of using passive eviction techniques only (e.g., exclusion/deterrence techniques); available suitable habitat for relocated bats; level of anticipated success of active relocation (i.e., to ensure minimal mortality); and results of coordination with CDFW. Southern California

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4494-9411

Edison, San Diego Gas &Electric, and Caltrans frequently develop removal/relocation plans to address bat roosts and implement these plans prior to and during construction.

4494-9412

The commenter is asking how to determine if an American badger den is active and what are examples of passive badger den exclusion measures. A determination of a successful badger pregnancy is not required to designate an active den as a maternity den. All active badger dens are considered maternity dens from early February until early July. Badgers mate in summer and early fall. Gestation period varies from 183-265 days, including delayed implantation. Offspring are born mostly in March and April. Passive den exclusion often includes placing one-way doors on dens outside the maternity season. The one-way door allows any badgers using the den to leave but not return. Once the den is empty, verified through multiple observations, the den is excavated to ensure no badgers are inside and then the den is collapsed.

4494-9413

The commenter asks how the Project Biologist will align restoration reseeding with the growing season. As described in BIO-MM#32, revegetation of temporarily impacted restoration areas will begin within 90 days of completing construction in a work area. To the extent feasible, these revegetation activities, including planting and seeding, will be aligned with the local precipitation seasons in Los Angeles County to take advantage of natural rainfall and minimize the need for irrigation. In cases where the conclusion of construction activities does not align well with the local precipitation seasons, installation of plants and/or seeding may be postponed accordingly with approval by the relevant resources agencies and/or as specified in the Restoration and Revegetation Plan, which is described in BIO-MM#6. The RRP will be prepared to address restoration of temporary impact areas, will be submitted to the appropriate regulatory agencies for review and approval, and will describe timelines for restoration activities such as native plant and seed installation.

4494-9414

The commenter asks for an example of maintenance monitoring, as described in BIO-MM#33, for a specific aquatic plant. While a collection of individual plants make up a restored habitat, maintenance monitoring for aquatic resources will typically focus on the status of the larger plant assemblage and not individual plants. Maintenance monitoring will be conducted at temporary impact areas that are being restored to evaluate progress towards the approved success criteria, which will be detailed in the Restoration and Revegetation Plan (RRP), described in BIO-MM#6 and will be submitted to the appropriate regulatory agencies for review and approval. The RRP will also describe the parameters for monitoring, including methods, requirements, and frequency, and may involve a combination of qualitative and/or quantitative data gathering. Examples of data gathering include, but are not limited to, point intercept line transects, 1-meter square vegetation plots, qualitative observations and the use of permanent photo monitoring stations to compare past and current conditions. The monitoring will assess conditions such as plant growth and mortality, presence, extent and type of non-native and invasive species, and overall condition of the site, including presence of trash and debris. The data will be used to inform ongoing maintenance and restoration activities and assess progress towards the approved success criteria. Impacts to individual plants that are special-status plant species will be addressed in accordance with BIO-MM#2, which requires preparation of a plant species salvage plan, as appropriate. The plant species salvage plan would include specific requirements for monitoring of the restoration of special status plant species, as well as maintenance, implementation, and reporting requirements.

4494-9415

The commenter asks if protective barriers described in BIO-MM#34 will be permanent. No, the Authority anticipates removal of all protective barriers described in BIO-MM#34 once construction is complete and opportunities for soil erosion have been reduced through revegetation and restoration.

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4494-9416

The commenter noted that examples of BIO-MM#35 would be useful. The Authority through coordination with local jurisdictions will determine which protected trees will remain within the work area with staked ESA buffers and which trees will need to be transplanted outside the work area. Individual species that do not typically survive transplanting will require either a replacement off-site with the same species or a contribution to a tree planting fund approved by the Authority through coordination with the local jurisdictions.

4494-9417

The commenter is asking about the permanence and aesthetics of the right-of-way security fencing. The Authority has not completed fencing design for the project, but the design will meet the requirements of applicable local, state, and federal laws and regulations. The primary purpose of the fence is the security of the facility and the safety of the public.

4494-9418

The commenter asks for examples of compensatory mitigation discussed in BIO-MM#38, BIO-MM#39, BIO-MM#44, BIO-MM#46. Examples of compensatory mitigation identified by the Authority for the resources addressed in these mitigation measures include, but are not limited to: payment to an in-lieu fee program, purchase of credits from an approved conservation or mitigation bank, and protection of habitat through acquisition of private properties that possesses or can support sensitive species habitat or nest resources and funding long-term management of the site, as described in BIO-MM#53. BIO-MM#53 requires that a Compensatory Mitigation Plan be prepared to describe compensatory mitigation options to offset permanent and temporary impacts on federal and state-listed species and their habitat, fish and wildlife resources regulated under Section 1600 et seq. of the Fish and Game Code, and certain other special-status species. This Plan will be used to facilitate discussions with the relevant regulatory resource agency to gain concurrence on the appropriate compensatory mitigation for specific species and habitats.

4494-9419

The commenter asks the Authority to identify two agency approved mitigation banks that could be used for compensatory mitigation. The commenter also asks for the location of property that could be acquired and if the property would meet the criteria for aquatic resources set forward in BIO-MM#47. The Authority will identify in consultation with the USACE and other applicable agencies potential mitigation banks that could be used as compensatory mitigation for impacts to aquatic resources. The Peterson Ranch Mitigation Bank in Los Angeles County is an example of a mitigation bank that is primarily used for stream and wetland resource mitigation. The Authority is also evaluating other avenues of compensatory mitigation including through property acquisition; this process would take place and be finalized as part of procuring Section 404 authorization from the USACE and approval from other aquatic resource agencies such as the California Department of Fish and Game or State Water Resources Control Board. Any property acquired for purposes of aquatic resource compensatory mitigation would be evaluated first to ensure that it provided the appropriate conditions for compensatory mitigation for impacts to aquatic resources and that it would meet state and federal policies on no net loss of functions and values of wetlands.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9420

The commenter asks who will be responsible for ensuring the implementation of the IAMFs. The Authority will be responsible for implementing and overseeing the IAMFs for the project and the Authority, its contractor, or agency will implement the biological IAMFs under the supervision of the biologists and biological monitors, as appropriate, as described in BIO-IAMF#1. Project Biologists, Designated Biologists, Species-Specific Biological Monitors, and General Biological Monitors will be retained to implement avoidance and minimization measures and resumes for these staff will be approved in writing, as applicable, by the U.S. Fish and Wildlife Service, National Marine Fisheries Service and California Department of Fish and Wildlife. The Project Biologist for the project is responsible for ensuring the timely implementation of the biological avoidance and minimization measures and for guiding and directing the work of the Designated Biologists and Biological Monitors. Designated Biologists will be responsible for directly overseeing and reporting the implementation of general and species-specific conservation measures. In some instances, Designated Biologists will only be approved for specific species, in which case they will only be authorized to conduct surveys and implement measures for the species for which they have been approved. Species-Specific Biological Monitors will be responsible for implementation of species-specific measures for the species for which they have been approved and will report directly to a Designated Biologist. General Biological Monitors will report directly to a Designated Biologist or to the Project Biologist. General Biological Monitors will be responsible for conducting Worker Environmental Awareness Program (WEAP) training, implementing general conservation measures, conducting general compliance monitoring, and reporting on compliance monitoring activities.

4494-9421

The commenter requests further detail regarding BIO-MM#53 and asks if it applies to all federal and state-listed species and their habitat, what role the Project Biologist has in the process of CMP preparation, who decides the type of credits to be given, and if easements will be permanent.

BIO-MM#53 (Prepare and Implement a CMP for Species and Species Habitat) requires the preparation of a CMP to offset permanent and temporary significant impacts on federal and state-listed species and their habitat, fish and wildlife resources regulated under the Fish and Game Code, and certain other special-status species and special-status plant communities (Draft EIR/EIS page 3.7-222). Thus, BIO-MM#53 applies to all federal and state-listed species and their habitat.

The role of the Project Biologist will be to oversee qualified biologists familiar with the species' biology, population dynamics, and the particular species' likely response to project impacts. The Project Biologist will prepare the CMP.

The type of credits and other mitigation will be developed in consultation with the appropriate resource agencies (CDFW, USFWS, USFS, etc.) and will be purchased "from an agency-approved mitigation bank" (Draft EIR/EIS page 3.7-222). Any easements obtained for mitigation purposes would be permanent. All legally recognized conservation easements in the state of California must be perpetual in duration (see California Code of Regulations section 815.2(b)). Preparation of the CMP will take place during the detailed design phase of the project and prior to the start of construction. The process described in BIO-MM#53 is expected to take approximately 24 months.

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4494-9422

The commenter is asking for description of cultural weed controls and if chemicals would be used to control vegetation.

Cultural weed control includes making existing ground cover more competitive against weeds. While typically used in agricultural practices, the technique may include applying mulch as a protective ground cover to prevent weed growth, solarization, and using weed-free erosional control features. The Authority has not determined which approach to weed control and management will be implemented and anticipates using a variety of approved methods, including chemical, to meet the requirements of BIO-MM#54. BIO-MM#54 requires the Authority to develop and implement a plan prior to operation and maintenance, and it is therefore too early in the process to identify specific chemicals that may be used. As explained in BIO-MM#54, the Authority will generally follow the procedures established in Chapter C2 of the Caltrans Maintenance Manual to manage vegetation on Authority property (California Department of Transportation [Caltrans] 2010), including the use of Caltrans-approved herbicides. Pesticide application will be conducted in accordance with all requirements of the California Department of Pesticide Regulation and County Agricultural Commissioners by certified pesticide applicators. The Authority will cooperate in area-wide efforts to control noxious/invasive weeds if such programs have been established by local agencies.

4494-9423

The commenter requests further detail regarding BIO-MM#55, asking specifically who would be in charge of carrying out the weed control plan and what paperwork is involved. Per BIO-MM#55 on page 3.7-224, the Project Biologist will develop a Weed Control Plan (WCP). The WCP will be subject to review and approval by the Authority. Compliance Reporting (BIO-MM#61) will include a summary of progress made regarding the implementation of the WCP.

4494-9424

The commenter asks if new roads will be created for the project, if these roads are likely to be constructed within habitat occupied by endangered plants, and if these plants would require relocation or compensatory mitigation. The Authority will utilize existing roads to the greatest extent possible but some new construction of access roads may be required. New roads will be sited to avoid sensitive resources but may be placed within endangered plant habitat. Refer to Impact BIO#1 in Section 3.7, Biological and Aquatic Resources, for further discussion regarding construction impacts to special-status plants and plant communities resulting from all six Build Alternatives. Mitigation measure BIO-MM#1 on page 3.7-23 will require presence/absence botanical field surveys for special-status plant species prior to any ground disturbing activities, including new roads. The Authority anticipates the preconstruction surveys will identify exact locations and acres of or numbers of endangered plants allowing for refinement of access road location during final engineering design. Mitigation measure BIO-MM#2 on page 3.7-223 will require preparation and implementation of a Plant Species Salvage Plan for special-status plant species. The Plan will include provisions that address the techniques, locations, and procedures required for the collection, storage, and relocation of seed or plant material, and collection, stockpiling, and redistribution of topsoil and associated seed. This mitigation measure is anticipated to be effective because it salvages unavoidable special-status species within the project footprint; relocates salvaged species to suitable habitat acquired within the region, and monitors relocated species per the Special Plant Species Management Plan to provide for suitable survival of special-status plant species, reducing and offsetting impacts from potential disturbance during construction.

4494-9425

The commenter is asking for the type of feedback that the Project Biologist will be provided after submittal and review of daily and annual monitoring and compliance reports. Coordination between the Authority, the regulatory agencies, and the Project Biologist will be ongoing throughout the project construction life-cycle. The Authority intends to provide regular feedback to the Project Biologist regarding development and implementation of the IAMFs, MMs, and all commitments and conditions set forth by regulatory agency authorizations. This may include feedback to the Project Biologist on refined implementation of these measures and conditions based on changing resource conditions or revised construction methodologies as the project is constructed.

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4494-9426

The commenter is asking how long the Authority expects it to take for the Dewatering Plan identified in BIO-MM#62 to be completed. An exact timeframe to develop the plan cannot be estimated because of the large number of variables that determine the complexity and function of the plan. The Authority will prepare the plan based on final engineering design, the presence of open or flowing water which may be affected by seasonal precipitation, coordination with and approvals by regulatory agencies, and the results of a preconstruction survey to determine presence/absence of special status species. If required, the plan would be completed and approved prior to initiating construction activity in open or flowing water.

4494-9427

The commenter requests further detail regarding BIO-MM#64, specifically asking for an example of a feature that would accommodate wildlife movement when designing bridges and culverts. BIO-MM#64 on page 3.7-228 provides several features and design considerations for wildlife crossings. Examples of features that accommodate wildlife movement include designing culverts with openness and clear line of sight from end to end, having native earthen bottoms, or ledges or tunnels incorporated into the design to facilitate safe passage of small mammals.

4494-9428

The commenter requests further detail regarding BIO-MM#65, specifically asking how the "pre-construction sweep" for golden eagle is carried out. BIO-MM#65 on page 3.7-228 of the Draft EIR/EIS identifies that the protocols for carrying out the pre-construction Golden Eagle surveys (or pre-construction sweep as referred to by the commenter) are based on the USFWS Interim Golden Eagle Inventory and Monitoring Protocols (2010) and CDFW's Bald Eagle Breeding Survey Instructions (CDFW 2010), or current guidance. Per BIO-MM#65, at least one year prior to the start of any ground disturbing activities and construction, the Project Biologists will conduct nesting season surveys for eagles within four miles of any construction areas that support suitable nesting habitat. All breeding and foraging eagles will be documented with GPS and nest locations identified. Only after completing at least two full surveys in a single breeding season and finding a nesting territory or inventoried habitat vacant will it be "considered unoccupied by golden eagles." These preconstruction surveys include all accessible areas within the survey buffer including important eagle roost sites and foraging areas.

4494-9429

The commenter requests a description of the types of project activities likely to disturb active eagle nests and asks if a no-work buffer would halt all work. Activities that are likely to disturb active eagle nests include, but are not limited to: loud construction noise such as sharp banging and clanking noise, grinding and sawing noise, and equipment back-up beepers. To prevent potential impacts to active eagle nests, no construction activities will be allowed within the no-work buffer. The no-work buffer of 1 mile and 0.5 mile, for line of sight and no line of sight buffers, respectively, during the breeding season are adequate to prevent construction-related eagle nest failure. As permitted by BIO-MM#66, the no-work buffer around active nests may be reduced if the Project biologist determines that smaller buffers would suffice.

In response to this comment, BIO-MM#66 has been revised in the Final EIR/EIS to clarify that no construction activities will be permitted within the no-work buffer. Please refer to Section 3.7.7, Mitigation Measures, of the Final EIR/EIS, for the full text of the BIO-MM#66.

4494-9430

The commenter asks if active eagle nests can be relocated. Active bald eagle and golden eagle nests can be relocated through the use of a federal eagle nest take permit issued by the USFWS under the authority of the Bald and Golden Eagle Protection Act. However, pursuant to California Fish &Game Code 3511 golden eagle are fully protected and active nests cannot be relocated. Please see response to comment 10391 for further discussion regarding nest relocation.

4494-9431

The commenter asks if the Project Biologist will be able to identify loss of Tricolor Blackbird habitat (BIO-MM#70). The Project Biologist will be experienced with Tricolored Blackbird habitat and project activities that may result in loss of habitat. Suitable habitat includes wetlands with cattails, bulrushes, and willows. Suitable habitats also include wetlands converted to agricultural fields, livestock impoundments, and irrigated pastures. These habitats are used for nesting and foraging. Foraging habitats also include cultivated fields and feedlots associated with dairy farms.

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4494-9432

The commenter asks if the Project Biologist will be on site both day and night pertaining to BIO-MM#72. BIO-MM#72 on page 3.7-230 requires the Project Biologist will be on site during nighttime light use to determine whether the lighting poses a risk or otherwise disturbs or harms condors.

4494-9433

The commenter requests further detail regarding BIO-MM#74. BIO-MM#74 on page 3.7-230 states the vertical buffers will be measured from the location of the nest. If a nest is located on a tower or a tree, the vertical buffer begins from the nest location. Wildlife jump-outs are described in MM#78 and would be determined and designed during the detailed design phase of the project. Jump outs could take the form of escape ramps for wildlife.

4494-9434

The commenter requests further detail regarding BIO-MM#79, #80, #81, and #82 and how surveys for coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, western flycatcher, and western yellow-billed cuckoo would be conducted. BIO-MM#79, #80, #81, and #82 on pages 3.7-231 and 3.7-232 states the surveys will be conducted according to the published survey guidelines or protocols established for the particular species.

4494-9435

The commenter asks how much fencing is planned for at-grade sections and how tall it will be. At-grade segments would be fenced along the track for safety and to preclude wildlife from train strikes. Fencing will consist of 6–12-foot-high chain-link fencing. As described in BIO-MM#77, the Project Biologist shall review the fencing plans prior to construction to ensure they are appropriate in height. The amount of fencing would vary by Build Alternative as each alternative has different lengths of at-grade track segments. For example, the SR14A alternative has 6.5 miles of at-grade track that would be fenced.

4494-9436

The commenter asks whether the crossing structures and fences would be inspected in perpetuity and if biologists who specialize in different species would be involved in the monitoring. Fencing and wildlife crossings installed as part of the project would be inspected and repaired on a regular basis during construction and throughout operation of the project. The Authority will utilize wildlife biologists with appropriate expertise based on the habitat and species biology to conduct the inspections and repairs. If more than minor fence repairs that can be implemented by the wildlife biologist, the Authority will utilize a fencing specialist overseen by the wildlife biologist to implement and complete the repairs.

4494-9437

The commenter asks if the k-rail construction barrier described in BIO-MM#85 would be eventually removed. The K-rail construction barrier to separate the bridge construction work zone from the environmentally sensitive area of the wetted channel of the Santa Clara River, described in MM#85, is for the construction period and would be removed once construction is complete.

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4494-9438

The commenter asks if hazardous materials will be used at night. Construction is not anticipated to occur at night given the sensitive resources within the project RSA. Therefore, use of hazardous materials at night is not anticipated during construction. If emergency night construction activities are required, the Spill Prevention and Containment Measures listed in BIO-MM#87 would be implemented and required during all construction activities, including those that occur at night.

Operation of the six Build Alternatives would require the use of hazardous materials and would generate hazardous wastes associated with routine maintenance. The hazardous materials would include wastes such as herbicides, lubricants, and janitorial supplies, which would be used at the station areas, ancillary facilities, and along the trackway. It is unlikely that these activities would occur at night. Regardless, with adherence to applicable federal and state regulations, combined with HMW IAMF#9, HMW-IAMF#10, and HYD-IAMF#1, operation of each of the six Build Alternatives would not create a significant hazard to the public or the environment resulting from the routine transport, use, or disposal of hazardous materials, or reasonably foreseeable upset and conditions that involve the release of hazardous materials.

4494-9439

The commenter asks what materials the underslung tarp or other barrier would consist of, as required by BIO-MM#88. Prior to initiation of construction or maintenance activities, an underslung tarp, debris platform or equivalent barrier extending at least 10 feet beyond the width of the wetted channel will be deployed beneath the bridge deck to prevent the inadvertent discharge of equipment, chemicals, or debris into the Santa Clara River. The specific material has not been identified at this time. The purpose of the measure is to keep construction debris from entering the river.

4494-9440

The commenter asks what the purpose of dewatering is, how much water is expected to be dewatered, and how will it be used, pertaining to BIO-MM#90. Dewatering may be necessary to remove water from the work area where the footings and supports for the bridge structure across the river would be constructed. Dewatering would involve removing water that is encountered during excavation activities. The amount of water encountered is not know at this time. Water encountered would be treated and then discharged back into the river or into upland areas to percolate back into the soil. Dewatering will be implemented in a manner that: (1) does not create temporary wetted channel habitat suitable for unarmored three-spine stickleback; (2) does not diminish existing river flow, and therefore does not result in stranding of unarmored three-spine stickleback or other fish; and (3) does not introduce pollutants to surface waters.

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4494-9441

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter asks if, under BIO-MM#93, the AMMPs will vary by site, how supplemental water would be provided and where it would come from, how much water is expected to be needed over 3 seasons, how the water would be transported, and how often the groundwater levels would be monitored for the first 5 years after construction.

As described in BIO MM#93, the Authority will implement an adaptive management and monitoring plan to monitor groundwater-dependent biological resources within the tunnel construction RSA to detect and remediate adverse effects on habitat function in a timely manner. The plan actions will vary by site and type of resource. The AMMP will include contingency plans to provide supplemental water as necessary to support riparian/aquatic vegetation, wildlife breeding cycles, aquatic wildlife, or protected tree health within the area of predicted effects determined through modeling or monitoring to be potentially affected by groundwater lowering. Seasonal variation as documented during the preconstruction baseline monitoring will be considered in establishing the amount of supplemental water. For all features, supplemental water will provide minimum flows and periods of inundation to match baseline conditions. The periods of supplemental water, in general, will likely be in periods of baseflow, which occurs in late spring, summer, and early fall outside of rain periods. For breeding habitats, the Authority will, at a minimum, supplement breeding habitat where necessary to maintain adequate depths for completion of the reproduction cycle. Section 2 of Appendix 3.8-D provides estimated water demand for AMMP purposes using several Risk Areas as examples (Please see Table 3 in Appendix 3.8-D for this example). Section 3 of Appendix 3.8-D provides information on the sources of water to be used which is anticipated to primarily be the same water source as used for construction. Also see standard response PB-Response-PUE-3: Water Demand and Usage which provides additional information as to the sources and supply of water during construction. Section 4 of Appendix 3.8-D provides information on the conveyance and transport of this supplemental water noting that delivery of water could occur through different methods, depending on quantity, location of water source, and location of the affected area. As a result, the method of conveyance or transport would be specific to each affected area. However, the Authority did evaluate the feasibility of utilizing trucks to convey water as well as piping water from the construction site to an affected location. The frequency of

4494-9441

groundwater monitoring post construction has not been determined at this time. Current groundwater monitoring occurs on a quarterly basis.

4494-9442

The commenter asks why a project intended to help the environment is purchasing mitigation credits to compensate for impacts on endangered species' habitats. The purchase of mitigation credits to compensate for a project's impact on habitat is a standard practice allowable under CEQA and NEPA and recommended by various agencies. The USFWS recommends purchasing mitigation credits for mitigating impacts to protected species and habitat, and the Army Corps of Engineers recommends them for mitigating impacts to wetlands.

4494-9443

The commenter requests further detail regarding BIO-MM#96 and asks specifically if construction work would continue if a mountain lion den is determined to be occupied. In addition, the commenter asks how CHSRA will keep track of mountain lion dens given that mountain lions are apt to claim large areas. BIO-MM#96 on page 3.7-238 specifies what to do if a mountain lion den is determined to be occupied and what evidence will be used to determine their occupancy. A non-disturbance buffer of at least 1,970 feet will be established around the known or potential den to protect it from project construction disturbances. Known and potential dens will be tracked using Geographic Information Systems (GIS) database.

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4494-9444

The commenter appears to be asking about how much light will spill above the light, after a shield is installed. BIO-MM#100 identifies the following requirement about shields: "Nighttime lighting will have shields or cowls (or other device to limit lighting) installed to direct the light downward to reduce the standard luminous intensity distribution curve to contain the light to the boundaries of the project site to the extent practicable." Shields or cowls used to direct operational light downward would be small in size, covering just the light source. The size of the shield or cowl would depend on the size of the luminaires (i.e., fixed lighting device). Wherever possible, fully shielded luminaires, with additional side shielding will be used. Fully shielded luminaires emit no uplight (i.e., no light is emitted above 90° from the direction pointing below a particular location) (BLM 2023; CEC 2019; IES 2020).

These shields or cowls would not create significant shading during daylight hours and would not prevent light from above from permeating the area. Every effort would be made to minimize the light spill, and any minimal light spill would be limited to within the boundaries of the project site. Light spill above lights would be very minimal, and lighting would be limited to the boundaries of the project site to the extent practicable.

4494-9445

The commenter asks for an example of a special-status bird that could withstand noise as a result of sound barriers (BIO-MM#101). As an example, through experience and professional expertise, project biologists have found that coastal California gnatcatchers are able to withstand elevated noise levels with the installation of noise barriers. Many special status bird species in Los Angeles County are more acclimated to higher levels of noise than individuals living in less developed areas, as evidenced by their tolerance of these noise levels during successful breeding and nesting.

4494-9446

The commenter asks how long mitigation measures need to be in operation for them to be successful. The commenter also asks if measures would be temporary enough for wildlife to return to the restored habitat once construction is complete. The Authority has developed a range of measures to avoid, reduce, or compensate for project impacts. Some of these would be implemented as preconstruction measures (e.g., preconstruction surveys such as BIO-MM#1, BIO-MM#3, BIO-MM#7, BIO-MM#14) early in the construction phase and would be completed prior to any ground disturbing activity. Other measures are designed to be implemented during construction (e.g., BIO-MM#8, BIO-MM#16, BIO-MM#26, BIO-MM#27) and generally are completed during or shortly after construction is completed. Other measures are implemented during post-construction (e.g., BIO-MM#32, BIO-MM#33, BIO-MM#50) and during the operational phase (BIO-MM#54, BIO-MM#55, BIO-MM#73) of the project's lifecycle and may stay in place for the duration of the project's operational phase. All measures--preconstruction, construction, post-construction, or operation--would remain in effect as long as needed to achieve the stated goals and objectives of resource protection or compensatory mitigation. For example, BIO-MM#93 has post-construction requirements to monitor its goals of completing riparian/wetland restoration within 1 year of construction and will provide compensatory mitigation if this is not achieved. The Authority expects wildlife to use the temporarily impacted habitat once it is successfully revegetated or restored. Some mitigation measures have the potential to result in secondary environmental effects. An analysis of impacts from implementing mitigation measures for biological and aquatic resources is provided on page 3.7-240 of the Draft EIR/EIS. Mitigation measures associated with pre-construction surveys, construction site management, and construction and operation within wildlife movement corridors, are not anticipated to result in secondary environmental effects. Several mitigation measures associated with resource protection and restoration (BIO-MM#4, BIO-MM#5, BIO-MM#6, BIO-MM#32, BIO-MM#33, and BIO-MM#34) would result in secondary environmental effects, namely due to maintenance and removal activities. Maintenance activities would be ongoing during operation. BIO-MM#2, BIO-MM#8, BIO-MM#21, BIO-MM#26, and BIO-MM#67 will entail relocation for special-status plant species, special-status reptile and amphibian species, burrowing owls, bats, and eagle nests. However, relocation of special-status species would affect resident individuals in the relocation area through increased predation and competition of resources with relocated individuals. Therefore, wildlife relocation activities associated with the mitigation measures listed above could result in

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4494-9446

secondary environmental effects. However, such secondary impacts are common to most infrastructure construction projects, are temporary in nature, and are typically minimal and not significant. These impacts would be effectively reduced with adherence to applicable regulations, compliance with regulatory permits, incorporation of BMPs, and application of standard mitigation measures. Actions associated with compensatory mitigation will directly or indirectly require conservation management to ensure the long-term viability of target species.

4494-9447

The commenter asserts stating that secondary impacts common in construction projects should not apply to this particular project given it is a first of its kind. The commenter also asks how impacts from the project differ from other projects, especially in the San Gabriel Mountains. The Authority has identified potential impacts to resources during the implementation of biological mitigation measures (Section 3.7.7.1) and identifies secondary environmental effects described in Section 3.7.7.1. For relocation of wildlife species (page 3.7-241), the Draft EIR/EIS notes that "such secondary impacts are common to most infrastructure construction projects and are typically minimal and not significant." While the HSR Palmdale to Burbank Project Section is a first of its kind project in that it is the first high speed train constructed in the United States of America, it is nonetheless similar to other projects in many ways, especially to other rail construction projects. It is a linear construction project. It requires a project footprint consisting of access roads, construction material laydown and staging yards, security fencing, stream crossings, and many other features and activities no different than many other construction projects. The aspect of the project that is unique is the scale of tunnel construction to be undertaken. Tunnel construction will have a minimal direct effect on the surface of the land under which it passes and those surface effects would be on a scale and type consistent with typical large construction projects (e.g., transmission, transportation, rail construction, and renewable energy projects). The HSR Palmdale to Burbank Project Section will be entirely underground through the San Gabriel Mountains and the Authority has undertaken extensive analysis of the impacts to groundwater and surface water features as a result of tunneling activities. The suite of mitigation measures identified in the EIR/EIS include strategies to ensure that, as design advances, any impacts anticipated to result from the Build Alternatives would be minimized or avoided, consistent with the findings of the EIR/EIS.

4494-9448

The commenter asks how permanent security fencing can be made agreeable to the eye, if management activities would be on-going, and if they are budgeted. Fencing installed as part of the project will meet city and county codes for aesthetics. See Table 3.16-1 in Section 3.16, Aesthetics and Visual Quality, which lists the applicable regional and local plans, policies, and regulations relevant to the aesthetics and visual quality of the project. Fencing would be monitored and inspected on a regular basis. The project budget includes costs for fencing as well as ongoing inspection.

4494-9449

The commenter asks how the Authority knows that the implementation of mitigation measures would leave no adverse effect when the measures have yet to be implemented. The measures are based on the best professional technical judgment developed by experienced biologists and best available science for these particular species. While detailed studies have not been published regarding the efficacy of these measures, the measures are often used by CDFW and USFWS to avoid, minimize or mitigate species impacts. This comment does not address the sufficiency of specific mitigation measures in the draft EIR/EIS nor does it suggest edits to the measures. As a result, no change has been made to the document in response to this comment.

4494-9450

The commenter questions the conclusion that there would be no adverse effects due to the implementation of mitigations when no work has begun. The determination of no adverse effects is based on Section 3.7.4.5, Methods for Evaluating Impacts Under NEPA, and Section 3.7.4.6, Determining Significance under CEQA. Refer to Response to Comment #9449 from this same letter for more information regarding efficacy of mitigation measures.

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4494-9451

The commenter asks how mitigation measures have been successful in reference to Table 3.7-34 on pages 3.7-271 through 273. Table 3.7-31 through Table 3.7-34 present the NEPA conclusions for adverse effects after implementation of each relevant mitigation measure. The conclusions presented in these tables are a standard and required component of a NEPA analysis for findings of expected success of mitigation for a project under 40 CFR Part 1502. The Authority has pledged to integrate programmatic impact avoidance and minimization features (IAMF) consistent with the 2005 Statewide Program EIR/EIS, the 2008 Bay Area to Central Valley Program EIR/EIS, and the 2012 Partially Revised Final Program EIR into the HSR project. The Authority will implement these features during project design and construction, as relevant to the Palmdale to Burbank Project Section (Project section, or project) to avoid or minimize impacts. Built into these measures are adaptive management strategies meant to navigate the complexities of the project. These same IAMFs have already been implemented for other sections of the California HSR System sections, including the Merced to Fresno Project Section that is currently being constructed. The mitigation measures are only as successful as the thoroughness of the planning and development, application of past project lessons learned, and close coordination with the resource agencies that have complex histories managing these resources within the parameters of the regulatory requirements. The Authority engages experienced resource experts with agency specialists to develop detailed approaches to implementation and effective use of adaptive management, allowing for greater levels of overall success.

4494-9452

The commenter is asking what difficulties might be encountered during the determination of no adverse effects to biological resources, and if reducing impacts to the Significant Ecological Areas equates to no impacts to these resources. The difficulties the Authority has in evaluating and making a no adverse effect determination include ensuring all the biological variables have been included, understanding the responses by biological resources to construction and operation, and what effective mitigation measures can be used to avoid, reduce, or mitigate those effects to an extent that the impacts are reduced to a less than significant level. Reducing impacts to Significant Ecological Areas would not necessarily equate to a no effect determination. In some cases eliminating the impact to a no effect level is not achievable and therefore the goal is to reduce or minimize the impact to the lowest level possible.

4494-9453

The commenter asks the question what existing constraints make wildlife movement impossible. Existing constraints to wildlife connectivity are described on page 3.7-188 through 3.7-197 and in the Palmdale to Burbank Project Section: Wildlife Corridor Assessment Report (Authority 2019C). These existing constraints to wildlife connectivity and natural wildlife movement in the project vicinity occur from a combination of habitat loss, fragmentation, and degradation of existing habitat resulting from urban and agricultural development and linear transportation barriers (Clevenger and Huijser 2009; Beier and Loe 1992). The primary constraint to wildlife movement along the project alignment is the urban development associated with the city of Palmdale to the north and the San Fernando Valley to the south. Urban development in the San Fernando Valley is especially dense with residential, commercial, and industrial development crossed by a number of high traffic freeways. Linear transportation features primarily consist of SR14, which is a 65-mile-per hour six-to-eight-lane freeway, divided by a concrete k-rail. Portions of the SR14 freeway are secured by four-foot barbwire fencing with woven wire along the southern freeway sections. Although the fencing likely only provides a limited barrier to wildlife, the width, medians, speed, and amounts of traffic associated with these facilities could act as a barrier to some wildlife moving through the area. The terrain and habitat disruption, coupled with the lack of concealing vegetative cover, could also deter wildlife movement across these corridors. Portions of the SR14 freeway include large concrete sound walls or retaining walls that would create a physical barrier for wildlife movement. The Sierra Highway, including a number of frontage roads and conventional railroad tracks, parallels the SR14 freeway. The Southern Pacific Railroad tracks extend south from Palmdale along Sierra Highway and then along Soledad Canyon Road beginning in Acton. The Southern Pacific Railroad tracks are not fenced and are also used by Metrolink. This combination of transportation corridors through the San Gabriel Mountains and foothills interrupts the natural mix of ridges and canyon terrain with a series of alternating cut-and-fill slopes. The California Aqueduct generally runs west to east at the southern end of Palmdale. The California Aqueduct is over 125 feet wide and is bordered on each side by a paved road and a dirt road secured with a chain-link fence topped with barbwire, which is generally considered a complete barrier to wildlife, except where the canal goes underground or is crossed by bridges. There are also a number of drainage culverts that cross under the aqueduct that may be used by some species to cross under the aqueduct. The Antelope Valley-East Kern Water Agency's Acton Water Treatment Plant along Sierra Highway and the

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4494-9453

Waste Management Antelope Valley Landfill are both fenced facilities. Existing developments are concentrated in Palmdale, Acton, and the San Fernando Valley, but also include the transportation network that connects these urban centers. Other peripheral developments often associated with the urban centers include landfills, airports, mines, energy development (oil and gas and wind), and suburban and rural residential development. Roads, highways, canals, and railroads that connect these developments restrict free movement by acting as semi-permeable barriers. Road traffic creates a risk of wildlife and vehicle collisions and can deter wildlife movement activity. In addition, roads and highways frequently include fencing that restricts wildlife movement. Near the Town of Acton, the surrounding area is a mix of rural and suburban development surrounded with scattered single-family ranchettes and industrial development. The Southern California Edison substation near Acton is a fenced barrier to wildlife. There are several mines in Soledad Canyon, which would also limit wildlife movement due to the lack of vegetative cover and the amount of mining activity. At the southern end of the proposed HSR Alignment Build Alternatives, the primary barrier to wildlife is the urbanized development associated with the San Fernando Valley, including a mix of suburban and urban residential, commercial, and industrial development with associated roads and freeways. The combination of these features, as described above and further identified on page 3.7-188 through 3.7-197 and in the Palmdale to Burbank Project Section: Wildlife Corridor Assessment Report (Authority 2019C), restrict wildlife movement.

4494-9454

The commenter asks if compensation as a form of mitigation results in a different (or lower) level of significance than other forms of mitigation. Compensatory mitigation is often used a part of a suite of approaches to mitigate impacts to biological resources. Restoration is often the preferred method for mitigating temporary impacts to habitat where the habitat affected can be restored to pre-construction conditions and values. When a project results in the permanent removal of habitat, restoration is not possible and compensatory mitigation is the most common form of mitigation. Compensatory mitigation is a common and accepted method of offsetting a project's impacts to a less than significant level.

4494-9455

The commenter is concerned about the ability of the TBM to withstand water pressures above 30 bar and provides information about a TBM used in New York City.

The NYC tunnel was completed successfully in 2019. The Robbins TBM was provided with dewatering, drilling and grouting systems in place. Another feature was a bulkhead to seal off the machine if water inflows were encountered. Probe drilling and pre-excavation grouting were systematically used: "The project specification required a mandatory probe drilling program for the entire tunnel alignment, which included water inflow measurements at the probe hole locations. The TBM crew was thus required to drill four probe holes every 115 m (380 ft) to measure water inflows. When water inflows exceeded contract-allowable values, grouting would be required to reduce water inflows to acceptable levels. The TBM could then advance inside the grouted area of the alignment" (Tunneling Online 2023).

"To accomplish this feat, the TBM was equipped with two types of grouting systems. The pre-excavation grouting system was a mono-component grout system used to grout ahead of the TBM. The two-component (A+B) grout system was used to backfill the annular gap between the segmental lining and the bored tunnel. The machine was equipped with two drills in the shields for drilling through the head in 16 different positions and a third drill on the erector to drill through the shields in an additional 14 positions. To add to that, water-powered, high pressure down-the-hole (DTH) hammers allowed for drilling 120 m (400 ft) ahead of the machine at pressures up to 20 bar if necessary" (Tunneling Online 2019). Regarding the EEPB project and groundwater pressures, TBMs are capable of operating in areas with pressures above 30 bar when other boring techniques, such as pre-excavation grouting, are applied. These techniques provide for a reduction of pressures on the TBM. Where groundwater is present, HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 will be implemented to dissipate the pressure on the TBM and to control the volume of groundwater inflow into the tunnel. Pre-excavation grouting creates a permanent strengthened very low permeability circular crown around the TBM that takes on the water pressure. The potential high water pressure is therefore borne by the improved ground, and not by the TBM. Pre-excavation grouting can be performed from a TBM with built-in grouting capability, which generally includes grout ports in the cutter-head and the shield. Grouting will also allow for tunnel boring through problematic geological formations and unexpected faults.

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4494-9455

Other than the mentioned NYC tunnel, there are numerous additional examples of tunnel projects constructed under high groundwater pressure conditions using TBMs such as: St. Gotthard (200 bar measured), Lotschberg (110 bar measured locally), and Lyon-Turin (under construction). On the St. Gotthard Tunnel, approximately 28 miles of the tunnel were excavated with TBM. The groundwater pressure expected required a suitable pre-investigation campaign and probe drillings through the TBM cutterhead. A waterproofing system with sheet membrane and concrete lining was installed along the whole tunnel length. On the Lötschberg Tunnel, approximately 6 miles of the tunnel was excavated with TBM. A leak proofing ring with sealing injections around the tunnel was constructed. Two different drilling and injection rings, each with about 20 boreholes, were planned around the tunnel. The second ring was only to be implemented in its entirety if the desired results were not achieved after injecting the previous ring. The possibility of arranging a third ring was also available.

4494-9456

The commenter presents a case study that faced difficulties related to high groundwater pressures and questions the capability of the TBMs to perform with groundwater pressures above 25 bar. Reading the paper mentioned by the commenter, it appears that the original TBM used in the Parbati Hydroelectric project did not have the capability of grouting for ground improvement ahead of the tunnel excavation. This capability was added after the TBM was retrieved. Work resumed 3 years later. The requirements for the TBMs in the Palmdale to Burbank project section include the TBM to be fitted, such that it is capable not only of systematic probe drilling for ground exploration, but also of pre-grouting ahead of the excavation, and post-grouting. Pre-excavation grouting from the TBM can be performed to reduce groundwater seepage into the tunnels during construction. Where groundwater is present, HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 will be implemented to work under high groundwater pressures and control the volume of groundwater inflow into the tunnel. There are many other success examples of base tunnels with high groundwater pressures and tunneling through fault zones. Please refer to Response to Comment #9457 regarding examples of successful use of TBMs in similar conditions to the Palmdale to Burbank Project Section.

4494-9457

The commenter brings a case study for a tunnel built under high groundwater pressures and expresses concern about excavation under high water pressures and the risk of the TBM getting stuck. The main causes of the difficulties faced during the excavation of the Gerede tunnel, as described by the commenter, do not occur in the tunnels designed under the ANF. In the Gerede tunnel, the TBM encountered karstic aquifer conditions, which are not expected in the ANF. In addition, the tunnels for the Project do not cross under rivers flowing overhead. There are many other success examples of base tunnels with high groundwater pressures and tunneling through fault zones. All of them yield lessons learned and many have similarities to the projected tunnel through San Gabriel mountains. For example, all Alpine base tunnels are constructed with theoretical groundwater pressures of this magnitude and higher. Because during construction the pressure around the TBM is dissipated, TBM shields are not expected to withstand the full mountain groundwater pressure during excavation. Groundwater pressure on the excavation front is dissipated due to controlled groundwater seepage and pre-excavation grouting treatments, and this allowed the successful completion of the excavation of these tunnels.

Pre-excavation grouting from the TBM can be performed to reduce groundwater seepage into the tunnels during construction. Pre-excavation grouting can be performed from a TBM with built-in capability including grout ports through the TBM cutter-head and through the shield. Where groundwater is present, HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 will be implemented to control the volume of groundwater inflow into the tunnel. It is in the long term, though, when the groundwater levels are restored, that this pressure can build on the tunnel lining, if this lining is designed as a fully tanked solution. In the segments where ground water pressures are expected to exceed 25 bar, a monolithic concrete second lining will be put in place to minimize water leakage into the tunnel for the complete lifespan of the infrastructure. After completion of the second lining, the tunnel will be considered to be dry during the lifespan of the infrastructure. “Dry tunnel condition” is defined as the situation where a finished tunnel has such a low water inflow rate that it does not impact in any form the ground water resources, neither in the short nor in the long term.

The Lötchsberg Base tunnel (Switzerland) crossed several fault zones and encountered water pressures over 100 bar. Through the pre-treatment of a sedimentary slice with a

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4494-9457

measured water pressure of 110 bar, the inflow reduced from 8 l/s to 3.5 l/s (127 gpm to 55 gpm). This tunnel was successfully completed in 2007.

In the Gotthard rail base tunnel in Switzerland, groundwater pressures of up to 200 bar have been measured, and to bear the expected high groundwater pressures, a reinforced concrete second lining has been constructed. Other examples where a concrete second lining has been implemented to withstand high water pressures on the long term are the Wienerwald, Pershlingtal and Koralm in Austria, and Murgenthal double track rail tunnel in Switzerland. Anticipated loss and eventual retrieval plans of TBMs are not included in the PEPD provisions. This is a risk to be assessed and mitigated once the TBM features and geotechnical information is completed in the final design phase. TBMs are equipped with extra power and torque to overcome situations where the TBM could eventually get trapped. In extreme cases, there are several strategies that could be implemented to retrieve a stuck TBM, depending on its location within the tunnel, depth, and ground conditions. A common approach is to continue the excavation from the other end of the tunnel to reach the location of the stuck TBM. Also, the TBM could be dismantled, and continue the excavation through other conventional methods. Also, an auxiliary tunnel or shaft could be built to reach the TBM and release it. More specific procedures will be analyzed once the specifications for the TBM machine are known and additional information is gathered regarding the conditions to be encountered.

4494-9458

The commenter asks what the anticipated cost of the TBM. Construction Costs, including tunneling with TBM, are included in Appendix 6-B PEPD Record Set Capital Cost Estimate Report. This report includes costs per route mile of excavation with TBM. The cost of a specific TBM depends on the diameter and technical features that will be defined based on expected ground. Please refer to Appendix 6-B for further details about the TBM cost. The commenter also asks about the costs from loss of TBMs. Anticipated loss and eventual retrieval plans of TBMs are not included in the PEPD provisions. This is a risk to be assessed and mitigated once the TBM features and geotechnical information are completed in the final design phase. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

4494-9459

The commenter asks about the procedure proposed to remove or retrieve a tunnel boring machine (TBM) in the event it gets stuck during tunneling. Anticipated loss and eventual retrieval plans of TBMs are not included in the Preliminary Engineering for Project Definition (PEPD) provisions. This is a risk to be assessed and mitigated once the TBM features and geotechnical information is completed in the final design phase. TBMs are equipped with extra power and torque to overcome situations where the TBM could get trapped. In extreme cases, there are several strategies that could be implemented to retrieve a stuck TBM, depending on its location within the tunnel, depth, and ground conditions. A common approach is to continue the excavation from the other end of the tunnel to reach the location of the stuck TBM. In addition, the TBM could be dismantled, and the excavation continued through other conventional methods. Also, an auxiliary tunnel or shaft could be built to reach the TBM and release it. More specific procedures will be analyzed once the specifications for the TBM machine are known and additional information is gathered regarding the conditions to be encountered.

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4494-9460

The commenter is concerned about the use of certain chemicals associated with grouting agents used for tunnel construction.

The selection of grouts and grout components will occur during the design phase and during construction. Grouting composition has substantially evolved in recent years. For instance, cementitious materials are now widely used for grouting and chemical grouts are used far less frequently for engineering and tunneling purposes.The environmental requirements for the selected grout material, in particular its effects on groundwater, will be taken into consideration during the planning and design phase of tunnel construction.

Regarding the selection of grout materials, please refer to a more recent publication " Hard Rock Tunnel Grouting Practice in Finland, Sweden, and Norway - Literature Study 2003". That document describes the types of grouting agents currently used, and how cementitious materials have come to replace chemical grouts in rock grouting in tunnels because of environmental accidents and the improved performance of cementitious grouts, achieving the high level of tightness required. Currently, very fine-grained cements are used more often, since the use of chemical grouts has been limited or even prohibited. Under HMW-IMAF#9 the Authority will use an Environmental Management System to describe the process that will be used to evaluate the full inventory of hazardous materials as defined by federal and state law employed on an annual basis and will replace hazardous substances with nonhazardous materials. The Authority is committed to identifying, avoiding, and minimizing hazardous substances in the material selection process for construction, operation, and maintenance of the HSR System including those uses for grouting.

To the extent feasible, cementitious materials in grouting would be used over chemical grouts for tunnel construction for the project.

4494-9461

The commenter is concerned about the effects of grouting on groundwater. The composition of grout has developed substantially in recent years. The environmental requirements for the selected grout material, in particular its effects on groundwater, will be taken into consideration. Cementitious materials are being widely used in recent years for grouting, as chemical grouts are becoming the minority for engineering and tunneling purposes. Regarding the selection of grout materials, please refer to a more recent publication "Hard Rock Tunnel Grouting Practice in Finland, Sweden, and Norway - Literature Study 2003". That document describes the types of grouting agents currently used, and how cementitious materials have come to replace chemical grouts in rock grouting in tunnels because of environmental accidents and the improved performance of cementitious grouts, achieving the high level of tightness required. Currently, very fine-grained cements are used more often, since the use of chemical grouts has been limited or even forbidden. Section 3.6, Public Utilities and Energy (page 3.6-78), Impact PUE#4 Effects from Wastewater Generated during Construction of Draft EIR/EIS indicates that any water generated from the tunnel construction would be treated and reused on-site or hauled off-site for proper disposal. On-site water treatment before discharging water to rivers or aquifers is currently achieved via temporary water treatment plants for construction installed at tunnel portals. Water will be treated to remove oils and greases from the TBM and concentration limits of harmful substances (e.g., concentration limits on pH, total suspended solids, dissolved metals, and other) will be adhered to in accordance with federal and state regulations to ensure that water quality standards are maintained.

4494-9462

The commenter asks about the grouting compounds that would be used during tunnel excavation. The selection of grouts and grout components will occur during the design phase and during construction. Grouting has developed greatly in recent years, with improvements made to the material itself as well as from an environmental standpoint. The environmental requirements for grout, in particular as it may affect groundwater, will be taken into consideration in the selection of grouting materials, being the cementitious materials preferred at present in rock grouting in tunnels to achieve the level of the tightness required.

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4494-9463

The commenter asks about the destination of the water inflow into the tunnel. The composition of grout has developed substantially in recent years. The environmental requirements for the selected grout material, in particular its effects on groundwater, will be taken into consideration. Cementitious materials are being widely used in recent years for grouting, as chemical grouts are becoming the minority for engineering and tunneling purposes. Regarding the selection of grout materials, please refer to a more recent publication "Hard Rock Tunnel Grouting Practice in Finland, Sweden, and Norway - Literature Study 2003", that describes the types of grouting agents currently used, and how cementitious materials have come to replace chemical grouts in rock grouting in tunnels, because of environmental accidents and the improved performance of cementitious grouts, achieving the high level of tightness required. Currently, very fine-grained cements are used more often, since the use of chemical grouts has been limited or even forbidden. Section 3.6, Public Utilities and Energy (page 3.6-78), Impact PUE#4 Effects from Wastewater Generated during Construction of Draft EIR/EIS indicates that any water generated from the tunnel construction would be treated and reused on-site or hauled off-site for proper disposal. On-site water treatment before discharging water to rivers or aquifers is currently achieved via temporary water treatment plants for construction installed at tunnel portals. Water will be treated to remove oils and greases from the tunnel boring machines and concentration limits of harmful substances (e.g., concentration limits on pH, total suspended solids, dissolved metals, and other) will be adhered to in accordance with federal and state regulations to ensure that water quality standards are maintained. Where groundwater is present, HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 will be implemented to control the volume of groundwater inflow into the tunnel, as discussed in Section 3.8, Hydrology and Water Resources. Management of any water generated from tunnel construction would be in accordance with federal and state regulations and would prevent any discharge from impacting water quality standards.

4494-9464

Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest.

The commenter raises concerns about tunnel construction impacting water chemistry and its potential effect on surface flora and fauna. Please refer to standard response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, which includes discussion of the AMMP that would be implemented throughout the tunnel construction RSA. HWR-MM#4 requires that the AMMP include monitoring protocols to establish baseline conditions of surface water resources and to detect changes in groundwater conditions related to tunnel construction to ensure timely implementation of remedial measures. This would include evaluation of changes in water chemistry that could affect surface resources.

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4494-9465

The commenter is concerned about the effects on groundwater from the chemicals that could be used for grouting. The type and estimated volume of grouting will depend on final design features and contractor's means and methods of construction, which will depend upon the ground conditions encountered during construction. The selection of grouts and grout components will occur during the design phase and during construction. The composition of grout has developed substantially in recent years. The environmental requirements for the selected grout material, in particular its effects on groundwater, will be taken into consideration based on the state-of-practice.

Cementitious materials are being widely used in recent years for grouting, as chemical grouts are becoming the minority for engineering and tunneling purposes. Regarding the selection of grout materials, please refer to a more recent publication "Hard Rock Tunnel Grouting Practice in Finland, Sweden, and Norway - Literature Study 2003". That document describes the types of grouting agents currently used, and how cementitious materials have come to replace chemical grouts in rock grouting in tunnels because of environmental accidents and the improved performance of cementitious grouts, achieving the high level of tightness required. Currently, very fine-grained cements are used more often, since the use of chemical grouts has been limited or even forbidden.

Under HMW-IMAF#9 the Authority will use an Environmental Management System to describe the process that will be used to evaluate the full inventory of hazardous materials as defined by federal and state law employed on an annual basis and will replace hazardous substances with nonhazardous materials. The Authority is committed to identifying, avoiding, and minimizing hazardous substances in the material selection process for construction, operation, and maintenance of the HSR System including those uses for grouting. To the extent feasible, the Authority will use cementitious materials for grouting during tunnel construction. Section 3.6, page 3.6-78, Impact PUE#4 Effects from Wastewater Generated during Construction of Draft EIR/EIS indicates that any water generated from the tunnel construction would be treated and reused on-site or hauled off-site for proper disposal. On-site water treatment before discharging water to rivers or aquifers is currently achieved via temporary water treatment plants for construction installed at tunnel portals. Water will be treated to remove oils and greases from the TBM and concentration limits of harmful substances (e.g., concentration limits on pH, total suspended solids, dissolved metals, and other)

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will be adhered to in accordance with federal and state regulations to ensure that water quality standards are maintained.

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4494-9466

The commenter asks about the estimated volume of grouting material required for tunnel construction (as required by HYD- IAMF#5, HYD-IAMF#6, and HYD-IAMF#7) and how it correlates to the risk of contamination of the water supply and potential impacts on biological resources.

The estimated volume of grouting material is not known at this phase of preliminary design. The need, frequency, and volume of grouting depends on the geology and geotechnical and hydrologic conditions of the ground encountered during the excavation of the tunnels. The volume of grouting material will be estimated during final design and after additional geotechnical investigations are conducted, which will inform the means and methods of tunnel construction.

HYD-IAMF#7 defines backfill grouting in terms of the more up-to-date technique, specifically the use of quick-setting bi-component grout, which provides resistance to water flow immediately upon hardening. The accelerated two-component grout is superior to conventional cement grouts because it provides a more reliable backfilling of the annular gap. Design features such as the mining methods to be employed, the specific type of TBM to be used when construction by TBM is selected, the type of grouting approaches to be implemented to control water flows, and the appropriate lining systems to be installed would be further refined during the pre-construction phase of the selected Preferred Alternative (Build Alternative SR1A) after detailed field investigations are completed and would be implemented during construction.

Regardless of the volume of grouting material required for tunnel construction, the Authority will implement a variety of measures to minimize any water quality impacts, including implementation of HWR-MM#1, which requires the Authority to comply with applicable Regional Water Quality Control Board permits and treat potential groundwater contamination (including through constructed wetland systems, biofiltration and bioretention systems, wet ponds, organic mulch layers, planting soil beds, and vegetated systems (biofilters), such as vegetated swales and grass filter strips) so as to prevent degradation of groundwater quality. Implementation of these measures will minimize the project's impact on surface water and groundwater quality and associated impacts on biological resources and habitat.

4494-9467

The commenter asks what case studies the Authority has to demonstrate TBM success under the conditions of greater than 60 bar pressure. Please refer to Response to Comment #9455, which provides examples of TBM with high groundwater pressure and also explains how the IAMFs in the Draft EIR/EIS would address concerns related to using TBM in areas with high groundwater pressure.

4494-9468

The commenter is concerned about the capability of the single pass lining to withstand high water pressures until the second pass lining is cast in place. The two-pass lining is conceived for tunnel stretches with expected long-term high groundwater pressures over 25 bar. In the short-term, pre-excavation grouting measures would be put in place during construction to reduce both the pressure on the TBM and water inflows into the tunnel. Pre-excavation grouting creates a permanent strengthened very low permeability circular crown around the TBM that takes on the water pressure. The potential high-water pressure is therefore borne by the improved ground, and not by the TBM. Also, as discussed in HYD-IAMF#6 in sections where groundwater pressures are above 25 bar, and after the first lining has been installed, no significant water leakage is expected to occur during the period prior to the installation of the second pass lining. Current gaskets available in the market are nominally rated up to 50 bar; however these gaskets are assumed to withstand only 25 bars in the design (using a safety factor of 2) to account for construction quality defects and the 100-year lifespan of the infrastructure. The inner, waterproof lining is monolithic and will be designed to withstand the long-term groundwater pressures that may build up gradually over time.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9469

The commenter provides their calculations, based on assumptions that they generated, for how many days they expect the tunnel would not have a single layer lining to protect it from groundwater pressure. Based on those calculations, the commenter asks about the vulnerability of the tunnel to seepage before the installation of the single layer lining, where water pressure exceeds 25 and 50 bars. The commenter also asks about the risks associated with the time period in which the tunnel has a single layer, where water pressure exceeds 25 and 50 bars.

First, as a matter of clarification, the commenter's assumptions regarding waiting times between excavation and installation of the lining are inaccurate. The TBM will install the precast segmental lining immediately as excavation progresses. These segments are typically 5.25 feet long (see PEPD Tunnel Plans Drawing TN-C0202 in Volume 3 of the Draft EIR/EIS) and are erected right after the shielded area. As such, in response to the commenter's initial questions about a situation where the tunnel would not have a single layer lining, this scenario would not occur.

Excessive groundwater pressures might generate some seepage into the tunnel during construction, but additional measures implemented during construction, such as pre-grouting, would help to reduce the flow to manageable values. In the Palmdale to Burbank Build Alternatives, the TBMs are not expected to withstand the full mountain groundwater pressure during excavation. Groundwater pressure on the excavation front will be dissipated due to controlled groundwater seepage and pre-excavation ground treatments. Pre-excavation grouting from the TBM can be performed to reduce groundwater seepage into the tunnels during construction. Pre-excavation grouting can be performed from a TBM with built-in capability including grout ports through the TBM cutterhead and through the shield. Where groundwater is present, HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 will be implemented to control the volume of groundwater inflow into the tunnel.

Regarding the comment about risks associated with the time period in which the tunnel has a single layer, in the two-pass lining concept, the outer segmental lining can bear up to 50 bar; however, the gaskets for design purposes are assumed to withstand only 25 bars (using a safety factor of 2) to account for potential construction quality defects and the 100-year lifespan of the infrastructure. For the waiting time until the inner (tanked) lining is built, some water seepage may occur, but significant water breakthroughs are not expected. If any water flow is detected during the construction period after the installation of the first lining and before the second lining deployment, additional check grouting will be implemented as needed.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9470

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process.

The commenter expresses concern regarding the HSR alignment routes studied in the Draft EIR/EIS and asserts that they are inconsistent with US Executive Order 11990, which aims to avoid direct or indirect impacts on wetlands from federal projects when a practicable alternative is available. The commenter asserts that other routes, such as those along I-5 and SR14, were eliminated from further study even though they were practicable alternatives that would avoid wetlands.

Please refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, which explains the Authority's evaluation and selection of the alternatives studied in the Draft EIR/EIS, as well as why corridors and route such as those mentioned in the comment were considered but rejected from further consideration. As described in the Draft EIR/EIS Chapter 2, Alternatives, and in Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, the Authority has conducted a thorough consideration of project-level alternatives for the Palmdale to Burbank Project Section since 2005.

These analyses are documented in numerous alternatives analyses reports for the Palmdale to Los Angeles and Palmdale to Burbank Project Sections cited in the Draft EIR/EIS Chapter 2. Through those evaluations, the Authority considered consistency with the project purpose and needs, HSR system performance, constructability, cost, input of federal and state resource agencies and communities along the route, and community and environmental impacts, including impacts on waters and wetlands. In coordination with USACE and USEPA on the range of alternatives, the Authority explored additional options to avoid or minimize impacts to Una Lake, which is a water of the State and the U.S. and includes wetland habitat. As a result of this process, the Authority developed the SR14A, E1A, and E2A Build Alternatives, which are shown in Figure 2-2 in Chapter 2 of this Final EIR/EIS and proposed these Build Alternatives for study in this the Draft EIR/EIS along with the Refined SR14, E1, and E2 Build Alternatives. USACE and USEPA concurred on December 17, 2020, and December 16, 2020, respectively, with the range of alternatives recommended in the Checkpoint B Summary Report for inclusion consideration in the EIR/EIS. As described in Section

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8.4.2, in Chapter 8, Preferred Alternative, of this Final EIR/EIS, out of each of the six Build Alternatives, the preferred alternative (SR14A Build Alternative) would have the least direct and indirect impact on wetland waters of the U.S.

The Draft EIR/EIS Section 3.7, Biological and Aquatic Resources, adequately discloses the impacts of project construction and operations on waters and wetlands, consistent with CEQA and NEPA requirements. Furthermore, consistent with USEO 11990, which states that all practicable measures to minimize harm may be included if wetland impacts cannot be avoided, the Authority has proposed numerous mitigation measures to further reduce, avoid, or compensate for these impacts (e.g., BIO-MM#4, BIO-MM#5, BIO-MM#6, BIO-MM#32, BIO-MM#33, BIO-MM#34, BIO-MM#39, BIO-MM#47, BIO-MM#50, BIO-MM#50, BIO-MM#55, BIO-MM#56, BIO-MM#62, BIO-MM#93, HYD-MM#4). The analysis concludes that with implementation of these mitigation measures, the Build Alternatives would not result in a substantial adverse effect to state and federal wetlands. Accordingly, the Authority disagrees with the commenter's assertion that the project alternatives are inconsistent with USEO 11990.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9471

Refer to Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the ANF.

The commenter provides an overview of the Sole Source Aquifer Protection Program; emphasizes the importance of naturally occurring sources of water in the San Gabriel Mountains given drought conditions and the reliance of individuals within the ANF on groundwater; and asks how the Authority plans not to violate the Safe Drinking Water Act, given potential impacts from tunneling on naturally occurring water sources.
The USEPA defines a sole source aquifer as one that supplies at least 50 percent of the drinking water for its service area and where there are no reasonably available alternative drinking water sources. Data on the percentage of residential water usage that relies on groundwater within the ANF is not publicly available. However, the Authority understands that groundwater within the San Gabriel Mountains is an important resource for the region, including for residents who reside within the ANF.
The Draft EIR/EIS identifies potential impacts to groundwater quality and quantity due to tunnel construction. Groundwater in the vicinity of the Project may be used by existing residents for drinking water and the Safe Drinking Water Act protects drinking water supplies from human-produced contamination. Because tunnel construction activities have the potential to impact groundwater, the methods and materials used during construction will be selected to avoid contamination of groundwater. The TBM excavation process includes a capture and disposal system for harmful substances such as lubricants, grouts, water, or chemicals utilized as part of the TBM drilling operations and untreated water will not be discharged into groundwater aquifers. In addition, through implementation of the Impact Avoidance and Minimization Features and Mitigation Measures described in Section 3.8, Hydrology and Water Resources of the EIR/EIS, impacts to drinking water will be less than significant. The following response includes additional information regarding the engineering practices that would ensure that contamination of water is avoided. TBM operations can roughly be divided into two different, mutually exclusive phases: 1) Excavation, when the TBM advances and 2) Pre-excavation grouting or grouting for ground improvement ahead of excavation. During excavation operations in rock, a substantial amount of water is injected to the TBM cutterhead, and also added to foams when the TBM works in EPB mode (Earth Pressure Balance). This water mixes with the excavated soil (spoil), which is taken out of the tunnel to be treated or left for the water to evaporate so it will not filter or disperse

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into the groundwater aquifers. Therefore, excavation operations are not expected to have a risk of contamination of groundwater aquifers. The products employed for TBM excavation are mostly biodegradable foaming agents and biopolymers. Biodegradation happens when these additives are broken down by micro-organisms into natural elements such as water and carbon dioxide. During grouting for ground improvement, the requirements for the grout are determined by the hydrological and geological conditions and the ability of the grout to penetrate the fractures and ground cavities. The grout material must comply with the environmental requirements. Please see response to comment #9465 for a discussion of the use of cement-based grouting in tunnel construction.
In addition, for all tunnels, all water used for construction and extracted at tunnel portals will be treated to the required quality limits before discharging into the environment. This applies also to the mountain water that could leak into the tunnels. During the excavation works, water used in tunnel execution, groundwater filtered into the tunnel that may have naturally occurring chemicals, and water used in cleaning and industrial processes will undergo treatment in facilities located at the tunnel portal construction staging area before being discharged to natural water courses or hauled off. Treatments will be designed and adapted to the quantity and quality of water originating from each construction activity and process. The objective is to ensure the protection of aquatic resources and water quality. Water coming from the tunnel excavation will undergo the following processes: preliminary screening to separate the very coarse material (gravel or stones), sedimentation, acidity correction and, if needed, removal of lubricants and greases. Water coming from tunnel excavation is typically loaded with a high concentration of suspended solids. The elimination of these solids is achieved through settlement basins or compact treatment plants. Another particularity of water coming from tunnel excavation is that it is highly alkaline, caused by the contact with concrete used for primary and final tunnel linings. Water will be treated for acidity correction before being discharged to watercourses. The acidity levels are checked with a probe that also rations the amount of corrector, which is usually hydrochloric acid or carbon dioxide. During operation any water coming from the tunnel will be conveyed to a detention pond located at the tunnel portal (a permanent feature) and treated as described above before discharging to the environment or hauled off. In addition, please refer to Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells, which addresses how the Authority would minimize impacts on wells, including private wells.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9472

The commenter inquired if the Authority's proposed alignments are in violation of USFS Standard 45.

Consistency of the HSR Build Alternatives with USFS Standard 45 is discussed in Appendix 3.1-B. The Authority concluded that the HSR Build Alternatives would be consistent with Standard 45 for the following reasons: (1) construction, operation, and maintenance for the Build Alternatives would implement impact avoidance and minimization features that minimize adverse effects to groundwater aquifers and surface expressions to the maximum extent practicable; (2) utilization of hydrologic monitoring, modeling, subsurface mapping, and geotechnical investigation would allow for avoidance of aquifer surface expressions for construction staging areas and access roads, establish baseline conditions for groundwater aquifers, and provide supplemental water to restore aquifers to offset changes to groundwater levels. Refer to Section 2, Project Alternatives, and Section 3.8, Hydrology and Water Resources, for further discussion of minimization of impacts to groundwater resources during construction activities.

Tunnel construction under the ANF has the potential to alter hydrogeological conditions, resulting in inflows of groundwater into the tunnel and the subsequent impacts to groundwater aquifers. Loss of groundwater could affect surface aquatic resources. The Authority has incorporated HYD-IAMF#5, Tunnel Boring Machine Design, HYD-IAMF#6, Tunnel Lining Systems, and HYD-IAMF#7, Grouting into the design and construction methods for tunnels under the ANF to avoid and minimize groundwater inflows into and around tunnels during and after construction. Although HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 would reduce the amount of potential groundwater loss due to tunnel construction, based on the available information and based on prior tunnel construction experience elsewhere, some groundwater inflow into the tunnels could still occur in during construction. This groundwater flow could result in localized declines in groundwater levels that could also affect surface aquatic resources.

To address this impact, the Authority would prepare and implement a long-term AMMP, described in HWR-MM#4. The AMMP includes monitoring protocols to establish baseline conditions of surface water resources and to detect changes in groundwater conditions related to tunnel construction to ensure timely implementation of remedial

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measures.

4494-9473

The commenter requests further information on the United States Forest Service (USFS) water resource screening process for the project. The commenter asks what comments or concerns the USFS has brought to the Authority, related to impacts on riparian areas within the ANF. To construct the Build Alternatives in the ANF, the Authority would be required to obtain a Special Use Authorization from the USFS, which would require the Authority to, among other things, demonstrate that the proposed use would be consistent with USFS laws, regulations, plans, and policies pertaining to the protection of existing hydrologic conditions and water resources, including USFS Soil, Water, Riparian and Heritage Standard 47. The USFS is a NEPA Cooperating agency under 40 CFR 1501.8, Cooperating Agencies. The USFS has provided comments on the Draft EIR/EIS and are included in Volume 4 of the Final EIR/EIS in Comment Letter PB-4525. Please refer to that comment letter, which includes all comments from the USFS, including comments related to riparian areas. In addition, please refer to Section 9.4.9, in Chapter 9, Public and Agency Involvement of the Draft EIR/EIS, for further discussion of Authority coordination with the USFS.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9474

Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest.

The commenter is concerned about impacts to special-status species from tunnel construction in the ANF. Please refer to standard response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, which discusses the project's potential effects of tunneling on groundwater and surface water resources and measures that would be taken to minimize and avoid this impact. This standard response also discusses potential impacts on special-status plant and animal species that are groundwater dependent. The Draft EIR/EIS identifies indirect effects from tunnel construction associated with the Build Alternatives that could have substantial adverse effects on special-status species, through conversion or degradation of habitat. The Refined SR14 and SR14A Build Alternative alignments would cross the fewest identified Risk Areas compared to the other two alignments (E1/E1A and E2/E2A). Within those Risk Areas, no known seeps, springs, intermittent or perennial streams are present. As such, the Refined SR14 and SR14A Build Alternatives pose the least risk of hydrologic impacts occurring among the Build Alternatives. To address this impact, the Authority would implement an AMMP. BIO-MM#93 will involve implementation of the bioresource portions of the AMMP prepared under HYD-MM#4, which will require monitoring of groundwater-dependent surface water resources and associated habitat within the tunnel construction RSA, providing supplemental water where needed, and remediating or compensating for any adverse effects identified during monitoring in a timely manner.

4494-9475

The commenter notes that the Authority will need to provide notification to CDFW pursuant to Fish and Game Code Section 1600 et seq. concerning certain project impacts to rivers, streams, and lakes. Commenter further requests information on any such notification to CDFW regarding potential impacts on applicable bodies of water.

The Authority will comply with Section 1600 et seq. regarding the project it ultimately approves. Until such time, the Authority will continue to engage with CDFW through the CEQA process (please refer to Chapter 9, Public and Agency Involvement, further information). CDFW is a designated Responsible Agency under CEQA. A Responsible Agency under CEQA is a public agency with some discretionary authority over a project or a portion of it, but which has not been designated the Lead Agency. (State CEQA Guidelines Section 15381.) Because Responsible Agencies will take discretionary actions regarding a project, they are also required to comply with CEQA. For efficiency, CEQA allows Responsible Agencies to rely on a CEQA document prepared by the Lead Agency to meet their CEQA compliance requirements.

The Authority has been in close coordination with CDFW throughout the development of the Draft EIR/EIS and will continue to do so through finalization of the Final EIR/EIS and the decision on the project. In its role as a Responsible Agency, CDFW has provided comments on the Authority's Draft EIR/EIS.

For further information regarding potential impacts of the alternatives on resources covered under Section 1600 et seq., see Impact BIO#9 and Impact BIO#16, which include analyses and descriptions of the effects of project construction and operation on resources under CDFW jurisdiction.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

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Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter asks for an explanation of how the project's water demands for construction are not in violation of the Los Angeles Flood Control Act, which requires water conservation within the district boundaries. The commenter has not identified any particular provision of the Los Angeles Flood Control Act (a California Legislature statute) that could apply here.

PUE-MM#1 (described in Section 3.6.7) will require the Authority to prepare an updated water supply analysis for the selected Build Alternative that details and describes the minimum adequate water supply for the RSA during normal, dry, and multiple dry years based on a more detailed project design. Based on the results of the water supply analysis, the Authority will coordinate with the water agencies to determine if allocations for additional water supply are needed and would pay the water agencies its fair share of the State Water Project fees, provided water from the State Water Project is procured. Additionally, PUE-MM#1 will require the Authority to utilize non-potable water from regional water utility service providers for construction activities where feasible, as well as recycling/reusing water used for tunnel construction, further minimizing demand for water supplies. Please refer to PB-Response-PUE-3: Water Demand and Usage for additional information.

4494-9477

The commenter asks whether the Authority studied the Metro Red Line and the effects on Runyon Canyon, what the Authority learned from that case study, and how those lessons can be applied to tunneling through the ANF. The Authority is aware of the tunnel example the reviewer cites. The Red Line Runyon Canyon was not used as a case history. However, more relevant case histories for tunnels in Southern California with similar issues were reviewed and included in the evaluation of potential hydrologic impacts. These include the San Jacinto Tunnel through the San Jacinto Mountains National Forest and State Park, the Tecolote Tunnel beneath the Santa Ynez Mountains Los Padres National Forest, Arrowhead Tunnels in the San Bernardino National Forest, and the Central Pool Augmentation Tunnel and the Irvine-Corona Expressway Tunnels in the Cleveland National Forest. The details of these case histories, such as tunnel construction occurring under similar conditions, including documented effects on surface water and other water resources associated with those tunnels, are included in the following report, "Palmdale to Burbank Project Section PEPD Record Set Geotechnical Tunnel Feasibility Evaluation for High-Speed Rail Tunnels Beneath the Angeles National Forest," dated January 2019. The lessons learned from the issues encountered during the construction of the Metro Red Line tunnel, as well as from more analogous tunneling projects located elsewhere (both inside and outside of the U.S.) will be reflected in the Authority's approach to tunnel construction and have helped inform the development of mitigation measures and the AMMPs associated with tunneling.

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The commenter provided an overview on project alignment intersections with surface water resources/features. Each of the six Build Alternatives includes construction of twin side-by-side tunnels. Tunnels could provide a conduit for groundwater to seep into excavated areas as the advancing tunnel construction intersects subsurface fractures and faults in bedrock that contain water. Where groundwater is present, it may under certain circumstances leak from the rock mass into the tunnels. In such cases, groundwater inflows may temporarily affect the hydrology of streams, springs, water supply wells, and other waterbodies. The amount and duration of groundwater loss would depend on the geotechnical and hydrogeological conditions along the tunnel alignment, the tunnel construction methods used, and design features adopted to avoid and minimize inflows. Under certain conditions, temporary inflows into the tunnel during construction would likely be unavoidable. Thus, there could be temporary effects on surface and groundwater conditions even with incorporation of design features and construction methods to avoid and minimize the effects.

The Authority will use state-of-the-art design features and construction methods to avoid and minimize impacts on hydrologic resources, including through the use of tunnel boring machines (TBMs) with features to reduce or prevent inflows and grouting and tunnel-lining approaches that have proven effective at controlling water seepage. These measures are identified in HYD-IAMF#5 (TBM Design Features), HYD-IAMF#6 (Tunnel Lining Systems), and HYD-IAMF#7 (Grouting). HYD-IAMF#5 (TBM Design Features) would use closed-mode operations to effectively prevent water seepage from occurring at the TBM cutterhead area, with ports for drilling horizontal probe holes through the TBM cutterhead, and angled probe holes through the TBM shields. These holes will allow for water pressures and flow rates to be measured ahead of the TBM, and further allow for pre-excavation grouting ahead of the TBM to cut-off groundwater inflows into the tunnel. HYD-IAMF#6 (Tunnel Lining Systems) will consist of segmental, precast, concrete lining with bolted and gasketed joints, creating a tunnel lining capable of resisting the groundwater pressure with minimal, leakage in circumstances where groundwater pressures are 25 bar or less. In sections where groundwater pressures are above 25 bar, and after the first lining has been installed, no significant water leakage is expected until a second lining has been put in place. Furthermore, a monolithic second lining will be put in place after the TBM has finalized its operations and all its facilities have been dismantled (approx. 16 months). HYD-IAMF#7 (Grouting) involves pouring

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coarse mortar into various narrow cavities along the tunnel lining. Several grouting methods will be used during the construction of the tunnels to avoid and minimize groundwater flows into the tunnels, including pre-excavation grouting, backfill grouting with two-component grout, and check grouting (refer to Appendix 2.0-E of the Palmdale to Burbank Project Section EIR/EIS for further descriptions of IAMFs that will be implemented as part of the project, including HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7).

In most cases, TBMs would be used to mine the tunnels. Mining the tunnels may also include conventional mining methods, which would involve the installation of a preliminary lining concurrent with the excavation process in combination with grouting, thus providing a barrier from groundwater infiltration into the proposed tunnel alignment. Under the conventional approach, and as set out in HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7, various measures will be implemented to avoid and minimize tunnel inflows.

The tunnel lining system would also help control water flows both during and after construction and would consist of either a single-pass or two-pass lining system, depending on groundwater pressures. For proper implementation of this approach, a detailed site-specific geotechnical and hydrogeological characterization would be carried out for the selected Preferred Alternative (SR14A).

Notwithstanding these measures, in High-Risk Areas, which are zones associated with tunnels intersecting areas with faults and high hydrostatic pressure, groundwater inflow into the tunnels would likely occur during construction. Groundwater seepage into tunnel structures during construction and operation could affect water levels of streams, springs and wells reliant on groundwater aquifers. The extent to which groundwater drains into tunnel structures depends on the tunnel lining system's ability to resist hydrostatic pressures. Specialized tunnel design (e.g., one-pass gasketed segmental lining and two-pass tunnel linings) could withstand higher hydrostatic pressure at greater depths. To address this, the Authority will implement an Adaptative Management and Monitoring Plan (AMMP) (See HWR-MM#4). The AMMP would be implemented throughout the tunnel construction RSA. HWR-MM#4 requires that the AMMP include monitoring protocols to establish baseline conditions of surface water resources and to

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

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detect changes in groundwater conditions related to tunnel construction to ensure timely implementation of remedial measures. The purpose of the AMMP is to ensure that adverse effects on subsurface and surface water resources and associated habitat within the ANF caused by tunnel construction activities are identified and that appropriate responses to address those effects are expeditiously implemented. This AMMP involves a multi-step iterative process to comply with U.S. Forest Service (USFS) standards, which includes remedial measures. The remedial measures include actions such as establishing adaptive management triggers for each water resource being monitored, implementation of compensatory mitigation for each affected water resource, and the minimization of effects on water resources associated species as a result of tunnel construction. For a full list of USFS standards for remedial measures, see Appendix 3.8-C, Adaptive Management and Monitoring Plan for Potential Hydrologic Effects within the Angeles National Forest.

The hydrogeological changes that may occur during tunnel construction would be primarily influenced by a combination of risk factors identified above. Based on the comparative assessment of tunnel-related hydrologic impacts between the six Build Alternatives, the Refined SR14 and SR14A Build Alternatives pose the least risk of hydrologic impacts occurring among the Build Alternatives. The Refined SR14 and SR14A Build Alternative alignments would cross the fewest identified risk areas compared to the other two alignments (E1/E1A and E2/E2A). Within those risk areas, no known seeps, springs, intermittent or perennial streams are present. As such, the Refined SR14 and SR14A Alternatives pose the least risk of hydrologic impacts occurring among the Build Alternatives. Moreover, to the extent such impacts associated with the Refined SR14 and SR14A Build Alternatives may occur, they would likely be of less severity than the other Build Alternatives. The E2 and E2A Build Alternative alignments traverse the greatest number of Moderate- and High-Risk areas and have the greatest length of tunnel in water pressure zones above 25 bar. As such the E2 and E2A alternatives would pose the highest risk of hydrologic impacts occurring when compared to the other Build Alternatives. If through further investigation additional seeps, spring, intermittent or perennial streams are discovered within the tunnel construction RSA, the risk of hydrologic impacts may increase accordingly. As noted above, implementation of HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 would minimize the severity and duration of groundwater inflow during tunnel construction, but

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groundwater inflow into the tunnel excavations may still occur. Implementation of the Water Resources AMMP set forth in HYD-MM#4 would minimize impacts that occur and, if necessary, provide compensatory mitigation for unavoidable impacts to surface aquatic resources, including water supply wells.

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The commenter is concerned about groundwater and surface water resources in the Angeles National Forest (ANF) being adversely affected by tunnel construction, as well as potential impacts on wells in the area of Kagel Canyon. The Authority understands that tunnel construction through the ANF may affect surface and subsurface aquatic resources. The project tunnel alignments would be constructed in compliance with CASHRA Technical memoranda requirements (TM 2.4.2 Basic High-Speed Train Tunnel Configuration, TM 2.4.5 High-Speed Train Tunnel Structures, and TM 2.4.6 High-Speed Train Tunnel Portal Facilities) for application of engineering design features to avoid and minimize such impacts.

Potential impacts associated with tunnel construction are analyzed in detail in Section 3.8, Hydrology and Water Resources, specifically in Impact HWR#4 (Changes in Groundwater Recharge Associated with Temporary Construction Activities and Permanent Structures Required for the Build Alternatives) and HWR#5 (Changes in Hydrogeologic Conditions Associated with Tunnel Construction Beneath the ANF which May Affect Surface and Subsurface Water Resources). These potential impacts will be addressed through the Authority's use of state-of-the-art design features and construction methods to avoid and minimize impacts on hydrologic resources, including through the use of tunnel boring machines (TBMs) with features to reduce or prevent inflows and grouting and tunnel-lining approaches that have proven effective at controlling water seepage. These measures are identified in HYD-IAMF#5 (TBM Design Features), HYD-IAMF#6 (Tunnel Lining Systems), and HYD-IAMF#7 (Grouting). HYD-IAMF#5 would use closed-mode operations to effectively prevent water seepage from occurring at the TBM cutterhead area, with ports for drilling horizontal probe holes through the TBM cutterhead, and angled probe holes through the TBM shields. These holes will allow for water pressures and flow rates to be measured ahead of the TBM, and further allow for pre-excavation grouting ahead of the TBM to cut-off groundwater inflows into the tunnel. HYD-IAMF#6 will consist of segmental, precast, concrete lining with bolted and gasketed joints, creating a tunnel lining capable of resisting the groundwater pressure with minimal, if any, leakage in circumstances where groundwater pressures are 25 bar or less. In sections where groundwater pressures are above 25 bar, a second tunnel lining will be put in place to ensure that the tunnels are watertight over time.

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In the event that groundwater and/or water wells in the ANF are adversely impacted by project construction, the Authority will implement an Adaptive Management and Monitoring Plan (AMMP) as required by mitigation measure HWR-MM#4. The AMMP includes provisions for augmenting water supplies for wells and actions and any affected aquatic resources in the ANF, if necessary. The AMMP will require the implementation of a comprehensive monitoring program to establish baseline conditions for surface water resources and to allow for the detection of changes in groundwater conditions related to tunnel construction to ensure timely implementation of remedial measures. The monitoring program would continue for up to 10 years after the completion of construction. The AMMP will establish performance standards that the remedial actions must achieve to approximately match baseline conditions. As a result, HWR-MM#4 would effectively mitigate impacts on affected water resources.

Regarding specific concerns about the potential impacts to streams within the ANF, the Authority will prepare contingency plans to provide supplemental water as necessary to support springs and streams determined through modeling and monitoring to be adversely affected by groundwater reductions due to project construction. Seasonal variation, as documented during the preconstruction baseline monitoring, would be considered in establishing the amount of supplemental water sufficient to offset the impact. For all features, supplemental water would provide minimum flows and periods of inundation to match baseline conditions. The periods in which supplemental water would be provided, in general, would likely reflect the period in which baseflows occur, which is late spring, summer, and early fall outside of rain periods, but could vary between different types of springs and streams. The measures to address impacts on riparian/aquatic vegetation, wildlife breeding cycles, aquatic wildlife, or protected tree health are provided in Mitigation Measure BIO-MM#93 in Section 3.7, Mitigation Measures, of the Final EIR/EIS.

The Authority considered the project's consistency with USFS policies in Appendix 3.1-B of the Draft EIR/EIS. Please refer to that appendix, which includes a consistency analysis on pertinent policies, including policies related to maintaining ecosystems, including ephemeral streams. As part of the application process for a Special Use Authorization form the U.S. Forest Service, the Authority will need to demonstrate that it meets the regulatory requirements for such authorization, including the project's

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consistency with USFS policies and management plans. As discussed in Response to Comment #9481, the 1-mile distance from the tunnel alignment that delineates the tunnel construction RSA was selected based on the general limit of observed impacts on groundwater from past tunnel projects (Authority 2019b). Based on a review of relevant case histories of tunnel projects (as cited in the referenced report) and implementation of IAMFs in the Draft EIR/EIS, significant impacts to wells outside the tunnel RSA are not anticipated during construction of the tunnel.

For additional information on the potential impacts on wells in Kagel Canyon, please refer to Response to Comment #9481.

4494-9480

Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the ANF.

The commenter inquired if the water supply wells in Kagel Canyon would be impacted, and what would happen to homeowners in Kagel Canyon if they experience depletion of their water supply.

The resource study area (RSA) for tunnel construction is the area within 1 mile of the centerline of each of the six Build Alternatives, which includes a portion of Kagel Canyon. Portions of Kagel Canyon within 1 mile of the alignment were therefore considered in the impact analysis in Section 3.8, Hydrology and Water Resources, of the Draft EIR/EIS. Pursuant to the Authority's 2019 Preliminary Geotechnical Data Report for Tunnel Feasibility, Angeles National Forest and 2019 Geotechnical Tunnel Feasibility Evaluation for High-Speed Rail Tunnels Beneath the Angeles National Forest (referenced in Section 3.8 of the EIR/EIS), based on observed impacts on groundwater from past tunnel projects, no impacts to wells are expected to occur outside the tunnel construction RSA (more than 1 mile from the centerline of each Build Alternative). Section 3.8, Hydrology and Water Resources, of Final EIR/EIS has been revised to expressly clarify concerns related to private water supply wells. As stated in the Final EIR/EIS, because only limited information is available regarding the location of private wells, there is the potential that tunnel construction could result in the destruction of private water supply wells, including wells that have not been identified, if any wells are located directly in the path of the tunnels. HYD-IAMF#8: Private Well Monitoring and Minimizing Access Disruptions for Private Water Supply Wells Outside of the ANF has been added to the Final EIR/EIS to describe in detail how the Authority would address impacts to private water supply wells outside the Angeles National Forest (ANF), including relocating the wells and ensuring similar pumping capacity and water quality in replacement wells. For wells within the ANF (including in Kagel Canyon) that are determined through modeling and monitoring to be adversely affected by groundwater reductions caused by the HSR, the Adaptive Management and Monitoring Plan (AMMP) included in Mitigation Measure HWR-MM#4 requires modifications to the affected wells or by providing supplemental water. Supplemental water would only be provided if monitoring indicates that the HSR construction caused groundwater impacts. However,

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the Authority has identified several IAMFs to avoid and minimize the potential for impacts to water supply wells and the need for supplemental water. HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 require design features and construction methods to address potential groundwater intrusion, including the installation of a tunnel liner(s) capable of effectively controlling inflows into the tunnels. As such, groundwater inflow during construction would likely be minimal and temporary. Please refer to both Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest and Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the Angeles National Forest for additional information regarding impacts to wells and correlating mitigation measures and IAMFs.

4494-9481

Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the ANF, PB-Response-SOCIO-2: Property Values.

The commenter states that "one of the proposed mitigation measures is to truck in water to homeowners whose wells were depleted as a result of tunneling." The commenter also asks about the resale value for properties that no longer have a water supply and whether the Authority will compensate homeowners who suffer an economic loss in resale value due to impacts on wells. The commenter asks whether the proposed mitigation applies to homeowners in Kagel Canyon who fall outside the 1-mile resource study area (RSA).

The Authority has not proposed a mitigation measure to truck in water to homeowners whose wells are depleted as a result of tunneling during project construction. The commenter appears to be referring to Mitigation Measure HWR-MM#4, which sets out an Adaptive Management and Monitoring Plan (AMMP). The AMMP indicates that supplemental water may be used in the Angeles National Forest (ANF) in the event that springs, streams, and wells are determined through modeling and monitoring to be adversely affected by groundwater reductions caused by the HSR.

The RSA for tunnel construction is the area within 1 mile of the centerline of each of the six Build Alternatives, which includes a portion of Kagel Canyon. Portions of Kagel Canyon within 1 mile of the alignment were therefore considered in the impact analysis in Section 3.8, Hydrology and Water Resources, of the Draft EIR/EIS. Pursuant to the Authority's 2019 Preliminary Geotechnical Data Report for Tunnel Feasibility, Angeles National Forest and 2019 Geotechnical Tunnel Feasibility Evaluation for High-Speed Rail Tunnels Beneath the Angeles National Forest (referenced in Section 3.8 of the EIR/EIS), based on observed impacts on groundwater from past tunnel projects, no impacts to wells are expected to occur outside the tunnel construction RSA (more than 1 mile from the centerline of each Build Alternative). Section 3.8, Hydrology and Water Resources, of Final EIR/EIS has been revised to expressly clarify concerns related to private water supply wells. As stated in the Final EIR/EIS, because only limited information is available regarding the location of private wells, there is the

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potential that tunnel construction could result in the destruction of private water supply wells, including wells that have not been identified, if any wells are located directly in the path of the tunnels. HYD-IAMF#8: Private Well Monitoring and Minimizing Access Disruptions for Private Water Supply Wells Outside of the ANF has been added to the Final EIR/EIS to describe in detail how the Authority would address impacts to private water supply wells outside the ANF, including relocating the wells and ensuring similar pumping capacity and water quality in replacement wells. For wells within the ANF (including in Kagel Canyon) that are determined through modeling and monitoring to be adversely affected by groundwater reductions caused by the HSR, the AMMP included in Mitigation Measure HWR-MM#4 requires modifications to the affected wells or by providing supplemental water. Supplemental water would only be provided if monitoring indicates that the HSR construction caused groundwater impacts. However, the Authority has identified several IAMFs to avoid and minimize the potential for impacts to water supply wells and the need for supplemental water. HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 require design features and construction methods to address potential groundwater intrusion, including the installation of a tunnel liner(s) capable of effectively controlling inflows into the tunnels. As such, groundwater inflow during construction would likely be minimal and temporary. Please refer to both Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest and Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the Angeles National Forest for additional information regarding impacts to wells and correlating mitigation measures and IAMFs.

Regarding potential loss of property values, please refer to Standard Response PB-Response-SOCIO-2: Property Values.

4494-9482

The commenter asks why seeps were mapped at a center line distance twice that of wells, and states that if wells were to be mapped at the same distance of impacts, then all 50+ wells in Kagel Canyon would be included in the mapping. The commenter further inquires about the criteria the Authority utilized for determining the distance of potential impacts on various sources of water. The Authority understands that there are risks affecting groundwater with undergoing tunnel construction in the ANF. Therefore, the wells within the resource study area (RSA) for tunnel construction, or one mile from the alignments' centerline, are included in the analysis. Several active wells are located within 1 mile of the alignment centerline of each of the six Build Alternatives (see Figure 3.8-A-21 and Figure 3.8-A-22). The active wells depicted in the figures are the wells used in this analysis and are from publicly available databases. As explained in Section 3.8.4.5 of the Draft EIR/EIS in its discussion of hydrology and water resources methodology, the only spring/seeps chosen for monitoring are those that appear on the USGS National Hydrography maps. In 2015, the Authority initially identified the springs/seeps within the RSA, i.e., one mile of the alignments (identified at that time) in the ANF, similar to what was performed for the well location identification. After the spring/seep monitoring program had started, the Authority refined some of the alternative alignments. The refined alignments resulted in the already-started analysis of some springs/seeps to be located beyond the one-mile centerline location. However, the Authority decided to keep all the original springs/seeps in the monitoring program, even though some exceeded the one-mile distance from the revised alignments centerline.

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4494-9483

Refer to Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events.

The commenter calculates that if the San Gabriel Mountains continue to rise approximately 2 inches per year, in the 10+ years that it will take CHSRA to construct this alignment, the concrete "ground" on which the track is laid within then may have risen nearly 2 feet. The commenter also asks how the rising of the San Gabriel Mountains will impact the Authority's tunneling plans and the flow of naturally-occurring water sources.

The Authority understands that there are risks associated with undergoing construction in a seismically active (i.e., mountain uplift) location as well as the potential impacts on groundwater resources associated with tunnel construction. The project tunnel alignments would be constructed in compliance with CASHRA Technical memoranda requirements (TM 2.4.2 Basic High-Speed Train Tunnel Configuration, TM 2.4.5 High-Speed Train Tunnel Structures and TM 2.4.6 High-Speed Train Tunnel Portal Facilities) for application of engineering design features to avoid and minimize these risks. The project design incorporates IAMFs such as the preparation of a Construction Management Plan that requires a topographic survey and an assessment of geotechnical conditions prior to construction. See Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events which provides additional information explaining the engineering approach, methods, and feasibility of tunneling through this seismically active area.

The Authority will use state-of-the-art design features and construction methods to avoid and minimize impacts on hydrologic resources, including through the use of tunnel boring machines (TBMs) with features to reduce or prevent inflows and grouting and tunnel-lining approaches that have proven effective at controlling water seepage. These measures are identified in HYD-IAMF#5 (TBM Design Features), HYD-IAMF#6 (Tunnel Lining Systems), and HYD-IAMF#7 (Grouting). HYD-IAMF#5 (TBM Design Features). The TBM would use closed-mode operations to effectively prevent water seepage from occurring at the TBM cutterhead area, with ports for drilling horizontal probe holes through the TBM cutterhead, and angled probe holes through the TBM shields. These holes will allow for water pressures and flow rates to be measured ahead of the TBM,

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and further allow for pre-excavation grouting ahead of the TBM to cut-off groundwater inflows into the tunnel. HYD-IAMF#6 (Tunnel Lining Systems) will consist of segmental, precast, concrete lining with bolted and gasketed joints, creating a tunnel lining capable of resisting the groundwater pressure with minimal, leakage in circumstances where groundwater pressures are 25 bar or less. In sections where groundwater pressures are above 25 bar, a second lining will be put in place to ensure that the tunnels are watertight over time. Several grouting methods will be used during the construction of the tunnels to avoid and minimize groundwater flows into the tunnels, including pre-excavation grouting, backfill grouting with two-component grout, and check grouting (refer to Appendix 2.0-E of the Palmdale to Burbank Project Section EIR/EIS for further descriptions of IAMFs that will be implemented as part of the project, including HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7).

Please also see the response to comment 9567 and its explanation of fault chambers.

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4494-9484

The commenter is concerned about the 30-ft diameter concrete tunnels creating impermeable surfaces that will act as barriers preventing natural groundwater flow. The tunnels will occupy a 30-foot diameter space within the 1,000-foot plus thick groundwater aquifer. The relatively small footprint of the tunnels compared to the thick aquifer will have a very negligible effect on groundwater and groundwater movement. Where each of the six Build Alternative alignments would pass through the San Gabriel Mountains and the ANF, the tunnels would likely be constructed in areas where groundwater is present. Tunnel construction in the ANF will occur under conditions characterized by faults, hard rock formations, and groundwater. The groundwater in the bedrock is stored and transmitted through fracture systems in the hard rock. Therefore, if the tunnels pass through areas where groundwater is present it would likely flow into the tunnels, particularly where the groundwater pressure is high and during the period between the tunnel boring machine (TBM) cutterhead encounter with groundwater and the installation of the first-pass lining system. As set out in HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7, various measures will be implemented to avoid and minimize tunnel inflows during construction. Conditions are expected to return to normal once construction is complete. After construction is completed, while groundwater would not be able to flow into the tunnel, groundwater would be able to move around the tunnel as the tunnel would be a relatively small obstruction within the much larger groundwater aquifer.

4494-9485

The commenter is concerned about tunneling through faults would cause a fault to transition from a conduit to a barrier. Many of the faults in the Angeles National Forest (ANF) extend several miles below the ground surface. However, within the project area the portion of the faults that extend across all the Build Alternatives are about 7 miles long and extend approximately 1,500 feet deep, to about the base of the San Gabriel Mountains. The cross-sectional area of the 30-foot diameter tunnel (about 710 square feet) is insignificant when compared to the cross-sectional area of the faults (about 55 million square feet) crossing the Build Alternatives. A completed tunnel intersecting an onsite fault will not cause a fault to transition from a conduit to a barrier.

In most cases, tunnel boring machines (TBMs) would be used to mine the tunnels. Mining the tunnels may also include conventional mining methods, which would involve the installation of a preliminary lining concurrent with the excavation process in combination with grouting, thus providing a barrier from groundwater infiltration into the proposed tunnel alignment. Under the conventional approach, and as set out in Section 3.8, Hydrology and Water Resources (HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7), various measures will be implemented to avoid and minimize tunnel inflows. The tunnel lining system would also help control water flows both during and after construction and would consist of either a single-pass or two-pass lining system, depending on groundwater pressures. For proper implementation of this approach, a detailed site-specific geotechnical and hydrogeological characterization would be carried out for the selected Preferred Alternative. Notwithstanding these measures, in High-Risk Areas, which are zones associated with tunnels intersecting areas with faults and high hydrostatic pressure, groundwater inflow into the tunnels would likely occur during construction. Groundwater seepage into tunnel structures during construction could affect water levels of streams, springs and wells reliant on groundwater aquifers. The extent to which groundwater drains into tunnel structures depends on the tunnel lining system's ability to resist hydrostatic pressures. Specialized tunnel design (e.g., one-pass gasketed segmental lining and two-pass tunnel linings) could withstand higher hydrostatic pressure at greater depths. The Authority will implement an Adaptive Management and Monitoring Plan (AMMP) (See HWR-MM#4). The AMMP would be implemented throughout the tunnel construction RSA. HWR-MM#4 requires that the AMMP include monitoring protocols to establish baseline conditions of surface water resources and to detect changes in groundwater conditions related to tunnel

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4494-9485

construction to ensure timely implementation of remedial measures. The purpose of the AMMP is to ensure that adverse effects on subsurface and surface water resources and associated habitat within the ANF caused by tunnel construction activities are identified and that appropriate responses to address those effects are expeditiously implemented. This AMMP involves a multi-step iterative process to comply with U.S. Forest Service (USFS) standards, which includes remedial measures. The remedial measures include actions such as establishing adaptive management triggers for each water resource being monitored, implementation of compensatory mitigation for each affected water resource, and the minimization of effects on water resources associated species as a result of tunnel construction. For a full list of USFS standards for remedial measures, see Appendix 3.8-C, Adaptive Management and Monitoring Plan for Potential Hydrologic Effects within the Angeles National Forest.

With respect to the question raised in the comment regarding the sufficiency of data to support tunnel construction in the ANF, in 2016 the Authority conducted a preliminary geotechnical investigation of evaluating the area's geology and geologic hazards and drilling six deep bore holes to collect subsurface data for evaluating tunnel feasibility and subsurface conditions. The investigation was not conducted for any specific tunnel alignment, but rather to identify and evaluate field conditions (such as groundwater, situ rock stresses, adverse geology including faults, gouge zones, and squeezing ground) within the ANF that could present feasibility constraints for tunnel design and construction. This preliminary investigation demonstrated that all of the Build Alternative alignments are feasible (practicable). Additional and extensive geotechnical investigations and explorations are to be performed during the design phase of the approved project and prior to start of any construction. Several hundred borings, CPTs, fault trenches and geophysical surveys are planned for the approved project.

4494-9486

The commenter questioned whether the Authority has discussed with the U.S. Forest Service the need to conduct additional test drilling within the Angeles National Forest and identified the number of test bores it intends to drill. The commenter also requests information regarding any response that the USFS may have provided the Authority regarding this issue. In 2016, the Authority conducted a preliminary geotechnical investigation of drilling six bore holes to collect data for evaluating tunnel feasibility and subsurface conditions within the ANF. The investigation was not conducted for any specific tunnel alignment, but rather to identify and evaluate field conditions (such as, groundwater, situ rock stresses, adverse geology including faults, gouge zones, and squeezing ground) within the ANF that could present feasibility constraints for tunnel design and construction. This preliminary investigation showed that the alignment alternatives are feasible. The Authority understands that tunnel construction could potentially affect groundwater conditions. The project tunnel alignments would be designed and constructed in compliance with CAHSRA Technical memoranda (TM) requirements (TM 2.4.2 Basic High-Speed Train Tunnel Configuration, TM 2.4.5 High-Speed Train Tunnel Structures, and TM 2.4.6 High-Speed Train Tunnel Portal Facilities, and other relevant TMs) which directs the incorporation of engineering design features to avoid and minimize these risks. The USFS is a Cooperating Agency under NEPA, and the Authority has consulted with the USFS about the need to conduct additional test drilling within the ANF. Section 3.8, Hydrology and Water Resources, discusses that the Authority will conduct additional test borings. Once a preferred alignment is approved, the additional geological and geotechnical investigations (test borings) would occur during the final design stage prior to construction. A Special Use Authorization (SUA) from the USFS will be required prior to conducting these additional geotechnical investigations within the ANF. The estimated number, type and depth of explorations will depend on the design features and will be determined as the design progresses, in consultation with the USFS. Geotechnical borings would be converted to piezometers or fitted with vibrating pressure transducers for measuring water pressure changes along the alignment to establish seasonal baseline conditions for deep groundwater and near surface water. Such instrumentation would also be used as the early warning system for pressure changes occurring in the subsurface along the alignment during tunnel construction.

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4494-9487

The commenter asks why the Authority did not include the impacts related to additional geotechnical borings in the Draft EIR/EIS. The Draft EIR/EIS, Section 2.9.4.1, discloses that additional geotechnical borings will be required prior to construction to inform final design and construction methods, and describes the anticipated scope, duration, and broadly explains the anticipated environmental effects of the investigations. The Draft EIR/EIS, Section 2.9.4.1 notes that "These geotechnical investigations may result in additional environmental effects such as emissions and fugitive dust from construction equipment, noise, temporary road closures or traffic delays, mobilization of extant hazardous materials or wastes, and impacts on biological and cultural resources." The Draft EIR/EIS also describes that the Authority has committed to integrate programmatic geotechnical investigation specific IAMF's to minimize the risk of affecting sensitive environmental resources such as habitat or aquatic resources, to the extent feasible. The detailed plan for additional geotechnical borings will be developed during the project design phase. Programmatic IAMFs protecting biological resources would include 1) selection of geotechnical investigation sites that would avoid placing access roads or staging areas in or in proximity (within 50 feet) of streams, 2) selection of sites that would avoid placing access roads or staging areas in sensitive habitat areas, 3) avoidance of vegetation removal in sensitive habitat areas to the extent feasible, and 4) for investigation sites that would be in the ANF, including the SGMNM, additional coordination with the USFWS to obtain modified or additional permits or approvals. Implementation of BIO-IAMF#1, BIO-IAMF#2, BIO-IAMF#3, and BIO-IAMF#5 through BIOIAMF# 11 (described in Section 3.7.4.2) will also ensure that measures are applied in a timely manner, that the Palmdale to Burbank Project Section site and construction activities comply with all regulatory procedures intended to avoid and minimize impacts on applicable resources, and that biological resources are appropriately identified and preserved, to the extent feasible.

4494-9488

The commenter presumes that test bores would also be required for Routes E1, E1A, E2, and E2A. The commenter also asks whether USFS policies regarding permission to drill test bores in the SGMNM for E1, E1A, E2, and E2A Build Alternatives would differ than those for the areas of the ANF that are not within the SGMNM boundaries. In 2016 the Authority conducted a preliminary geotechnical investigation evaluating geology and geologic hazards, and drilling six bore holes to collect subsurface data for evaluating tunnel feasibility and subsurface conditions, within the ANF, including areas within the SGMNM. The investigation was not conducted for any specific tunnel alignment, but rather to identify and evaluate field conditions (such as, groundwater, situ rock stresses, adverse geology including faults, gouge zones, and squeezing ground) within the ANF that could present feasibility constraints for tunnel design and construction. This preliminary investigation demonstrated that all of the Build Alternative alignments are feasible (practicable). The USFS is a Cooperating Agency under NEPA, and the Authority has consulted with the USFS about the need to conduct additional test drilling within the ANF. Section 3.8, Hydrology and Water Resources, and HWR-MM#1 state that the Authority will conduct additional test borings. Once a preferred alignment is approved, the extent of additional borings and explorations will be determined by the Authority and proposed to the USFS. Additional geological investigation would occur during final design prior to construction. Further testing for the E1, E1A, E2, and E2A Build Alternatives would only occur if one of these alternatives was the selected alternatives alignment. Geotechnical borings would be converted to piezometers or fitted with vibrating pressure transducers for measuring water pressure changes along the alignment to establish seasonal baseline conditions for deep groundwater and near surface water. Such instrumentation would also be used as the early warning system for pressure changes occurring in the subsurface along the alignment during tunnel construction. The San Gabriel Mountains National Monument Management Plan does not explicitly provide direction regarding the drilling bore holes, however, the Authority will continue to coordinate with USFS on additional testing and will comply with applicable policies, regulations, and laws associated with the ANF and the national monument designation.

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4494-9489

The commenter inquires about what results from the future test bores that could render the chosen alignment to be impracticable and if such results are yielded, what happens next? Based on available information and the results of preliminary geotechnical investigations conducted during development of EIR/EIS, it is not anticipated that future borings (geotechnical investigations) would render the Build Alternative alignments as impracticable. However, it is possible that future investigations could result in additional data requiring application of specific design features and/or construction techniques or modification of portions of Project alignment or features to reduce impacts or improve cost efficiencies. The Authority will perform comprehensive geotechnical investigations for the Preferred Alignment during the design phase to further evaluate field conditions (such as, groundwater pressures, in situ rock stresses and adverse geology). These risks and impacts were analyzed in Section 3.9, Geology, Soils, Seismicity and Paleontological Resources, specifically listed in Draft EIR/EIS Section 3.9.6.1 (see Impacts GSSP#1 through GSSP#16). These risks and impacts are addressed by GEO-IAMF#1 and GEO-IAMF#10 that would require prior to construction that the Contractor prepare a Construction Management Plan (CMP) addressing how the Contractor will address geologic constraints and minimize or avoid impacts to geologic hazards during construction, as identified in Impacts GSSP#1 through GSSP#16. The CMP will be submitted to the Authority for review and approval. The Project would be constructed consistent with engineering design features to address and minimize the impacts. These risks and impacts are addressed by the Authority's use of state-of-the-art design features and construction methods to avoid and minimize impacts. If the results of additional, future geotechnical investigations indicate the necessity for any significant changes to the Project, the Authority would address these concerns by assessing whether modifications to the Project would resolve the concerns and conducting any required further environmental review under CEQA and NEPA.

4494-9490

The commenter questions the accuracy of the cost estimates due to the limited number of test borings. A geotechnical profile has been prepared based on existing and available geological and geotechnical information, as well as the specific test borings conducted along the alternatives. Tunnel design and construction methods of the Build Alternatives have been proposed consistently with the geotechnical profile. Bill of quantities and cost estimations are based on these design and construction methods.

4494-9491

The commenter is concerned about the ability of the TBM to withstand water pressures above 30 bar. TBMs are capable of operating in areas with pressures above 30 bar when other boring techniques, such as pre-excavation grouting, are applied. These techniques provide for a reduction of pressures on the TBM. Pre-excavation grouting can be performed from a TBM with built-in capability including grout ports through the TBM cutter-head and through the shield. Where groundwater is present, HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 will be implemented to control the volume of groundwater inflow into the tunnel. There are many other success examples of base tunnels with high groundwater pressures and tunneling through fault zones. Please refer to Response to Comment #9457 regarding examples of successful use of TBMs in similar conditions to the Palmdale to Burbank Project Section.

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4494-9492

The commenter summarizes project impacts on hydrological and aquatic resources and inquired about the reasoning behind the CEQA conclusion reached.

The commenter is correct that the project could result in a permanent alteration of drainage patterns from aboveground temporary construction activities and permanent structures required for the Build Alternatives. As explained in Impact HYD#1 in Section 3.8, Hydrology and Water Resources, of the Draft EIR/EIS, the placement of fill or removal of material in surface water channels during construction would permanently modify channel capacity and water flow height and increase erosion and sedimentation potential by redirecting water flow. Grading and earthmoving would alter upland topography, which could directly influence the direction and timing of stormwater flow toward receiving waters. Construction activities within the surface water channel could result in water diversion, or dewatering could be required to install these facilities, representing a direct temporary impact on surface water hydrology during the construction period. Trackway, viaduct abutments, traction power substations, roadway/railway modifications, access roads, station areas, construction staging areas, utility lines, power lines, and drainage facilities would require grading adjacent to surface waters, which would temporarily increase erosion impacts and permanently modify stormwater drainage. Impacts related to construction staging areas would be temporary because these areas would be restored to preconstruction topography following construction activities. Drainage facilities would be specifically designed to convey stormwater runoff, which would result in minimal direct drainage impacts related to these facilities. The project will incorporate several impact avoidance and minimization features (IAMFs) that would minimize these impacts. The construction-period Storm Water Pollution Prevention Plan (HYD-IAMF#3) will incorporate best management practices to reduce short-term increases in construction-site runoff, and the stormwater management and treatment plan (HYD-IAMF#1) will address stormwater runoff and system capacity. HYD-IAMF#2 will require water crossings to maintain preconstruction hydraulic capacity. Refer to the full text of these IAMFs in Appendix 2-E, Impact Avoidance and Minimization Features, for a list of the potential best management practices that would be employed to minimize potential short-term increases in sediment transport caused by construction, including erosion control requirements, stormwater management, and channel dewatering for affected stream crossings. With implementation of these IAMFs as part of the project, construction of the Build

4494-9492

Alternatives would not substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, or through the addition of impervious surface, in a manner that would: result in substantial erosion or siltation on- or off-site, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site, or create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems. As a result, this project would result in a less than significant impact under CEQA and would not warrant mitigation.

4494-9493

The commenter asks about coordination with the Antelope Valley Watermaster. The Authority has consulted during preparation of its EIR/EIS with AVEK as to both the water needs of the project as well as effects on AVEK infrastructure. In addition AVEK has reviewed and provided comment on the Draft EIR/EIS, and the Authority will continue to coordinate with AVEK during the detail design phase.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9494

The commenter asserts that the project will impact between 78 and 93 surface water crossings and asks if the Authority has coordinated with the Upper Los Angeles River Area Watermaster. As described in Section 3.8.2.3, the ULARA Watermaster is responsible for managing the watershed and tributaries of the Los Angeles River and four groundwater basins including the San Fernando, Sylmar, Verdugo, and Eagle Rock Groundwater Basins above a point in the river designated by Los Angeles County Public Works. The ULARA Watermaster is also responsible for managing the groundwater quality of these groundwater basins including managing the groundwater contamination within the San Fernando Superfund Site. With respect to the project's impacts on surface water, the Build Alternatives would only cross two waterbodies -- the Tujunga Wash (includes Hansen Spreading Grounds) and Big Tujunga Wash within the ULARA jurisdictional boundaries. As described in Section 3.08 Hydrology and Water Quality, the Authority has outlined several Impact Avoidance and Minimization Features (IAMFs) that focus on protection of groundwater resources and stormwater run-off during construction. These IAMFs include HYD-IAMF#1: Stormwater Management, which details the preparation and implementation of a stormwater management and treatment plan and provides examples of the LID techniques that will be used to detain stormwater runoff on site, and HYD-IAMF#3: Prepare and Implement a Construction Stormwater Pollution Prevention Plan (SWPPP) which details preparation and implementation of a SWPPP which will include BMPs to minimize potential short-term increases in sediment transport caused by construction, including erosion control requirements, stormwater management, and channel dewatering for affected stream crossings. Additionally, Section 3.8.7 of the Final EIR/EIS requires Mitigation Measure HWR-MM#1 (Minimize Construction-period Water Quality Impacts Associated with Tunnel Construction) to be implemented. HWR-MM#1 provides additional measures pertaining to groundwater monitoring during tunnel construction and, if necessary, isolation of groundwater to prevent contamination. HWR-MM#1 would also include treatment of the water in the event of contamination. Furthermore, HMW-IAMF#11: Stakeholder Consultation for the San Fernando Valley Groundwater Basin Superfund Site, has been added to the Final EIR/EIS in Section 3.10, Hazardous Materials and Wastes as well as in Appendix 2-E. This IAMF includes the provision that groundwater extractions from ULARA are reported to the ULARA Watermaster, and to the City of Los Angeles (via the Los Angeles Department of Water and Power). This provision is included because the ULARA Watermaster is responsible for managing groundwater quality in the San Fernando

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Superfund site and would require coordination if groundwater exactions in the San Fernando Groundwater Basin Superfund site were to occur. However, groundwater from the San Fernando Groundwater Basin Superfund Site will not be used as a source of water for the construction and operation of the HSR. If groundwater within the ULARA managed basins is encountered during construction, then notification in accordance with ULARA requirements would be conducted. Additionally, the Authority will utilize construction techniques to reduce the potential for groundwater to enter the tunnels and underground alignment and facilities during construction. These construction techniques are detailed in HYD-IAMF#5: Tunnel Boring Machine Design and Features, HYD-IAMF#6: Tunnel Lining Systems and HYD-IAMF#7: Grouting. Pursuant to the requirements of CEQA and NEPA, the Authority has conducted an extensive public and agency involvement program as part of the environmental review process, which is documented in the Draft EIR/EIS Chapter 9, Public and Agency Involvement. Although no meetings have been documented with the Upper Los Angeles River Area Watermaster to date, the Authority has conducted several meetings with the Los Angeles River Cooperation Committee, which include representatives from the City of Los Angeles, Los Angeles County Flood Control District, Los Angeles Department of Water and Power, and USACE.

4494-9495

The commenter is concerned about the risks of the Build Alternatives. As noted by the commenter, the EIR/EIS discloses various potential impacts to water resources that could occur with implementation of the project and that with implementation of mitigation measures included in the EIR/EIS, these impacts would be reduced to a less-than-significant level. The commenter then goes on to present a risk/reward argument for selection of the No Project alternative. Chapter 8 of the Draft EIR/EIS presents the Authority's identification of the Preferred Alternative the agency believes would fulfill its statutory mission and responsibilities by giving consideration to economic, environmental, technical, and other factors. The Authority will ultimately make a final decision among alternatives based on the project's benefits and the environmental impacts.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9496

The commenter provides an excerpt from the Draft EIR/EIS (page 3.8-46) related to impermeable surfaces from the Build Alternatives impeding surface water infiltration and affecting groundwater recharge. The commenter also notes that in the Draft EIR/EIS, the Authority explains that groundwater may be depleted by tunneling and could impact groundwater basins. Finally, the commenter indicates that the Authority minimizes the importance of groundwater basins by explaining that they are not listed as medium or high priority groundwater basins and that no applicable groundwater sustainability plans have been adopted for the basins. As required by CEQA, one of the thresholds to determine whether there could be a significant impact is to consider whether a project could "conflict with or obstruct the implementation of a water quality control plan or a sustainable groundwater management plan" as identified in Section 3.8.4.4 in Section 3.8, Hydrology and Water Resources. As explained on page 3.8-6 of the Draft EIR/EIS, the Sustainable Groundwater Management Act (SGMA) has resulted in each groundwater basin having a priority classification. SGMA requires that local agencies form Groundwater Sustainability Agencies tasked with establishing sustainable groundwater management plans for medium- and high-priority groundwater basins. The purpose of the Draft EIR/EIS indicating the priority status of the groundwater basins in the project area is to provide the appropriate regulatory and environmental setting and to comply with CEQA requirements. The purpose is not to minimize the importance of the groundwater basins but rather to relate the facts, as required by CEQA. The Authority recognizes the importance of all groundwater basins (i.e., Antelope Valley basin, Santa Clara River Valley East Sub-basin, Acton Valley basin, and San Fernando Valley basin) regardless of priority classification. The Draft EIR/EIS includes a robust analysis of the potential impacts on these groundwater basins. The excerpt provided by the commenter is just the very beginning of the Authority's analysis. What follows that excerpt on page 4.8-46 is an analysis of the potential impacts to the groundwater basins in question. Impacts are analyzed in detail in Section 3.8, Hydrology and Water Resources, specifically in Impact HWR#4 (Changes in Groundwater Recharge Associated with Temporary Construction Activities and Permanent Structures Required for the Build Alternatives). Risks and impacts are addressed by the Authority's use of state-of-the-art design features and construction methods to avoid and minimize impacts on hydrologic resources. These include the use of permeable ballast and sub-ballast trackway materials for aboveground and at grade alignment profiles that would allow stormwater to percolate through the trackway into the groundwater basin. New impervious surfaces

4494-9496

would include drainage infrastructure designed to redirect upstream runoff and capture stormwater for local discharge, thus minimizing permanent impacts on groundwater recharge. The Authority has also identified mitigation measure HWR-MM#3 to prevent the net loss of groundwater recharge from impacts on the Hansen Spreading Grounds. As explained in Impact HWR#4, the impacts on groundwater recharge would be less than significant with mitigation.

4494-9497

The commenter provides an overview of the important role that the Hansen Dam Spreading Grounds play in capturing and storing water for the region. The commenter is concerned that new impervious surfaces that the project will add to the spreading grounds, which could reduce groundwater recharge capacity.

The Refined SR14, SR14A, E1, and E1A Build Alternatives alignments would cross the Hansen Dam Spreading Grounds. The Hansen Dam Spreading Grounds consist of a groundwater recharge facility where water percolates into the groundwater basin below. Creation of new impervious surfaces within the Hansen Spreading Grounds could interfere with groundwater recharge in the San Fernando Groundwater Basin because the HSR guideway would be placed on embankment that would displace surface area. This would create an associated loss of groundwater recharge capacity. Impacts on groundwater recharge could lead to the reduction of ground water resources over time if they reduce the amount of water that can infiltrate into the groundwater basin below. As discussed in Section 3.8.7, Mitigation Measures in Section 3.8, Hydrology and Water Resources of this Final EIR/EIS, HWR-MM#3 requires the Authority to provide replacement groundwater recharge areas to ensure there is no net loss in recharge area capacity. With implementation of HWR-MM#3, the groundwater recharge function and capacity of the Spreading Grounds would not substantially change.

4494-9498

The commenter provided information from the article "Groundwater Recharge, Retention &Pollution," Comment has been noted.

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4494-9499

The commenter provided links to various articles. Comment has been noted.

4494-9500

Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the ANF, PB-Response-PUE-3: Water Demand and Usage.

The commenter provides a quote from the Sierra Club indicating the importance of protecting open space in the urban fringe above Hansen Dam to protect groundwater resources. The commenter indicates the importance of groundwater resources and states that the Authority proposes to pollute, reduce, and reduce the potential for recharge for groundwater resources. Regarding the commenter's first comment about the importance of protecting open space in the urban fringe above the Hansen Dan, the Refined SR14, SR14A, E1, and E1A Build Alternatives would cross the Hansen Dam Spreading Grounds. The Hansen Dam Spreading Grounds consist of a groundwater recharge facility where the Los Angeles County Flood Control District applies water within basins, which then percolates into the groundwater basin below. Creation of new impervious surfaces within the Spreading Grounds could interfere with groundwater recharge in the San Fernando Groundwater Basin because the HSR guideway would be placed on embankment that would displace surface area. This would create an associated loss of groundwater recharge capacity. Impacts on groundwater recharge could lead to the reduction of ground water resources over time if they reduce the amount of water that can infiltrate into the groundwater basin below. As discussed in Section 3.8.7, Mitigation Measures, in this Final EIR/EIS, HWR-MM#3 requires the Authority to provide replacement groundwater recharge areas. The preliminary engineering project design drawings include culverts that would be placed under the HSR berms located at the Hansen Spreading Grounds which would convey water between the spreading grounds ponds and allow water to reach the existing outfall. With implementation of HWR-MM#3, the groundwater recharge function, operation and capacity of the Spreading Grounds would not change substantially.

With respect to the assertion that the Authority proposes to pollute, reduce, and reduce the recharge of groundwater resources, the Authority does not propose these things. The Authority is proposing the construction of the HSR Palmdale to Burbank Project Section and has identified potential impacts on groundwater that would be avoided and minimized with the implementation of IAMFs and any remaining impact would be less

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than significant with the implementation mitigation measures.

Regarding the potential for pollution of groundwater, the Draft EIR/EIS considered the potential impacts on groundwater quality from both construction and operation of the HSR Palmdale to Burbank Section. Impact HWR#2 in Section 3.8, Hydrology and Water Resources of the Draft EIR/EIS identified the potential impacts from construction on groundwater quality and identified that HWR-MM#1 will require the Authority to treat potential groundwater contamination pursuant to RWQCB permit requirements; that through treatment of groundwater and installation of groundwater barriers (where necessary), application of this mitigation measure would prevent degradation of groundwater quality; and that with implementation of HWR-MM#1, the Build Alternatives would not violate standards for groundwater quality or otherwise substantially degrade groundwater quality, and this impact would be less than significant for the Refined SR14, SR14A, E1, E1A, E2, and E2A Build Alternatives.

Impact HWR#6 in Section 3.8, Hydrology and Water Resources of the Draft EIR/EIS identified the potential impacts from operation on groundwater quality and identified that per HMW-IAMF#9 and HMW-IAMF#10, the Authority will prepare hazardous materials monitoring plans and would, to the extent feasible, limit the use of hazardous substances utilized during operations; that HYD-IAMF#1 and HYD-IAMF#4 will provide the control and treatment of stormwater runoff throughout operations of the Palmdale to Burbank Project Section, prior to discharge; and that with implementation of these IAMFs, operations of each of the six Build Alternatives would not violate water quality standards or WDRs or otherwise substantially degrade surface or groundwater quality. Regarding the potential to reduce groundwater resources and reduce the recharge of groundwater resources, please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which identifies the sources of water for the project and that the Project would not directly use groundwater and that any indirect use of groundwater (from AVEK, which includes groundwater as one of its sources) would not affect sustainable groundwater management or the ability of residents that receive water from AVEK. Please also refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, which identifies the potential impacts on groundwater resources within the ANF and how those impacts would be avoided and minimized and mitigated to a less than

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significant level. Please also refer to Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the ANF, which identifies the IAMFs that would minimize groundwater seepage.

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4494-9501

The commenter reiterates that the Draft EIR/EIS states that there is insufficient groundwater information available at this time to identify where tunnels would be located in relationship to the water table. The commenter also questions whether the Authority has sufficient information regarding groundwater resources to determine whether tunnel construction would be feasible.

Potential impacts on groundwater during construction in the Antelope Valley Groundwater Basin are discussed under Impact HWR#4 (Changes in Groundwater Recharge Associated with Temporary Construction Activities and Permanent Structures Required for the Build Alternatives), under the sub-header for Groundwater Recharge Impacts from Tunnel Construction (see page 3.8-47). As described in the impact discussion, the tunnels would be constructed at depths in the Antelope Valley Groundwater Basin substantially shallower than they would be to the south in the Angeles National Forest (ANF) and would therefore not be subject to high water pressures. The primary issues associated with tunneling in the Antelope Valley Groundwater Basin is the tunnel depth relative to the groundwater table and tunneling through alluvial soils. When tunnel depth is above the known groundwater table, effects on groundwater and groundwater dependent resources would be minimal to none. Within the Antelope Valley Groundwater Basin, tunneling activities required for each of the six Build Alternatives could encounter shallow groundwater as reported in Table 3.8-5 in Section 3.8.5.5 of the Draft EIR/EIS. However, the potential for local water inflows associated with shallow groundwater would be largely avoided through the implementation of the IAMFs described below, and groundwater inflow impacts from tunnel construction would be minimal, temporary, and less than significant.

Under the conditions that would be encountered in the Antelope Valley Groundwater Basin, existing tunnel technology would ensure that construction of the tunnels would be feasible. Implementation of HYD-IAMF#5 (Tunnel Boring Machine Design and Features), HYD-IAMF#6 (Tunnel Lining Systems), and HYD-IAMF#7 (Grouting) would ensure the Authority's commitment to tunnel construction methods avoid and minimize groundwater seepage into tunnels, including Tunnel Boring Machine (TBM) specifications tailored to avoid and minimize the potential for seepage into tunnel cavities to occur. HYD-IAMF#6 (Tunnel Lining Systems) would employ different types of tunnel system lining that would be used under varying circumstances, including

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circumstances where risk of seepage into tunnel cavities is moderate or high. Additionally, HYD-IAMF#7 (Grouting) would employ various methods and approaches to grouting that would be used to avoid and minimize seepage into tunnel cavities. Where groundwater is present, the above-mentioned IAMFs (HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7) will be implemented to minimize or avoid groundwater inflow into the tunnel. The tunnel lining system is also important in controlling water flows during construction and would consist of a single-pass lining system in areas such as the Antelope Valley Groundwater Basin where water pressures are expected to be relatively low. Studies and investigations completed to date provide sufficient information to support the conclusion that groundwater pressures within the Antelope Valley Groundwater Basin would be relatively low and that tunneling with implementation of the IAMFs noted above would be feasible.

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4494-9502

Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest.

The commenter questions whether the Authority has conducted sufficient tests and studies to determine whether tunnel construction necessary for the Project would be feasible, particularly if such tests and studies indicated that water pressures exceed 60 bar. Please refer to Standard Response-PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, for additional discussion of high-risk areas that may be encountered including areas with water pressure above 25 bar. The general geologic, geotechnical, and surface water resources of the Angeles National Forest (ANF) were also investigated by the Authority for a feasibility study of tunneling (Authority 2019a). Tunneling in the ANF was subject to more focused analysis in part because the conditions in the ANF are substantially different than those outside the ANF. The local geology of the tunnel construction RSA is complex due to multiple stages of metamorphism, igneous intrusion, tectonic rotation, and subsequent uplift and faulting of the area over the past 1.7 billion years. The geology of the San Gabriel Mountains has been mapped by the California Geological Survey (Campbell et al. 2014) and the U.S. Geological Survey (Yerkes and Campbell 2005). Data collected during the geotechnical investigations (Authority 2019a) provide supporting evidence of the trends believed to characterize the groundwater system(s) where the tunnel alignments are located. In High-Risk Areas, which are zones associated with tunnels intersecting areas with faults and high hydrostatic pressure, groundwater inflow into the tunnels would likely occur during construction. Groundwater seepage into tunnel structures during construction could affect water levels of streams, springs, and wells reliant on the affected groundwater aquifers. The extent to which groundwater drains into tunnel structures depends on the tunnel lining system's ability to resist hydrostatic pressures. Certain approaches to tunnel construction (e.g., two-pass tunnel linings) are designed to withstand higher hydrostatic pressure at greater depths. Tunnels can be constructed at the 60-bar level of pressure. Tunnel boring machines (TBMs) are capable of operating in areas with high water pressures, even above 60 bar, when other boring techniques, such as pre-excavation grouting, are applied. These techniques provide for a reduction of pressures on the TBM. Where groundwater is present, HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 will be implemented to dissipate the pressure on the TBM and to control the volume of groundwater inflow into

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the tunnel. Pre-excavation grouting creates a permanent strengthened very low permeability circular crown around the TBM that takes on the water pressure. The potential high water pressure is therefore borne by the improved ground, and not by the TBM. Pre-excavation grouting can be performed from a TBM with built-in grouting capability, which generally includes grout ports in the cutter-head and the shield. Grouting will also allow for tunnel boring through problematic geological formations and unexpected faults. Examples of tunnel projects constructed under high groundwater pressure conditions using TBMs include: St. Gotthard (200 bar measured), and Lötschberg (110 bar measured locally). On the St. Gotthard Tunnel, approximately 28 miles of the tunnel were excavated with TBM. The groundwater pressure expected required a suitable pre-investigation campaign and probe drillings through the TBM cutterhead. A waterproofing system with sheet membrane and concrete lining was installed along the entire tunnel length. On the Lötschberg Tunnel, approximately 6 miles of the tunnel was excavated with TBM. A leakproofing ring with sealing injections around the tunnel was constructed. Two different drilling and injection rings, each with about 20 boreholes, were planned around the tunnel. The second ring was implemented in its entirety only if the desired results were not achieved after injecting the previous ring. The possibility of arranging a third ring was also available. For these examples, exploration and pre-excavation grouting ahead of the excavation face have been a constant in all alpine tunnels dating back to 1994 (Lötschberg base tunnel). While the expected maximum groundwater pressures in the PB tunnels are lower than in the provided international examples, these examples are relevant to show even larger pressures can be managed successfully for a tunnel of this size, applying measures such as exploration and grouting ahead of the excavation phase. The Authority will commit to using similar construction methods where applicable. HYD-IAMF#6 requires the installation of a single segmental, precast, concrete lining with bolted and gasketed joints in circumstances where groundwater pressures are 25 bar or less, which will create a tunnel lining capable of resisting the groundwater pressure with minimal leakage, if any. In sections where groundwater pressures are above 25 bar, a second lining will be put in place to ensure that the tunnels are watertight over time. However, seepage may occur temporarily under high pressure conditions between the time of boring and the installation of the first pass lining. Several grouting methods will be used during the construction of the tunnels to avoid and minimize groundwater flows into the tunnels, including pre-excavation grouting, backfill grouting with two-component grout,

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and check grouting. In the event that the groundwater or surface aquatic resources are adversely impacted, the Authority will implement an Adaptive Management and Monitoring Plan (AMMP) as required by mitigation measure HWR-MM#4. The AMMP would be implemented throughout the tunnel construction RSA. HWR-MM#4 requires that the AMMP include monitoring protocols to establish baseline conditions of surface water resources and to detect changes in groundwater conditions related to tunnel construction to ensure timely implementation of remedial measures. The purpose of the AMMP is to ensure that adverse effects on subsurface and surface water resources and associated habitat within the ANF caused by tunnel construction activities are identified and that appropriate responses to address those effects are expeditiously implemented. This AMMP involves a multi-step iterative process to comply with U.S. Forest Service (USFS) standards, which include remedial measures. The remedial measures include actions such as establishing adaptive management triggers for each water resource being monitored, implementation of compensatory mitigation for each affected water resource, and the minimization of effects on water resources-associated species as a result of tunnel construction. For a full list of USFS standards for remedial measures, see Appendix 3.8-C, Adaptive Management and Monitoring Plan for Potential Hydrologic Effects within the Angeles National Forest.

4494-9503

The commenter requests clarification on who will be conducting the additional site-specific geotechnical and hydrogeological studies discussed in the Draft EIR/EIS Section 3.8, Hydrology and Water Resources. The Authority would procure a qualified contractor to conduct site-specific geotechnical and hydrogeological studies during the final design process for the Selected Alternative. These studies would be performed under the oversight of Authority staff.

4494-9504

Please refer to the response to submission 4494-9504, which addresses the feasibility of the Build Alternatives.

4494-9505

Refer to Standard Response PB-Response-GEN-2: Project Costs and Funding. The commenter asks how the Authority can provide a cost estimate, given that additional studies will need to be conducted. Please see standard response PB-Response-GEN-2: Project Costs and Funding Overruns that discusses how the cost estimates were developed and why the Authority believes they are reasonably accurate. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

4494-9506

The commenter accurately summarizes part of the monitoring and recovery plans included in the EIR/EIS (an Adaptive Management and Monitoring Plan (AMMP) as required by mitigation measure HWR-MM#4). The commenter goes on to say that it would prefer that the project not cause to damage naturally-occurring water sources in the first place. The Authority, by proposing to tunnel under the ANF and well as through much of the project area, is doing so as a way to avoid surface impacts to resources such as naturally-occurring water sources. The Authority expects that surface impacts, if they were to occur, could be isolated to specific areas as noted in its analysis. If such impacts were to occur, the Authority believes the AMMP includes feasible and reasonable measures to address the impacts. Chapter 8 of the Draft EIR/EIS describes how the Authority identified the Preferred Alternative the agency believes would fulfill its statutory mission and responsibilities by giving consideration to economic, environmental, technical, and other factors. The Authority will ultimately make a final decision among alternatives based on the project's benefits and the environmental impacts.

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4494-9507

The commenter accurately quotes a passage of Section 3.8, Hydrology and Water Resources, in the Draft EIR/EIS and then asserts that the Authority's approval of projects with preliminary design has been "an abject failure." The Authority rejects the commenter's assertion. Neither CEQA nor NEPA requires a final design or even near-final design as a prerequisite for environmental analysis. The use of a preliminary level of engineering design is common in large transportation infrastructure projects, particularly design-build projects, where the environmental analysis process occurs before completion of final engineering design, and indeed helps decisionmakers finalize a design. The Draft EIR/EIS includes a thorough description of the project alternatives, including information regarding all of the project components at a level of detail needed to identify and disclose environmental impacts, consistent with CEQA and NEPA requirements. The commenter asserts that the preliminary level of design in the Central Valley resulted in cost overruns, unnecessary acquisition of private property through eminent domain, and design modifications. While the Authority disagrees with this characterization of the construction in the Central Valley, the Authority is committed to applying lessons learned from construction in the Central Valley to deliver the project while managing risk. Please refer to the Authority's 2023 Project Update Report (available: https://hsr.ca.gov/about/project-update-reports/2023-project-update-report/) and the Authority's 2022 Business Plan (https://hsr.ca.gov/about/high-speed-rail-business-plans/2022-business-plan/#) for additional information regarding the construction progress in the Central Valley and the lessons learned that will be applied to future construction packages.

4494-9508

The commenter asks whether it would be preferable to research the necessary factors ahead of time in order to conclude whether or not the preferred alignment is feasible. The Authority in conducting its preliminary engineering, environmental studies under CEQA and NEPA, and cost estimating, believes the project as currently proposed is feasible. Please refer to the documentation in the Draft EIR/EIS, which includes the information that the Authority has gathered for the project's feasibility.

4494-9509

The commenter is concerned about the gaps in available data surrounding issues with geological, hydrogeological, and hydrological conditions for the Build Alternatives. In 2016 the Authority conducted a preliminary geotechnical investigation of evaluating the area's geology and geologic hazards, including drilling six bore holes to collect subsurface data for evaluating tunnel feasibility and subsurface conditions within the ANF. The investigation was conducted to identify and evaluate field conditions (such as, groundwater, situ rock stresses, adverse geology including faults, gouge zones, and squeezing ground) within the ANF that could present feasibility constraints for tunnel design and construction. This preliminary investigation is sufficient for the purpose of environmental review and to demonstrate that the construction and operation of all of the Build Alternative alignments would be feasible. The analysis of hydrogeologic effects is not limited to solely the geotechnical cores that were drilled. The analysis relies on extensive existing data the is available on the faults, geology and groundwater within the San Gabriel Mountain range and throughout the project area. This existing data, along with data from the core samples and ongoing monitoring within the ANF informed the analysis. Project feasibility based on the geotechnical Investigation's findings is also addressed in Section 3.8.8.6 (Hydrology and Hydrogeology in the ANF), page 3.8-78, and Section 3.9.4.3 (Methods for NEPA and CEQA Analysis), page 3.9-10.

The data presented in the Draft EIR/EIS is sufficient for the purpose of environmental review under CEQA and NEPA. Additional, more detailed geological investigation will occur before final design and construction. For instance, several hundred borings, CPTs, fault trenches and geophysical surveys are planned for the Preferred Alternative.

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4494-9510

Refer to Standard Response PB-Response-GEN-2: Project Costs and Funding.
The commenter expressed concern that the Authority does not have enough geologic, hydrogeologic, and hydrologic information to make a decision about the feasibility of completing the Build Alternative tunnels, and that for this reason the cost estimates for the Palmdale to Burbank Project Section reported in the 2022 Business Plan may be unrealistic. With respect to the feasibility the Build Alternatives, as explained in Section 3.8, Hydrology and Water Resources, the Authority conducted a preliminary geotechnical investigation in 2016 of drilling six bore holes to collect data for evaluating tunnel feasibility and subsurface conditions within the ANF. The investigation was not conducted for any specific tunnel alignment, but rather to identify and evaluate field conditions (such as, groundwater, situ rock stresses, adverse geology including faults, gouge zones, and squeezing ground) within the ANF that could present feasibility constraints for tunnel design and construction. This preliminary investigation indicated that the alignment alternatives are technically feasible. Additional geotechnical investigations and studies during the design and pre-construction phases of the project will supplement this existing information and will further inform the final design of the Selected Alternative. With respect to the project costs, please refer to Standard Response PB-Response-GEN-2: Project Costs and Funding. As explained in the standard response, at this stage of preliminary design, the capital cost estimates include contingencies to account for changes in material costs and changes during project design.

4494-9511

The commenter requested further information regarding the Adaptive Management and Monitoring Plan (HWR-MM#4), and the efficacy of addressing unforeseeable hydrological effects resulting from changes in hydrogeological conditions. The AMMP is designed to provide the basis for adaptive responses to be developed to respond to changing circumstances. The flexibility inherent in the AMMP allows for foreseeable impacts and, in many cases, unforeseeable impacts to be effectively addressed. Among its provisions, the AMMP establishes ongoing reporting and monitoring requirements to enable detection and timely remediation of effects on hydrological resources that may occur, including impacts that are considered unforeseeable at the time of this analysis.

4494-9512

The commenter is concerned with groundwater resources in the basins and mountains being adversely affected by tunnel construction. The Authority understands that tunnel construction in the ANF may result in impacts to groundwater and surface aquatic resources. The project tunnel alignments would be constructed consistent with engineering design features to avoid and minimize these risks. These potential impacts are analyzed in detail in Section 3.8.6.3 of the Draft EIR/EIS, specifically in Impact HWR#4 (Changes in Groundwater Recharge Associated with Temporary Construction Activities and Permanent Structures Required for the Build Alternatives) and HWR#5 (Changes in Hydrogeologic Conditions Associated with Tunnel Construction Beneath the ANF which May Affect Surface and Subsurface Water Resources). These potential impacts are addressed by the Authority's use of state-of-the-art design features and construction methods to avoid and minimize impacts on hydrologic resources, including through the use of tunnel boring machines (TBMs) with features to reduce or prevent inflows and grouting and tunnel-lining approaches that have proven effective at controlling water seepage. These measures are identified in HYD-IAMF#5 (TBM Design Features), HYD-IAMF#6 (Tunnel Lining Systems), and HYD-IAMF#7 (Grouting). HYD-IAMF#5 would use closed-mode operations to effectively prevent water seepage from occurring at the TBM cutterhead area, with ports for drilling horizontal probe holes through the TBM cutterhead, and angled probe holes through the TBM shields. These holes will allow for water pressures and flow rates to be measured ahead of the TBM, and further allow for pre-excavation grouting ahead of the TBM to cut-off groundwater inflows into the tunnel. HYD-IAMF#6 will consist of segmental, precast, concrete lining with bolted and gasketed joints, creating a tunnel lining capable of resisting the groundwater pressure with minimal leakage in circumstances where groundwater pressures are 25 bar or less. In sections where groundwater pressures are above 25 bar, a second lining has been put in place to ensure that the tunnels are effectively watertight over time. Several grouting methods will be used during the construction of the tunnels to avoid and minimize groundwater flows into the tunnels, including pre-excavation grouting, backfill grouting with two-component grout, and check grouting (refer to Appendix 2.0-E of the Palmdale to Burbank Project Section Draft EIR/EIS for further descriptions of IAMFs that will be implemented as part of the project, including HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7). In the event that groundwater and/or water wells are adversely impacted, the Authority will implement an Adaptive Management and Monitoring Plan (AMMP) as required by mitigation measure HWR-

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MM#4. The AMMP includes provisions for augmenting water supplies for wells and actions to restore affected resources, if necessary. The AMMP will require the implementation of a comprehensive monitoring program to establish baseline conditions for surface water resources and to allow for the detection of changes in groundwater conditions related to tunnel construction to ensure timely implementation of remedial measures. The monitoring program would continue for up to 10 years after the completion of construction. The AMMP also will include provisions for augmenting water supplies for surface water resources and wells and will establish performance standards that the remedial actions must achieve to approximately match baseline conditions. As a result, HWR-MM#4 would effectively mitigate impacts on affected water resources, including wells from tunneling. Also, as required by mitigation measure HWR-MM#3, replacement groundwater recharge areas will be identified in coordination with Los Angeles Flood Control District for the Hansen Spreading Grounds, if necessary. Floodplains and groundwater basins are discussed and identified in Section 3.8.5.3 and Section 3.8.5.5, respectively, of the Draft EIR/EIS.

The commenter also expressed concern that the Authority does not have enough geologic, hydrogeologic, and hydrologic information to make a decision about the feasibility of completing the Build Alternative tunnels. However, in 2016 the Authority conducted a preliminary geotechnical investigation of drilling six bore holes to collect data for evaluating tunnel feasibility and subsurface conditions within the ANF. The investigation was not conducted for any specific tunnel alignment, but rather to identify and evaluate field conditions (such as, groundwater, situ rock stresses, adverse geology including faults, gouge zones, and squeezing ground) within the ANF that could present feasibility constraints for tunnel design and construction. This preliminary investigation showed that the alignment alternatives are feasible. Additional and extensive geotechnical investigations and explorations are to be performed during the design phase of the project and prior to start of any construction. Several hundred borings, CPTs, fault trenches and geophysical surveys are planned for the Preferred Alternative. The analysis of hydrogeologic effects is not limited to solely the geotechnical cores that were drilled. The analysis relies on extensive existing data the is available on the faults, geology and groundwater within the San Gabriel Mountain range and throughout the project area. This existing data, along with data from the core samples and ongoing monitoring within the ANF informed the analysis. The Authority understands that there

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are risks associated with undergoing construction in southern California. These risks are discussed in detail in Section 3.9, Geology, Soils, Seismicity and Paleontological Resources, specifically in all of the impacts listed in Draft EIR/EIS Section 3.9.6.1 (see Impacts GSSP#1 through GSSP#16). Impacts associated with these risks will be addressed by GEO-IAMF#1 and GEO-IAMF#10 that would require prior to construction that the Contractor prepare a Construction Management Plan (CMP) addressing how the Contractor will address geologic constraints and minimize or avoid impacts to geologic hazards during construction, as identified in Impacts GSSP#1 through GSSP#16. The CMP will be submitted to the Authority for review and approval.

4494-9513

Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, PB-Response-PUE-3: Water Demand and Usage.

The commenter expressed concern regarding the amount of water needed for construction as well as the potential impact from tunneling under the Angeles National Forest (ANF) on surface habitats. Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage which discusses the amount and sources of water needed for project construction. Also see Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, which discusses the potential effects of tunneling under the ANF, as well as potential impacts to habitat within the ANF, and measures identified in the EIR/EIS to reduce and mitigate these impacts.

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4494-9514

Refer to Standard Response PB-Response-GEN-2: Project Costs and Funding. The commenter raises concerns about a specific HSR contractor and its costs. Although this is not a comment raising a significant environmental issue requiring response under CEQA or NEPA, nor is it a comment addressing the sufficiency of the Draft EIR/EIS, some information is provided in this response. The contract with a design-build contractor would require compliance with standard engineering design and environmental practices and regulations, as well as implementation of Palmdale to Burbank Project Section avoidance and minimization features and applicable mitigation measures included in the Draft EIR/EIS. For information about cost estimates, refer to Chapter 6 of the Draft EIR/EIS and to the Authority's 2022 Business Plans, which can be found at the Authority's website, www.hsr.ca.gov. Please also refer to Standard Response PB-Response-GEN-2: Project Costs and Funding.

4494-9515

The commenter provides an overview of how the U.S. Forest Service (USFS) requires that activities on USFS lands must minimize adverse impacts to groundwater. The commenter reiterates that the USFS also requires that any activities on USFS lands cannot result in damage to ecological systems and that construction should not be allowed if it will have such an impact. Each of the six Build Alternatives includes construction of twin side-by-side tunnels. Tunnels could provide a conduit for groundwater to seep into excavated areas as the advancing tunnel construction intersects subsurface fractures and faults in bedrock that contain water. Where groundwater is present, it may under certain circumstances leak from the rock mass into the tunnels. In such cases, groundwater inflows may temporarily affect the hydrology of streams, springs, water supply wells, and other waterbodies.

The Authority will use state-of-the-art design features and construction methods to avoid and minimize impacts on hydrologic resources, including through the use of tunnel boring machines (TBMs) with features to reduce or prevent inflows and grouting and tunnel-lining approaches that have proven effective at controlling water seepage.

These measures are identified in HYD-IAMF#5 (TBM Design Features), HYD-IAMF#6 (Tunnel Lining Systems), and HYD-IAMF#7 (Grouting). HYD-IAMF#5 (TBM Design Features). The TBM would use closed-mode operations to effectively prevent water seepage from occurring at the TBM cutterhead area, with ports for drilling horizontal probe holes through the TBM cutterhead, and angled probe holes through the TBM shields. These holes will allow for water pressures and flow rates to be measured ahead of the TBM, and further allow for pre-excavation grouting ahead of the TBM to cut-off groundwater inflows into the tunnel. HYD-IAMF#6 (Tunnel Lining Systems) will consist of segmental, precast, concrete lining with bolted and gasketed joints, creating a tunnel lining capable of resisting the groundwater pressure with minimal, leakage in circumstances where groundwater pressures are 25 bar or less. In sections where groundwater pressures are above 25 bar, a second lining will be put in place to ensure watertight tunnels over time. HYD-IAMF#7 (Grouting) involves pouring coarse mortar into various narrow cavities along the tunnel lining. Several grouting methods will be used during the construction of the tunnels to avoid and minimize groundwater flows into the tunnels, including pre-excavation grouting, backfill grouting with two-component grout, and check grouting (refer to Appendix 2.0-E of the Palmdale to Burbank Project

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Section EIR/EIS for further descriptions of IAMFs that will be implemented as part of the project, including HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7). For proper implementation of this approach, a detailed site-specific geotechnical and hydrogeological characterization would be carried out for the selected Alternative. Notwithstanding these measures, in High-Risk Areas, which are zones associated with tunnels intersecting areas with faults and high hydrostatic pressure, some groundwater inflow into the tunnels would likely occur during construction.

Groundwater seepage into tunnel structures during construction and operation could affect water levels of streams, springs, and wells reliant on groundwater aquifers. The extent to which groundwater drains into tunnel structures depends on the tunnel lining system's ability to resist hydrostatic pressures. To address any such impacts, the Authority will implement an Adaptive Management and Monitoring Plan (AMMP) (See HWR-MM#4). The AMMP would be implemented throughout the tunnel construction RSA. HWR-MM#4 requires that the AMMP include monitoring protocols to establish baseline conditions of surface water resources and to detect changes in groundwater conditions related to tunnel construction to ensure timely implementation of remedial measures. The purpose of the AMMP is to ensure that adverse effects on subsurface and surface water resources and associated habitat within the ANF caused by tunnel construction activities are identified and that appropriate responses to address those effects are expeditiously implemented. This AMMP involves a multi-step iterative process to comply with U.S. Forest Service (USFS) standards, which includes remedial measures. The remedial measures include actions such as establishing adaptive management triggers for each water resource being monitored, implementation of compensatory mitigation for each affected water resource, and the minimization of effects on water resource associated species as a result of tunnel construction. For a full list of USFS standards for remedial measures, see Appendix 3.8-C, Adaptive Management and Monitoring Plan for Potential Hydrologic Effects within the Angeles National Forest. Currently the monitoring of the springs/seeps is conducted on a quarterly basis within the ANF. The AMMPs and MMs contained in the Final EIR/EIS address potential impacts and mitigation measures associated with the Build Alternatives. See Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, for additional information regarding concerns about tunneling in the ANF.

4494-9516

Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest.

The commenter expressed concerns regarding the impacts that tunneling could cause, including groundwater impacts and subsequent impacts to surface water affecting flora and fauna, and the effectiveness of remedial steps to address changes in groundwater conditions. Please refer to standard response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest (ANF), which addresses the concerns raised by the commenter.

As described under Impact HWR#5 in Section 3.08, Hydrology and Water Resources, tunnel construction under the ANF could temporarily affect groundwater conditions through the inflow of groundwater into tunnels during construction in areas that have been determined to be risk areas (zones associated with tunnels intersecting areas with faults and/or high hydrostatic pressure). Inflow of groundwater into tunnels during construction could lower groundwater levels which could affect water dependent resources such as springs, streams, and wells. However, this inflow is not expected to significantly reduce groundwater levels. It is expected that any such groundwater losses would be recovered over time through recharge processes.

As described in HYD-IAMF #6: Tunnel Lining, the first tunnel lining system will consist of a single segmental, precast, concrete lining with bolted and gasketed joints, creating a tunnel lining capable of resisting the groundwater pressure with minimal leakage. In segments where groundwater pressure is expected to exceed 25 bar, a second lining would be installed to ensure that the tunnels are water-tight for the lifespan of the infrastructure. Furthermore, HYD-IAMF#7, Grouting, will also be implemented to reduce or prevent potential groundwater flows into the tunnels. As described in HYD-IAMF#7, pre-excavation grouting would create a permanent strengthened circular crown with very low permeability around the TBM, that in conjunction with the first-pass tunnel lining, will be able to withstand the water pressure until the second lining is installed (i.e., greater than 25 bar) and avoid and minimize potential groundwater leakages during tunnel construction. After completion of construction and during operation of the project, leakage of groundwater into the tunnels is not anticipated.

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The Authority also will implement HWR-MM#4: Water Resources Adaptive Management and Monitoring Plan (AMMP) Including Compensatory Mitigation Measures, which will require the Authority to monitor and detect changes in surface and subsurface conditions within the ANF both during and after construction of the HSR tunnels. This would allow for the Authority to detect any hydrological changes in a timely manner and if necessary, provide appropriate remediation. These monitoring activities would continue for 10 years after completion of the Palmdale to Burbank Project Section and would continue if impacts persisted after this period. The Authority has researched tunneling projects that have encountered similar excavation and groundwater conditions, including cases located in both Southern California and Europe. As a result, the Authority has incorporated lessons learned from those cases for this project.

The Southern California case studies focused on groundwater impacts, mitigation measures, and duration of recovery of the water resources because of tunneling during and after construction. Southern California examples included the Inland Feeder Arrowhead Tunnels located in the San Bernardino Mountains. The Arrowhead Tunnels data indicated that the water losses were significantly less in the tunnels mined and lined with water-proofing technology than the tunnel mined with an open face TBM. The Arrowhead tunnels demonstrate that with improved technologies even from 20+ years ago, water losses can be reduced through new TBM designs and more advanced tunnel lining designs. Water inflows into the tunnels during construction were managed for the Arrowhead East Strawberry Creek Portal tunnel drive and the Arrowhead West tunnel through a properly adapted and designed TBM accompanied by lining systems that could prevent water inflows into the tunnel behind the TBM. As a result of tunneling operations, some impacts to the surface waters were detected through a comprehensive monitoring program that included baseline conditions, and carefully documented and analyzed data collected during construction to identify impacts as they occurred. Once impacts were identified, then decisions were made regarding sensitivity of the associated habitats to water losses and temporary mitigations such as water supplementation or irrigation were implemented. Irrigation was applied to each surface water resource as mitigation for documented losses of water that supports the biology of springs or streams. Recovery from surface water impacts were evaluated during and after construction to plan the post construction recovery and monitoring period. Based on the recoveries of monitoring wells (installed during the construction of Arrowhead

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tunnels) as indicators of recovery to normal groundwater conditions, the springs and stream flows mirrored the groundwater recovery.

European tunnel projects included Lötschberg, St. Gotthard, Koralm, Guadarrama, and Pajares. Tunnel characteristics, construction method, geology encountered, groundwater pressures/flows and water loss for each of these European tunnels are provided in Table 2. The analysis of these European case studies shows that mountain tunnels under high groundwater pressures required one or more of the following: 1) a closed-face TBM technology to resist water pressures at the tunnel face; 2) excessive pressure can be released by draining water from the tunnel face in order to advance the TBM, 3) a solution consisting of a grouting zone around the tunnel designed to reduce the leakage to the tunnel, and 4) a drainage system behind the lining to reduce the water pressure on the lining. The main implication for tunnel construction methods is that some amount of leakage may be unavoidable, and that construction methods and drainage measures should be chosen with the lowest possible environmental impact. TBM methods were selected over Drill &Blast in ratios in the order of 70/30 for the main tunnels, although this ratio decreased when considering the whole underground complex. For example, for the Gotthard tunnel, the ratio for the main tubes was 75/25, but 56/44 for the overall construction. Exploration and pre-excavation grouting ahead of the excavation face have been a constant in all alpine tunnels dating back to 1994 (Lötschberg base tunnel).

The commenter raises the examples of Runyon Canyon and the Central Valley. For Runyon Canyon, the Authority believes the commenter is referring to MTA's Red Line subway tunnels in the 1990s, which was associated with effects on surface water resources (Clifford and Simon 1997). Groundwater could seep into tunnels resulting in impacts to surface water features which are dependent on groundwater. However, there are significant differences between the tunnels built in the 1990's through Hollywood Hills and the proposed tunnels for this Project. Tunnel design and construction methods have advanced significantly in the last 30 years when Red Line tunnels were constructed. The Authority will use state-of-the-art design features and construction methods to avoid and minimize impacts on hydrologic resources, through the use of tunnel boring machines (TBMs) with features to reduce or prevent seepage and grouting and tunnel-lining approaches that have proven effective at controlling groundwater

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inflows. These measures are identified in HYD-IAMF#5 (TBM Design Features), HYD-IAMF#6 (Tunnel Lining Systems), and HYD-IAMF#7 (Grouting). Additional details regarding these measures are provided in the above paragraphs.

For the Central Valley, it is unclear whether the commenter is referring to a specific example or the cumulative effects of subsidence due to over pumping of groundwater in the larger Central Valley region. There is no area-wide subsidence associated with groundwater pumping in this section. The U.S. Geological Survey (USGS) has been tracking subsidence in California since the early 20th century and has developed maps that illustrate areas of recorded subsidence across California. Most of the subsidence has resulted from excessive groundwater pumping for municipal, industrial, and agricultural uses, although oil extraction is also a documented cause. Subsidence within the Central Valley is due to groundwater pumping for agriculture.

The USGS subsidence maps are presented on the agency's website (https://ca.water.usgs.gov/land_subsidence/california-subsidence-areas.html) and show that there is no documented, or measured, subsidence within the RSA of any of the six Build Alternatives. The nearest area of subsidence is located north of the Palmdale Regional Airport approximately 6.5 miles from Palmdale to Burbank Project Section. Any dewatering required during construction of the project and measures to avoid and minimize impacts to surface and ground water resources including existing wells are addressed in the following: Hydrology and Water Resources Technical Report (Authority 2017); Appendix 2-E, Impact Avoidance and Minimization Features (IAMF); Appendix 3.8-C, Adaptive Management and Monitoring Plan for Potential Hydrologic Effects in the Angeles National Forest (ANF); and Appendix 3.8-D, Supplemental Water Demand Analysis for Impacts on the ANF, including the San Gabriel Mountains National Monument (SGMNM), which evaluates the feasibility of proposed remedial activities set out in the AMMP.

4494-9517

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter criticizes elements of the adaptive management and monitoring plan (AMMP) described in Draft EIR/EIS Appendix 3.8-D, Supplemental Water Demand Analysis for Potential Impacts within the Angeles National Forest/San Gabriel Mountains National Monument. The commenter contends that these measures are infeasible, untenable and absurd.

The Draft EIR/EIS, however, incorporates into the alternatives several IAMFs (HYD-IAMF#5, Tunnel Boring Machine Design, HYD-IAMF#6, Tunnel Lining Systems, and HYD-IAMF#7, Grouting) intended to avoid or reduce water seepage during tunneling. The Authority expects these measures will be effective at keeping water loss within an acceptable range that would not result in significant losses of groundwater or surface waters. The Authority will conduct real-time monitoring and establish numeric triggers that require the implementation of adaptive management measures. See HWR-MM#4, Draft EIR/EIS (pages 3.8-67 to 3.8-69). The AMMP includes provisions for augmenting water supplies for surface water resources and wells and establishes performance standards that the remedial actions must achieve to approximately match baseline conditions.

As discussed in Appendix 3.8-D, water for construction would be delivered by domestic and wholesale providers to construction sites (primarily portal and adit locations) via pipelines that would be constructed as part of the project. These pipelines have been incorporated into the project footprint and have been evaluated in the impact analysis. Many of the portal and adit locations where domestic and wholesale water supplies would be piped in for construction are either within or near the Angeles National Forest. These pipelines would be relatively close to Risk Areas that may require supplemental water. The AMMP also includes actions to restore affected resources and, if necessary, to provide compensatory mitigation for affected water resource if effects cannot be arrested or substantially reduced through other response actions. As a result, the AMMP would effectively mitigate impacts to affected water resources. In the event that impacts to surface resources and/or wells does occur resulting from tunneling activities, the Authority has included measures to address these impacts which are reasonable and feasible. Please refer to Standard Response PB-Response-PUE#3: Water Demand and

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Usage for additional information about the water supply for the project, including the water supply for supplemental water.

4494-9518

The commenter is concerned about the feasibility of obtaining water for project construction and the feasibility of obtaining supplemental water as a mitigation measure based on recent, ongoing drought conditions in California. Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which provides additional information about water supplies for the project, including in the scenario of dry and multiple dry years.

4494-9519

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter expressed concern regarding the amount of water needed for construction. Please refer to standard response PB-Response-PUE-3: Water Demand and Usage, which discusses the amount and sources of water needed for project construction.

4494-9520

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter expressed concern regarding the amount of water needed for construction. Please refer to standard response PB-Response-PUE-3: Water Demand and Usage, which discusses the amount and sources of water needed for project construction as well as measures that would be implemented to reduce water demands from local water providers such as the use of non-potable water from regional water utility service providers for construction activities where feasible, as well as to use recycled/reused water for tunnel construction to minimize demand for water supplies.

4494-9521

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter expresses concern for the amount of water required for construction even when accounting for recycled water. Please refer to standard response PB-Response-PUE-3: Water Demand and Usage, which discusses the amount and sources of water needed for project construction as well as measures that would be implemented to reduce water demands from local water providers such as the use of non-potable water from regional water utility service providers for construction activities where feasible, as well as to use recycled/reused water for tunnel construction to minimize demand for water supplies.

4494-9522

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter expressed concern regarding the amount of water needed for construction. Please refer to standard response PB-Response-PUE-3: Water Demand and Usage, which discussed the amount and sources of water needed for project construction.

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4494-9523

The commenter raises concerns about the water infrastructure that would be necessary as part of the project and its encroachment into the ANF. As acknowledged by the commenter, the project footprint for each Build Alternative includes all necessary utilities such as water lines. As such, these facilities have been accounted for in the Authority's environmental analysis. Most water lines would be constructed along existing roads or utility corridors. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

4494-9524

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter questions the use of wells for supplemental water for habitat restoration. As noted in Appendix 3.8-D of the Draft EIR/EIS, it is expected that the source of water for supplemental water for maintaining baseline habitat conditions if effects from tunneling occurs is the same sources of water that will be used for construction. Please refer to Standard Response PB-Response-PUE#3: Water Demand and Usage, which provides additional information about water supplies for the project.

Appendix 3.8-D also notes that if other sources of water are not available, a dedicated well is another potential source of water. As noted by the commenter, a well within the Angeles National Forest (ANF) would likely not yield sufficient water for maintaining baseline habitat conditions if effects from tunneling occur, and such a well would likely need to be located within the groundwater basin associated with the watershed of the affected Risk Area. For example, the watersheds containing the High-Risk Areas identified in the EIR/EIS ultimately drain into two alluvial groundwater basins, the Santa Clara River Valley Groundwater Basin and the San Fernando Valley Groundwater Basins, as noted by the commenter. For maintaining water quality and natural recharge into each of the basins, if dedicated water supply wells were to be used, they should be constructed in one or both of the two basins, depending on the location of the affected area in the upstream watershed.

Finally, as a matter of clarification, the Authority has incorporated HYD-IAMF#5, Tunnel Boring Machine Design, HYD-IAMF#6, Tunnel Lining Systems, and HYD-IAMF#7, Grouting, into the design and construction methods for tunnels under the ANF to avoid or minimize groundwater inflows into and around tunnels during construction. Supplemental water would only be needed in the event there is groundwater inflow. For the preferred alternative, the potential for impacts is identified as minimal to none. As such, supplemental water may not even be necessary. Nonetheless, please refer to Standard Response PB-Response-PUE#3: Water Demand and Usage for additional information about the water supply for the project, including the water supply for supplemental water.

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4494-9525

The commenter asks if the water infrastructure required for construction would be permanent.

These facilities would be needed for construction and as such, would be temporary facilities. However, some may become permanent facilities if determined to be necessary. For example, water lines constructed to adit locations may be deemed appropriate to remain as permanent as they may provide long-term benefit for wildfire protection.

4494-9526

The commenter inquired who pays for the 10-years of post-construction monitoring. After construction, the Authority will conduct, and pay for, additional monitoring activities to evaluate the recovery of water resources, in accordance with mitigation measure HWR-MM#4 (Implement a Water Resources Adaptive Management and Monitoring Plan Including Compensatory Mitigation Measures as Necessary). The post-construction monitoring program would be modified to focus on areas where construction monitoring documented water resource effects caused by tunnel construction. The post-construction monitoring would continue for 10 years, or longer if required, until such time that conditions are comparable to the range of baseline conditions that existed before construction.

4494-9527

The commenter inquired who pays for the water during and after construction, and who pays for the replacement water delivery systems. The Authority will be responsible for paying for any water used for the project during and after construction, including for any supplemental water required as part of implementing the Water Resources Adaptive Management and Monitoring Plan described in HWR-MM#4, as well as any water delivery systems required for the project. Water used during construction activities would be obtained from existing permitted commercial sources in the cities of Palmdale, Santa Clarita, Burbank, and Los Angeles, as well as in unincorporated Los Angeles County. Additionally, PUE-MM#1 (Water Supply Analysis for Construction) presented on page 3.6-90 of Section 3.6.7 of the Draft EIR/EIS, requires the Authority to prepare an updated water supply analysis for the selected Build Alternative that details and describes the minimum adequate water supply for the RSA during normal, dry, and multiple dry years based on a more detailed project design. Based on the results of the water supply analysis, the Authority will coordinate with the water agencies to determine if allocations for additional water supply are needed and would pay the water agencies its fair share of the State Water Project fees. The commenter also asked about the payment of water after construction. The Authority would be responsible for water use after construction, as necessary, and for replacement of water infrastructure affected by the project. As discussed in Section 3.8.7 of the Draft EIR/EIS, the Authority will implement an Adaptative Management and Monitoring Plan (AMMP) (see HWR-MM#4), which will include actions to restore affected resources and, if necessary, to provide compensatory mitigation for affected water resources if effects cannot be arrested or substantially reduced through other response actions.

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4494-9528

The commenter inquired if the water agencies are aware of plans for replacement water. Pursuant to the requirements of NEPA and CEQA guidelines (Sections 15086 and 15087), the Authority provided widespread notice of the availability of the Draft EIR/EIS to ensure that members of the public; local, state, and federal agencies; and tribes had the opportunity to review and provide comments. The Authority has also conducted an extensive public and agency engagement program as part of the environmental review process. Agency involvement included agency scoping meetings, Interagency Working Group meetings with agency representatives, and other agency consultation. Tables 9-2 to 9-5 of the Final EIR/EIS list the key stakeholder outreach meetings held as part of the Authority's outreach efforts associated with the Palmdale to Burbank Project Section development process. The Authority conducted meetings with Sun Valley Watershed, the Metropolitan Water District of Southern California, Palmdale Water District, and Antelope Valley-East Kern Water Agency during preparation of the Draft EIR/EIS. The Authority intends to continue coordination with these water districts and agencies through preparation of the Final EIR/EIS and during final design. This commitment is reflected in PUE-MM#1, which requires the Authority to prepare an updated water supply analysis for the selected Build Alternative based on a more detailed project design and coordinate with the water agencies to determine if allocations for additional water supply are needed.

4494-9529

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter asks why the Authority is going to pump water if they plan on getting water from local water agencies. The commenter also noted that local water agencies rely on groundwater for their inventory.

The commenter is mistaken that the Authority would rely on groundwater as a source of water supply. The Authority will not use groundwater for Project construction or operation. Please refer to Standard Response PB-Response-PUE#3: Water Demand and Usage, which describes the water sources for the Project.

4494-9530

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter inquires why the project is given priority with respect to water allocation. The Authority disagrees with this comment's assumption, which is not supported by evidence. Consistent with CEQA and NEPA requirements, the Draft EIR/EIS evaluates and discloses the environmental impacts of the project, including those related to the project's construction and operational water use. As the impact from construction water demand was determined to be a significant impact in the Draft EIR/EIS, the Authority identified mitigation (PUE-MM#1, Water Supply Analysis for Construction) to address the impact. The comment does not raise any specific concern regarding the conclusions or adequacy of the Draft EIR/EIS, nor did it result in any revisions to the Draft EIR/EIS.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9531

Refer to Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events.

Refer to PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events.

The commenter expressed concern with the "insufficient number of bore holes" that were drilled for the Build Alternatives during the development of the Draft EIR/EIS. The commenter stated that the Authority does not have enough information to make a rational decision about which Build Alternative should be selected. The commenter stated the failure to perform more subsurface testing to support the Draft EIR/EIS violates the CEQA Guidelines (14 Cal. Code Regs. Sec. 15126.4). In 2016, the Authority conducted a preliminary geotechnical investigation of drilling six bore holes to collect data for evaluating tunnel feasibility and subsurface conditions within the ANF including SGMNM. As stated on page 3.9-11 of Section 3.9 of the Draft EIR/EIS, the investigation was not conducted for any specific tunnel alignment, but rather to identify and evaluate field conditions (such as groundwater, in-situ rock stresses, adverse geology including faults, gouge zones, and squeezing ground) within the ANF and SGMNM that could present feasibility constraints for tunnel design and construction. Based on those results, the Authority concluded that it did not need additional bore holes to conclude that the alignment alternatives are feasible.

The commenter contends that a reasonably prudent contractor would require more information to enter into a design-build contract. If the Authority approves a Build Alternative, it will then advance design to develop the information sufficient to obtain a contractor. Please refer to Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events, which addresses concerns related to seismicity. Additionally, the subsurface investigations performed along with gathering existing information (see Section 3.9.4.3 of the Draft EIR/EIS) was sufficient to characterize the environmental setting, evaluate impacts of each of the Build Alternatives, and identify mitigation measures where needed.

4494-9532

The commenter inquired how many bore holes are required along each proposed route to have sufficient information to make an accurate and finite project description. An Environmental Impact Report (EIR) and Environmental Impact Statement (EIS) are documents required under California and federal law that inform the public and public agency decision-makers of environmental effects of a proposed project, identify possible ways to mitigate those effects, and describe reasonable alternatives to those projects. The documents examine the impacts of a proposed project on the physical, cultural, and human environments within the project area. Section 3.9 of the Draft EIR/EIS describes potential geology, soils, seismicity, mineral resource, and paleontological resource effects of the Palmdale to Burbank Project Section. The analyses of the core holes drilled in the ANF and the evaluation of area's geology and geologic hazards demonstrate the project Build Alternatives described in the Draft EIR/EIS to be feasible. Additional and extensive geotechnical investigations and explorations are to be performed during the design phase of the project and prior to start of any construction.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9533

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process.

The commenter asks how the Authority can select a Build Alternative if it has not conducted the tests (i.e., bore holes) needed to derive the requisite information. The Authority possesses the requisite information to decide among alternatives. In 2016, the Authority conducted a preliminary geotechnical investigation of drilling six bore holes to collect data for evaluating tunnel feasibility and subsurface conditions within the ANF, including SGMNM. The investigation was not conducted for any specific tunnel alignment, but rather to identify and evaluate field conditions (such as groundwater, in-situ rock stresses, adverse geology including faults, gouge zones, and squeezing ground) within the ANF and SGMNM that could present feasibility constraints for tunnel design and construction. This preliminary investigation showed that the alignment alternatives are all feasible from a geotechnical standpoint. The preliminary investigation along with review of existing data sources provided sufficient information to characterize the existing environmental setting, describe impacts, and identify mitigation measures to address impacts where needed. Therefore, the Authority has sufficient information regarding the Build Alternatives' feasibility and impacts to make a decision on which alternative to select. Please refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, which provides additional information about the alternative selection process.

4494-9534

The commenter inquired if the Authority has approached any contractors about what information will be necessary to enter the design-build phase of the project, in regards to tunneling through the Angeles National Forest (ANF).To the extent the question is asking about specific Authority discussions with contractors, that information does not inform the public on the environmental consequences of the project. Consequently, neither NEPA nor CEQA requires a specific response. The selected contractor for the design and/or construction of the project will, at a minimum, have technical qualifications that would be required of any contractor, and have an understanding of the risks associated with Southern California tunnel construction in mountainous and seismically active terrain.

The alignment alternative would be constructed in compliance with building code requirements for application of engineering design features to address and minimize these risks. These risks and impacts are analyzed in detail in Section 3.9, Geology, Soils, Seismicity and Paleontological Resources, specifically in the impacts listed in Draft EIR/EIS Section 3.9.6.1 (see Impacts GSSP#1 through GSSP#16). These risks and impacts are addressed by GEO-IAMF#1 and GEO-IAMF#10 that would require that the Contractor prior to construction prepare a Construction Management Plan (CMP) addressing how the Contractor will address geologic constraints and minimize or avoid impacts to geologic hazards during construction, as identified in Impacts GSSP#1 through GSSP#16. The CMP will be submitted to the Authority for review and approval. Adherence to GEO-IAMF#1 will require an investigation to address the potential geologic hazards (earthquake ground rupture, liquefaction, ground shaking, landslides) and geotechnical constraints of groundwater withdrawal, unstable soils and slope instability, subsidence, water and wind erosion, shrink-swell potential in soils, and soil corrosive potential. GEO-IAMF#10 will require the Contractor to issue a technical memorandum describing how the guidelines and standards have been incorporated into the facility design and construction. These guidelines/standards are provided by the American Association of State Highway and Transportation Officials, Federal Highway Administration, American Railway Engineering and Maintenance-of-Way Association, California Build Code, International Building Code, American Society of Civil Engineers, Caltrans Design Standards, and the American Society for Testing and Materials.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9535

The commenter asks whether costs for tunneling under the ANF have been developed as part of the Draft EIR/EIS analysis. Please see Chapter 6.0, Project Costs &Operations, which includes a detailed assessment of project costs, and supporting Appendix 6-B; however, consistent with the Authority's cost methodology, cost categories are reported based on functional categories (e.g., Category 10 for Track Structures and Track, vs Category 40 for Sitework, Right-of-Way, Land and Existing Improvements) and not necessarily broken out by geographic subsections of the Palmdale to Burbank Project Section. Please also see the description of the anticipated procurement process in Chapter 2, Section 2.3.9, of the Draft EIR/EIS.

4494-9536

The commenter inquired what would occur if the bore holes drilled along the SR14A Build Alternative confirm the SR14A Build Alternative is infeasible. The analyses of the core holes drilled in the ANF and the evaluation of area's geology and geologic hazards, described in Section 3.9, Geology, Soils, Seismicity, and Paleontological Resources, of the Draft EIR/EIS, have demonstrated that the Preferred SR14A Build Alternative is feasible. A comprehensive geotechnical investigation along the Preferred SR14A Build Alternative will be conducted during the design phases of the project, prior to start of any construction.

4494-9537

The commenter inquired what would occur if the drilled bore holes confirm the Build Alternatives are infeasible. The analyses of the core holes drilled in the ANF and the evaluation of the area's geology and geologic hazards, described in Section 3.9, Geology, Soils, Seismicity, and Paleontological Resources, of the Draft EIR/EIS, have demonstrated that all the Build Alternatives are feasible. A comprehensive geotechnical investigation, along the alternative that the Authority selects, will be conducted during the design phases of the project, prior to the start of any construction.

4494-9538

Refer to Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events.

The commenter expressed concerns on seismic risks and effects on the project. Please refer to Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events, which addresses concerns related to seismicity.

4494-9539

The commenter inquires as to how long it would take an HSR train traveling at 200 miles per hour to stop. A train traveling at 200 miles per hour and then decelerating at 1 m/s2 [3.3 ft/s2] would require a breaking distance of approximately 13,000 feet (2.5 miles) and 90 seconds to stop.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9540

The commenter refers to Section 3.9, Geology, Soils, Seismicity, and Paleontological Resources. The commenter inquired if restricting the train's speed to no more than 100 mph while traveling through a tunnel would be a reasonable mitigation measure to decrease stopping distance and time in the event of an earthquake. Potential effects of geologic hazards during operations with respect to fault rupture and ground shaking are addressed in Section 3.9.6, Environmental Consequences, specifically Impact GSSP#16 Effects of Geologic Hazards During Operations, Effects of Fault Rupture and Ground Shaking starting on p. 3.9-89 of the Draft EIR/EIS. The Authority acknowledges that all six Build Alternatives would cross hazardous and potentially hazardous faults that would be susceptible to rupture during a seismic event (discussed in Draft EIR/EIS Section 3.9.5.6 and Table 3.9-4). To address this potential effect, the Authority has designed the Palmdale to Burbank Project Section to include Impact Avoidance and Minimization Features (IAMFs) GEO-IAMF#6: Ground Rupture Early Warning Systems, GEO-IAMF#7: Evaluate and Design for Large Seismic Ground Shaking, GEO-IAMF#8: Suspension of Operations During an Earthquake, and GEO-IAMF#10: Geology and Soils.

One key feature of earthquakes is that although they start at a point, the rupture takes time to spread out over the fault. Large magnitude 8-9 earthquakes can rupture hundreds of kilometers along a major fault, and this takes tens of seconds to minutes to occur. Thus, for the largest earthquakes, there is a higher potential for long warning times than there is for smaller earthquakes. Once the Early Earthquake Warning System (EEWS) sends the signal to stop the train after the detection of seismic P-waves, it would take approximately one minute for the train to come to a full stop. The passengers will experience an emergency braking deceleration of approximately 5 feet per second which is lower than the braking deceleration of a car emergency braking. While the EEWS would provide ground motion data and a control system to shut down HSR operations temporarily during or after a potentially damaging earthquake, the monitoring equipment will then be inspected for damage due to ground motion and/or ground deformation, and then returned to service when appropriate.

Importantly, the EEWS main goal is to avoid the derailment of the train at high speeds, so the strategy will always be to stop the trains when an established acceleration threshold is surpassed. This has been proven to be the safest course of action in similar

4494-9540

systems in other parts of the world, such as Japan. Most countries with early warning systems built them after a devastating earthquake. Japan invested $600 million in such a system after the 1995 Kobe earthquake killed 6,400 people. Today, Japan's system allows every citizen to receive advance alert of earthquake ground shaking from the Japan Meteorological Agency. Due to its EEWS, no trains derailed in the magnitude 9.1 Tohoku earthquake on March 11, 2011. A seismometer at Kinkazan Island on the northeast coast of Japan detected seismic P-waves and sent an automatic stop signal via the UrEDAS to the Shinkansen's electric power transmission system, triggering the emergency brakes on 27 bullet trains, 19 of which were traveling through the affected area. Ten seconds after the warning signal was issued, a 9.1 magnitude earthquake hit mainland Japan (USGS, 2011). Although the Tohoku Earthquake and the following tsunami caused immense destruction and loss of life in eastern Japan, none of the 19 trains running through the affected area were derailed and no casualties were sustained on the trains. The magnitude 9.1 Tohoku earthquake occurred on a thrust fault within the subduction zone where the Pacific and North America tectonic plates pass over each other, whereas in California, the same tectonic plates move pass each other laterally along the strike-slip San Andreas fault. The USGS reports that an earthquake larger than a magnitude 8.3 occurring on the San Andreas fault is extremely unlikely. The magnitude 9.1 Tohoku earthquake is 8 times larger than the largest expected earthquake occurring on the San Andreas fault of magnitude 8.3. Japan HSR lines also cross active faults and seismic hazards and are not limited to large distant events. The EEWS also stopped trains after sensing the magnitude 7.6 2024 Noto earthquake, and no injuries were reported. Most service resumed soon after the initial earthquake.

In the event of an earthquake epicenter located in the vicinity of the alignment, to the extent that the EEWS is not able to provide enough lead time to completely stop the trains, the infrastructure is still designed to achieve a performance level that safeguards against loss of life or collapse in case of the MCE taking place. In addition, and as explained on page 3.11-59 in Section 3.11 of the Draft EIR/EIS, strategies will be implemented to ensure containment of the trainsets within the right-of-way. Specific to train derailment, in addition to other design features to address impacts due to seismic shaping more generally, physical elements such as containment parapets, check rails, guard rails, and derailment walls would be used in specific areas with a high risk of or high impact from derailment.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9540

The Authority's analysis concludes that incorporation of these IAMFs would keep fault rupture and ground shaking hazards within established safety thresholds, which would prevent the direct and indirect endangerment of people and structures to increased seismic hazards. This impact would be less than significant for all six Build Alternatives and CEQA; therefore, it does not require mitigation.

Please note, the CEQA Conclusion for Impact GSSP#16 Effects of Geologic Hazards During Operations, Effects of Fault Rupture and Ground Shaking in the Draft EIR/EIS included a typographical error that has been corrected in the Final EIR/EIS. The Draft EIR/EIS erroneously stated that CEQA requires mitigation, but the Final EIR/EIS has been corrected to conclude that CEQA does not require mitigation. The Authority appreciates the commenter's inquiry related to mitigation, but notes that CEQA does not require mitigation of less than significant impacts.

4494-9541

The commenter inquired as to, hypothetically, whether the No Project Alternative would be easier and less expensive compared to constructing a tunnel under the ANF if the train were limited to 100 mph. However, the train will not be limited to 100 mph in the tunnel underneath the ANF. There, maximum train speeds will be about 220 miles per hour (350 km/h). In the dedicated segments (used by HSR only), maximum train speeds will be about 220 miles per hour (350 km/h), and in the blended segments (used by HSR and other train operators), maximum speeds will be about 110 miles per hour (180 km/h).

4494-9542

The commenter asks about the Japanese and European rail models that HSR is modeled after. As discussed in Section 2.3.2 of the Draft EIR/EIS, the California HSR System is modeled after the Train àGrande Vitesse in France, the Shinkansen in Japan and Taiwan, and the InterCity Express in Germany. For additional information, please refer to Section 2.3.2 of the Draft EIR/EIS.

4494-9543

The commenter notes the possibility of the TBM becoming stuck and asks about the length of time and cost to extract the TBM from the Angeles National Forest location in the event it becomes stuck.

Anticipated loss and eventual retrieval plans of TBMs are not included in the Preliminary Engineering for Project Definition (PEPD) provisions. This is a risk to be assessed and mitigated once the TBM features and geotechnical information is completed in the final design phase. TBMs are equipped with extra power and torque to overcome situations where the TBM could eventually get trapped. In extreme cases, there are several strategies that could be implemented to retrieve a stuck TBM, depending on its location within the tunnel, depth, and ground conditions. A common approach is to continue the excavation from the other end of the tunnel to reach the location of the stuck TBM. The TBM could be dismantled, and excavation would continue through other conventional methods. An auxiliary tunnel or shaft could be built to reach the TBM and release it. More specific procedures will be analyzed once the specifications for the TBM are known, and additional information is gathered regarding the conditions to be encountered.

The time and cost associated with removal of a TBM are not related to an environmental effect of the project.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9544

The commenter asks how tunnels would be constructed, given high water pressure; where water will be sent during construction; how high water pressure would affect the use of the second tunnel for evacuation in the event of an earthquake or derailment; at what pressure would water seep into tunnels; and what the effect is of water seeping into tunnels.

Regarding the comment about high water pressure and construction, as well as the comment about water seepage: for all excavation methods, excessive groundwater pressures might generate some seepage into the tunnel during construction, but measures implemented during construction, such as pre-grouting, would help to reduce the flow to manageable values. The Authority considered these impacts in Section 3.8, Hydrology and Water Resources, in the Draft EIR/EIS (Impact HWR#5). For the Build Alternatives, the tunnel boring machines (TBMs) are not expected to withstand the full groundwater pressure during excavation. Groundwater pressure on the excavation front will be dissipated due to controlled groundwater seepage and pre-excavation ground treatments. Pre-excavation grouting from the TBM can be performed to reduce groundwater seepage into the tunnels during construction. Pre-excavation grouting can be carried out through a TBM with built-in capability, including grout ports through the TBM cutter-head and through the shield. Where groundwater is present, HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 will be implemented to control the volume of groundwater inflow into the tunnel (see Section 3.8). Water is not expected to seep into the tunnels during rail operation. For groundwater pressures below 25-bar, the fully gasketed one-pass lining is a tanked solution (for precast segmental lining, the segments are equipped with gaskets to seal the joints between segments and thus provide a watertight tunnel) that is expected to withstand pressures encountered. In the segments where ground water pressures are expected to exceed 25 bar, a monolithic concrete second lining will be put in place to avoid water leakage into the tunnel for the complete lifespan of the infrastructure.

After completion of the second lining, the tunnel will be considered to be dry during the lifespan of the infrastructure. "Dry tunnel condition" is defined as the situation where a finished tunnel has such a low water inflow rate that it does not impact in any form the ground water resources, neither in the short nor in the long term. Regarding the comment about where water will be sent during construction, Section 3.6, Public Utilities

4494-9544

and Energy, of Draft EIR/EIS indicates that any water generated from the tunnel construction would be treated on-site and reused or hauled off-site (see Impact PUE#4). Management of any water generated from tunnel construction would be in accordance with federal and state regulations and would prevent any discharge from impacting water quality standards. Regarding the comment about emergency evacuation, in the most probable causes for a train evacuation (emergency train stop), no water inflow would occur since the tunnel lining would not be compromised, and therefore water inflow would not be a factor affecting evacuation procedures. The Tunnel Lining System would be implemented by HYD-IAMF#6, as described in Section 3.8.

4494-9545

Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest.

The commenter is concerned about impacts to flora and fauna from tunnel construction in the ANF. Please refer to standard response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, which discusses the project's potential effects of tunneling on groundwater and surface water resources and measures that would be taken to minimize and avoid this impact. This standard response also discusses potential impacts on special-status plant and animal species that are groundwater dependent.

4494-9546

The comment asks about a future action by another federal agency, which is outside the scope of this EIR/EIS.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9547

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter asks about the source and quantity of the water that would be needed to address any effects on surface hydrologic conditions caused by tunneling within the Angeles National Forest and the cost for the replacement water. Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage. Specifically, please refer to the Supplemental Water for Groundwater-Related Impacts subsection, which describes the state-of-the-art design features and construction methods (i.e., IAMFs) that would be implemented and would make the need for supplemental water for habitat restoration unlikely. This Standard Response also explains why an Adaptive Management and Monitoring Plan (AMMP), as required by HYD-MM#4 would be required. It explains that in the unlikely event that supplemental water is needed, the source of this water would be the same as the sources identified for construction water. These sources are summarized in Standard Response PB-Response-PUE-3: Water Demand and Usage. As described in Standard Response PB-Response-PUE-3, the amount of water needed due to groundwater-related impacts is speculative at this time. The costs associated with this water will depend on the quantity need, timing of that need, and source, which cannot be determined at this time. Similarly, the costs of conveyance would depend on method (piping, trucking, hand carrying), which also depend on the location and amount of habitat affected, which cannot be determined at this time.

4494-9548

The commenter expressed concern that adding or removing water from formations could cause seismic events. The construction of the HSR Palmdale to Burbank Project Section and tunnels will not add or remove amounts of water or liquids in quantities sufficient to cause an earthquake. The process used in fracking is very different from the construction techniques that would be used in building the rail tunnels.

4494-9549

Refer to Standard Response PB-Response-PUE-1: Energy Use and Consumption.

The comment asks about the source of electrical power for operation; who will be responsible for the power grid upgrade costs; and what the costs are. Please refer to Section 2.3.7 of the Draft EIR/EIS, which explains the various studies that the Authority has conducted to verify how HSR would be powered by 100 percent clean, renewable energy sources through a variety of mechanisms. This same section includes a discussion of the infrastructure that would be needed. The Authority would construct and pay for the necessary utility infrastructure needed to support project operations. As indicated in Chapter 6 (Section 6.2.2) of the Draft EIR/EIS the capital cost estimates include the total labor effort and materials to build the Palmdale to Burbank Project Section, including track structures, stations, support facilities, communications and signaling, electric traction and any necessary utility relocations, upgrades, and road modifications.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9550

Refer to Standard Response PB-Response-PUE-1: Energy Use and Consumption.

The commenter asks about priority of electric use compared between the California HSR System and residential/commercial uses, as well as what would happen if electricity is not available for the California HSR System. Please refer to Section 2.3.7 of the Draft EIR/EIS, which explains the various studies that the Authority has conducted to verify how HSR would be powered by 100 percent clean, renewable energy sources through a variety of mechanisms. Please also refer to Standard Response PB-Response-PUE-1: Energy Use and Consumption. Based on the way that the Authority plans to obtain electricity to power the California HSR System, as detailed in Section 2.3.7 of the Draft EIR/EIS and PB-Response-PUE-1: Energy Use and Consumption, the Authority does not expect that there would be a need to make decisions regarding priority use of electricity. For Backup and Emergency Power Supply Sources for Stations and Facilities, please refer to Draft EIR/EIS Appendix 2-D Design Baseline Report (page 2-35). During normal system operations, power would be provided by the local utility or a TPSS. Should the flow of power be interrupted, the system would automatically switch to a backup power source: an emergency standby generator, an uninterruptable power supply, or a direct current (DC) battery system. For the Palmdale to Burbank Project Section, permanent emergency standby generators are anticipated to be located at passenger stations and terminal layup/storage and the Maintenance Facility. Standby generators are required to be tested (typically once a month for a short duration) in accordance with National Fire Protection Association (NFPA) 110/111 to verify readiness for backup and emergency use. If needed, portable generators could also be transported to other trackside facilities to reduce the impact of power interruptions on system operations.

4494-9551

Refer to Standard Response PB-Response-PUE-4: Coordination with Local Government Entities and Utility Owners.

The commenter asks about agreements or memoranda of understanding with utilities to provide electrical power for operation and construction of the Palmdale to Burbank Project Section. As indicated in Section 3.6, Public Utilities and Energy, of the Draft EIR/EIS page 3.6-4, the base standards for design, construction, installation, operation, and maintenance established by General Order 176 require coordination and cooperation of the Authority (the entity that owns the HSR system) and other facility owners (e.g., LADWP) so that the facilities of both parties are not prevented from performing as required or intended. Utility maintenance access would be permitted by the Authority to local service providers for utilities within the HSR right-of-way. As discussed in Standard Response PB-Response-PUE-4: Coordination with Local Government Entities and Utility Owners, the Authority will continue coordination through the final design and engineering phases. The Authority will continue coordination with local government entities and utility owners by utilizing memoranda of understanding (MOUs) and cooperative agreements to establish its working relationships with local government entities along the HSR alignment in each project section as it moves forward with project implementation.

In addition, coordination with utility providers would be required by PUE-IAMF#4 (see page 3.6-15 of the Draft EIR/EIS), which requires the Authority to prepare a technical memorandum, prior to construction, documenting how construction activities would be coordinated with service providers to minimize or avoid interruptions. Please refer to Standard Response PB-Response-PUE-4: Coordination with Local Government Entities and Utility Owners for further information regarding compliance with locally adopted requirements when the Authority addresses construction impacts on local government facilities.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9552

The commenter asks if the Authority has discussed issues related to project electrical usage and service with LADWP. As a matter of clarification, the commenter is referring to issues that were brought up as part of Comments #9549 through #9551. For responses to those specific comments, please refer to Response to Comments #9549 through #9551.

Regarding coordination with LADWP, please refer to Chapter 9: Public and Agency Involvement. A variety of meeting types and outreach activities were conducted. Federal, state, regional, and local agencies, tribes, elected officials, neighborhood councils, organizations, businesses, and the general public participated in these meetings to obtain project information and provide feedback. Additional public and agency meetings have occurred between 2017 and 2021. On November 7, 2018, Authority staff and LADWP staff met and discussed various topics, including coordination regarding electrical infrastructure and sources of electricity. The Authority will continue to coordinate with LADWP during subsequent stages of the project.

4494-9553

The commenter expresses concern about the Authority's "design-build" approach, including whether it is permissible under California law, and states commenter's perspective that there is no substantial evidence to sustain the approval of an EIR.

Currently, the HSR Palmdale to Burbank Project Section is at a preliminary design phase, which is an appropriate level of design to support environmental review. The HSR Palmdale to Burbank Project Section is expected to be constructed using a design-build approach. The design-build approach offers flexibility to adapt the project to changing conditions. The Draft EIR/EIS relied on substantial evidence in determining its impact conclusions and mitigation requirements for this level of design. The use of a design build standard does not preclude a lead agency from considering the potential environmental impacts from a project and in the Draft EIR/EIS, and as shown in the Draft EIR/EIS, the Authority has relied on substantial evidence to determine potential impacts. In this comment, the commenter does not identify any specifics where the Draft EIR/EIS was lacking in substantial evidence.

Regarding the comment made on mitigation, CEQA Guidelines Section 15126.4 (B) states: "…formulation of mitigation measures shall not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will considered, analyzed, and potentially incorporated in the mitigation measure." In other words, the CEQA Guidelines identify that specific details of mitigation may be developed after project approval, as long as the lead agency commits to mitigation, identifies performance standards, and identifies potential actions of the mitigation. The Authority will commit to its mitigation through adoption of an Mitigation Monitoring and Reporting Program (MMRP) and as described in the Draft EIR/EIS, identifies performance standards and actions as part of its mitigation.

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4494-9554

The commenter inquired why testing was not completed before the approval of the preferred alternative. The commenter additionally inquired about what assurances can the Authority provide to successfully complete the project. An Environmental Impact Report (EIR) and Environmental Impact Statement (EIS) are documents required under California and federal law that inform the public and public agency decision-makers of environmental effects of a proposed project, identify possible ways to mitigate those effects, and describe reasonable alternatives to those projects, so that the decision-maker can decide among alternatives. The documents examine the impacts of a proposed project on the physical, cultural, and human environments within the project area. Section 3.9 of the Draft EIR/EIS describes potential effects on geology, soils, seismicity, mineral resource, and paleontological resources associated with the Palmdale to Burbank Project Section. The analyses of the core holes drilled in the ANF and the evaluation of area's geology and geologic hazards demonstrate the project Build Alternatives described in the Draft EIR/EIS to be feasible. The Authority has concluded that it has completed sufficient testing and analysis to disclose environmental impacts and for the decision-maker to decide among alternatives. Moreover, "CEQA does not require a lead agency to conduct every test or perform all research, study, and experimentation recommended or demanded by commentors." (CEQA Guidelines, section 15204(a).) Because the Authority can choose only one alternative, it would waste taxpayer dollars to complete unnecessary, voluminous, detailed analysis and modeling of every alternative. The Authority will complete additional and extensive geotechnical investigations and explorations during the design phase of the project and prior to the start of any construction.

4494-9555

The commenter asks why the Authority has not already conducted the additional test bores necessary to evaluate the feasibility of the tunneled routes and suggests that testing should have occurred and the results been made available prior to the release of this Draft EIR/EIS. The Authority has completed the necessary analysis and compiled sufficient information to evaluate the feasibility of all alternatives. Chapter 3.9 of the Draft EIR/EIS describes potential geology, soils, seismicity, mineral resource, and paleontological resource effects of the Palmdale to Burbank Project Section. Section 3.9.4.3 Methods for NEPA and CEQA Impact Analysis, describes the geotechnical investigations that have been completed.

In 2016, the Authority conducted a preliminary geotechnical investigation of drilling six bore holes to collect data for evaluating tunnel feasibility and subsurface conditions within the ANF, including SGMNM. The investigation was not conducted for any specific tunnel alignment, but rather to identify and evaluate field conditions (such as groundwater, in-situ rock stresses, adverse geology including faults, gouge zones, and squeezing ground) within the ANF and SGMNM that could present feasibility constraints for tunnel design and construction. This preliminary investigation showed that the alignment alternatives are all feasible from a geotechnical standpoint. The preliminary investigation along with review of existing data sources provided sufficient information to characterize the existing environmental setting, describe impacts, and identify mitigation measures to address impacts where needed. Therefore, the Authority has sufficient information regarding the Build Alternatives' feasibility and impacts to make a decision on which alternative to select.

Refer to the Palmdale to Burbank Project Section Preliminary Geotechnical Data Report for Tunnel Feasibility, Angeles National Forest (Authority 2017a) and the Geotechnical Tunnel Feasibility Evaluation for High-Speed Rail Tunnels Beneath the Angeles National Forest (Authority 2017b) for the results of this preliminary geotechnical investigation, as noted in footnote 4 on page 3.9-21 of the Draft EIR/EIS. Additional and extensive geotechnical investigations and explorations would be performed during the design phase of the project and prior to start of any construction.

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4494-9556

The commenter requested further information on the graphs presented in Section 3.9 Geology, Soils, Seismicity, and Paleontological Resources. There are no graphs in the section but if the commenter is referring to the figures and tables in this section, there is a reference and date at the bottom left of all tables and figures. For the figures, the date at the bottom right refers to the date the figure was placed in the Draft EIR/EIS. The references and sources used for document preparation can be found in Chapter 12 of the EIR/EIS.

4494-9557

The commenter requested further information on public safety effects during project construction, and the ways in which the Authority has prepared for catastrophes that may occur as a result of tunneling through the San Gabriel Mountains. Exposure to construction site hazards is described and evaluated in Impact S&S#6, in Section 3.11, Safety and Security, of this Final EIR/EIS. Worksite safety in California, including construction worksite safety, is regulated by provisions of Title 8 of the California Code of Regulations and is overseen by Cal-OSHA. Title 8 requires compliance with standard procedures to prevent construction worksite accidents and requires a written workplace injury and illness prevention program to be in place. Construction activities will also be subject to standards included in California HSR Standard Safety Procedures. In addition to legal requirements, the contractor will manage potential exposure to workplace hazards through implementation of Construction Safety and Health Plans for each phase of project construction (SS-IAMF#2). Each of these plans will establish the minimum safety and health standards for contractors of, and visitors to, project construction sites. Each of these plans will require the contractor to develop and implement site-specific measures that address regulatory requirements protective of human health and property at each construction site. Standard implementation of a Construction Safety and Health Plan during construction in compliance with legal requirements would reduce risks to human health during construction by establishing protocols for safe construction operations, including daily safety awareness meetings and training to establish a safety culture among the construction workforce.

4494-9558

Refer to Standard Response PB-Response-AQ-1: Construction-Period Emissions, PB-Response-AQ-2: Health Risks and Impacts, PB-Response-AQ-3: Construction Air Quality/Truck Impacts, PB-Response-N&V-5: Impacts of Spoils Hauling (Noise), PB-Response-TRA-1: Temporary Traffic Associated with Construction.

The commenter asks if CHSRA intends to reimburse residents in the Foothills and San Fernando Valley for effects they may suffer as a result of the project, specifically related to water depletion, landslides, deforestation, and construction impacts. CEQA requires that feasible mitigation measures be implemented to reduce significant environmental impacts but neither CEQA nor NEPA requires citizens to be compensated in relation to any such impacts.

With respect to potential water depletion, Chapter 3.8 Hydrology and Water Resources includes analysis of Impact HWR#5: Changes in Hydrogeologic Conditions Associated with Tunnel Construction Beneath the Angeles National Forest (ANF) which May Affect Surface and Subsurface Water Resources. The project design includes implementation of impact avoidance and minimization features (IAMFs) HYD-IAMF#5: Tunnel Boring Machine Design Features, HYD-IAMF#6: Tunnel Lining Systems, and HYD-IAMF#7: Grouting. Even with implementation of these features, the Authority has concluded that Impact HWR#5 will result in a significant impact under CEQA and mitigation is required.

With implementation of HWR-MM#4: Implement a Water Resources Adaptive Management and Monitoring Plan Including Compensatory Mitigation Measures as Necessary, the impact of the each of the six Build Alternatives on surface water resources would be reduced to a less than significant level. Please refer to Section 3.8.7 for more information regarding mitigation measures.

The potential for landslides is analyzed in Chapter 3.9 Geology, Soils, Seismicity, and Paleontological Resources, specifically Impact GSSP#3: Landslides Could Endanger People or Structures During Construction. The project design incorporates GEO-IAMF#1 Geologic Hazards which provides for identification of slope hazards and implementation of engineering controls to minimize landslide vulnerability during construction. With adherence to GEO-IAMF#1, construction of each of the 6 Build Alternatives would not directly or indirectly cause substantial adverse effects involving landslides on- or off-site.

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4494-9558

This impact would be less than significant for the Refined SR14, E1, and E2 Build Alternatives and CEQA, therefore, does not require mitigation.

The Authority does not anticipate that the project will result in deforestation. The project is proposed to tunnel underneath the ANF which will avoid surface impacts, such as the need to remove trees for construction of the project. Surface features within the ANF (e.g., adits and utility corridors) would be located on private property within the forest and follow existing transportation and utility corridors, to reduce impacts and minimize the need to remove trees.

Disruption from construction period truck traffic, air quality, and noise impacts is addressed in Draft EIR/EIS Chapters 3.2 Transportation, 3.3 Air Quality and Global Climate Change, and 3.4 Noise and Vibration, respectively. Please see Section 3.4.7 Mitigation Measures for more information regarding mitigation measures. In addition and for reference, please see PB-Response-N&V-5: Impacts of Spoils Hauling (Noise) for additional information regarding noise impacts related to spoils hauling.

4494-9559

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events.

The commenter expresses concern related to seismicity due to the HSR Palmdale to Burbank Project Section crossing fault lines. Please refer to Standard Responses PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events, and PB-Response-ALT-1, which addresses concerns related to seismicity, and describes the Authority's efforts to focus on selecting alignment alternatives that would cross major faults at grade.

4494-9560

The commenter requested further information on project plans and design features to prevent project railroad train derailment. A description of analyses regarding the potential for railroad accidents/derailment can be found under Impact S&S#12, in Section 3.11, Safety and Security, of this Final EIR/EIS. The design of the Build Alternatives would include safety elements to prevent train-to-train collisions, as well as collisions between trains and objects, vehicles, pedestrians, or bicyclists. These safety elements would include grade separations, physical separations including separation distances and vertical separations, physical protection barrier structures, PTC features, and derailment containment. In addition, the design of the California HSR System includes an operations and maintenance plan that includes schedules and procedures for the periodic maintenance of the track, right-of-way, power systems, train control systems, signalizing, communications, and safety systems required for operations of the system. Scheduled maintenance of operations and safety systems would minimize the potential for failure of systems that could lead to derailment.

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4494-9561

The commenter requested further information on existing emergency response plans that would be implemented in the case of a train derailment.

SS-IAMF#2 in Section 3.11 of the Draft EIR/EIS will require the Authority to coordinate with local emergency service providers in developing and implementing the System Safety Program Plan (SSPP), Security and Emergency Preparedness Plan (SEPP), and Safety and Security Management Plan (SSMP) to establish an efficient and coordinated response protocol, systems, and procedures across the multiple agencies that may be involved in responding to an emergency incident, including establishing coordinated procedures for emergency responder access to the HSR access-controlled right-of-way, aerial track, trenches, and tunnels, including during cases of train derailment. Furthermore, implementation of S&S-MM#1 (described in Section 3.11.7 of this Draft EIR/EIS) will require the Authority to monitor the response of local fire, rescue, and other emergency service providers to incidents. The Authority will enter a cost-sharing agreement with these providers to fund the Authority's fair share of emergency service needs created by the Palmdale to Burbank Project Section ensuring that services are made available. Further information on the development and implementation of the project SSPP, SEPP, and SSMP can be found under the California High-Speed Rail Program subheading in Section 3.11.2.2 of this Final EIR/EIS.

Physical elements, such as containment parapets, check rails, guard rails, and derailment walls, would be used in specific areas with a high risk of or high impact from derailment. These areas include elevated guideways and approaches to conventional rail and roadway crossings. Concrete derailment walls are like tall curbs that run close to the train wheels. In the event of a derailment, these walls keep the train within the right-of-way and upright. Furthermore, scheduled maintenance of operations and safety systems would minimize the potential for failure of systems that could lead to derailment.

4494-9562

Refer to Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events, PB-Response-HAZ-1: Materials Hauling and Transportation of Hazardous Materials, PB-Response-S&S-2: Accidents and Explosions.

The commenter asks how the Authority can claim to be consistent with local safety policies when each of the six Build Alternatives are inconsistent with one policy from the Los Angeles County General Plan related to human-made disasters, such as hazardous waste, seismic events, fires, and floods. The commenter notes that this inconsistency is due to the HSR Palmdale to Burbank Project Section introducing hazardous waste and materials to the project area. Page 3.11-7 in Section 3.11, Safety and Security of the Draft EIR/EIS acknowledges the inconsistency of the HSR Palmdale to Burbank Project Section with the Los Angeles County General Plan 2035 Safety Element. Page 3.11-8 of the Draft EIR/EIS goes on to state that despite that inconsistency, "the project is consistent with the majority of regional and local policies and plans" and that "although it may not be possible to meet all safety and security standards… IAMFs and mitigation measures will generally minimize safety and security impacts and would ultimately meet the overall objectives of the local policies." Therefore, the Authority is not claiming to be consistent with local safety polices and has indicated the inconsistency with local policies related to safety and security. The Authority is, however, also stating that in general, the project would be consistent with the majority of regional and local policies and plans, and that IAMFs and mitigation measures will minimize impacts to safety and security.

Appendix 2-H in the Draft EIR/EIS provides a Regional and Local Policy Consistency Table, which lists the safety and security goals and policies applicable to the Palmdale to Burbank Project Section and notes the Build Alternatives' consistency or inconsistency with each. The consistency analysis in Appendix 2-H has been revised in the Final EIR/EIS to reflect the inconsistency with the Safety Element, related to the introduction of hazardous materials to the project area. Appendix 2-H examines 30 regional and local plans and policies. After the revision, the project will still be consistent with the majority of the plans and policies. Please refer to Standard Response PB-Response-HAZ-1: Materials Hauling and Transportation of Hazardous Materials, for hazardous waste and materials handling. Please refer to Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events, for seismic

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concerns. Please refer to Standard Response PB-Response-S&S-2: Accidents and Explosions, for safety concerns. In addition, Section 3.11.5.1, Emergency Services, of the Draft EIR/EIS addresses fire protection and HYD-IAMF#2: Flood Protection in Section 3.8, Hydrology and Water Resources of the Draft EIR/EIS requires a flood protection plan before construction.

4494-9563

The commenter outlined each of the safety and security resource study areas presented in Section 3.11, Safety and Security, of the Draft EIR/EIS, and requested further information on the distance buffer used for identifying the study area to evaluate effects on oil and natural gas wells/fields. The commenter uses the term "must be" a certain number of miles from the project footprint. The EIS does not prohibit the project from operating within those distances. It explains, instead, that when construction and operations of the California HSR System comes within those distances of the respective facilities, it could potentially directly or indirectly affect those facilities. It also states that, "All sections above must be ½mile away from the airport." That is inaccurate. When construction or operations is within two miles of an airport, the analysis considers that within the resource study area.The commenter further asks why the Authority believes a 150-foot clearance from a gas line is safe.

The 150 feet project footprint buffer for the evaluation of hazards and hazardous materials, including oil and natural gas wells, is based on the distance in which the listed hazard could pose risks to each of the six Build Alternatives, either through migration of hazardous materials into the Build Alternative footprint or other means. Appendix 3.10-A, Hazardous Materials and Wastes Figures of the Draft EIR/EIS, includes figures depicting hazards and hazardous materials within the study area, including oil and gas wells. The 150-foot buffer area is established by the Authority as part of the Authority's Environmental Methodology Guidelines (Environmental Methodology Guidelines, Version 5.10, revised June 2020), which establishes the resource study area as the footprint for tracks, stations, and maintenance facilities, plus a 150-foot buffer of the project footprint to account for hazardous materials and waste issues on adjacent properties. The buffer area and the Authority's evaluation methodology is based on the California Department of Transportation (Caltrans) Standard Environmental Reference, Chapter 10, Initial Site Assessment guidance document and the American Society for Testing and Materials (ASTM) International Standard E 1528-06 (ASTM 2006), and ASTM International Standard E 1527-05 (ASTM 2005).

Implementation of SS-IAMF#4 will require the Contractor to identify and inspect all active and abandoned oil and gas wells within 200 feet of the proposed HSR tracks. Any active wells will be abandoned and relocated by the Contractor in accordance with the standards maintained by the California Geologic Energy Management Division

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(CalGEM) of the California Department of Conservation, formerly known as Division of Oil, and Gas and Geothermal Resources (DOGGR), in coordination with the well owners. All abandoned wells within 200 feet of the HSR tracks will be inspected and re-abandoned, as necessary, in accordance with CalGEM standards and in coordination with the well owner. The Contractor will provide the Authority with documentation that the identification and inspection of the wells has occurred prior to construction.

4494-9564

The commenter requested further information on construction safety monitoring. CEQA Guidelines section 15126.4(a)(2) requires mitigation measures to be fully enforceable through permit conditions, agreements, or other legally binding instruments. As the lead agency, the Authority would adopt a mitigation monitoring and enforcement plan (MMEP) if it approves the project.

The MMEP would serve as the binding instrument to require the enforceability of mitigation measures and IAMFs identified to reduce project impacts in compliance with CEQA Guidelines section 15126.4(a)(2). The Authority will therefore regularly monitor the construction contractor to ensure the construction standards in management plans will be met, which would be outlined in the MMEP that is adopted if the project is approved (see, e.g., the Mitigation Monitoring and Enforcement Plan for the Burbank to Los Angeles Project Section, which includes IAMFs and mitigation measures and a reporting schedule: https://hsr.ca.gov/wp-content/uploads/2022/04/Attachment_E-Exhibit_C-MMEP_A11Y.pdf.

As such, the development and implementation of management plans prepared by the construction contractor will be reviewed and monitored by the Authority. For example, implementation of SS-IAMF#1 will require the Contractor to prepare for submittal to the Authority a construction safety transportation management plan prior to project construction. As an example, the Burbank to Los Angeles Project Section MMEP specified that the implementation mechanism for this same IAMF was a condition of the design-build contract (see id.). The IAMF itself also requires that the contractor prepare and submit monthly reports to the Authority documenting construction transportation plan implementation activities for compliance monitoring.

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4494-9565

The commenter requested further information on emergency response times in the study area. The commenter asks how the Authority can maintain emergency response times considering the HSR Palmdale to Burbank Section would run through the ANF and at-grade railroad crossings can hinder emergency response times.

Information on safety and security related to the project, including emergency response for fire, police, and other emergency service facilities are available in Appendix 3.11-A of the Draft EIR/EIS. This includes emergency response times for police and fire departments gathered from respective online databases when preparation of the Draft EIR/EIS was initiated in 2016. As described in Chapter 2, Alternatives, of the Draft EIR/EIS, each of the Build Alternative alignments would be underground in bored tunnels through the ANF. Being underground, train operations would not have the potential to cause fire on the surface within the ANF. The limited above ground facilities in the ANF are limited to ancillary facilities such as small adit/access areas that would have little potential for creating wildland fires; above ground ancillary facilities would be located along existing roads in the ANF including Little Tujunga Canyon Road. Potential impacts on emergency response, related to emergencies within tunnels, including the tunnel within the ANF is discussed in Impact S&S#3 in Section 3.11, Safety and Security of the Draft EIR/EIS. Impact S&S#3 identifies that the Build Alternatives each include provisions for emergency service access to the access-controlled right-of-way including, but not limited to, the following: permanent access roads would be built to provide at least one access portal for each tunnel to support tunnel operations and maintenance activities; for tracks in trenches and tunnels, passenger walkways would be incorporated to allow emergency access and evacuation routes; and tunnel design would include a central, fire-rated dividing wall that would separate the two tracks of each single tunnel into two independently ventilated railways to allow access in the event of an emergency. Furthermore, the project would minimize interference with emergency response by including design provisions and procedures for emergency service access to the HSR right-of-way and the Burbank Airport Station through preparation and implementation of a System Safety Program Plan (SSPP) and a Safety and Security Management Plan (SSMP) prior to project operations (SS-IAMF#2). Additionally, the Construction Transportation Plan (required to be completed under TR-IAMF#2) will minimize traffic impacts caused by temporary road closures by providing traffic control on several elements, including provisions for 24-hour access by emergency vehicles.

4494-9565

Regarding the potential for the project to result in at-grade crossings that would hinder emergency response times, as discussed under Impact S&S#7 in Section 3.11, Safety and Security of the Draft EIR/EIS, where the Build Alternatives would cross existing roads, project construction would create grade separations so that roads would cross either over or under the HSR tracks. In total, between 9 and 13 existing roads would be modified to create grade separations, depending on the Build Alternative. Some of these grade separations implemented as part of the Palmdale to Burbank Project Section would replace existing at-grade rail crossings, while others would be new rail crossings; overall, reducing at-grade rail crossings and enhancing safety and improving emergency response times. As discussed in page 2-87 in Chapter 2, Alternatives of the Draft EIR/EIS, the Authority would also convert an existing at-grade railroad crossing at Sheldon Street with a new grade-separated railroad bridge over Sheldon Street. As such, when it comes to effects on emergency response times due to conflicts with at-grade railroad crossings, the HSR Palmdale to Burbank Section would improve emergency response compared to existing conditions, given that it would overall reduce the number of at-grade crossings.

Emergency response could still be disrupted by changes in local circulation patterns associated with project implementation. As described above, the Authority identified IAMFs that would minimize impacts. In addition, the Authority identified a mitigation measure that would further reduce impacts. S&S-MM#1 (described in Section 3.11.7) will require the Authority to monitor the response of local fire, rescue, and other emergency service providers to incidents. The Authority will enter a cost-sharing agreement with these emergency service providers to fund the Authority's fair share of emergency service needs created by the Palmdale to Burbank Project Section ensuring that services are made available. Calculations regarding emergency response times from construction and operation of the project are not included in the Draft EIR/EIS, since calculations would be speculative in nature. Nonetheless, the Authority has conducted a qualitative analysis and identified a mitigation measure that would ensure that emergency service providers maintain acceptable emergency response times, service ratios, and acceptable performance objectives and no new emergency service facilities will be required.

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4494-9566

The commenter requested further information on mitigation and minimization of Valley Fever exposure and spread during construction of the project. The project will include measures to prevent the spread of Valley fever during construction by managing fugitive emissions through a fugitive dust control plan through implementation of AQ-IAMF#1. The construction contractor will prepare and implement the fugitive dust control plan for each distinct construction segment to describe how each measure as part of the plan will be employed and who will be responsible for implementation of the measures. As part of the fugitive dust control plan measures during construction, vehicles transporting construction fill material on public roads would be covered. In addition, trucks and equipment transporting construction fill material will be washed prior to leaving construction work areas and traveling on public roads. Exposed surfaces and unpaved roads in construction areas will be watered as needed to control fugitive dust, in accordance with the fugitive dust control plan developed and implemented by the contractor for each construction work area. Further, the plan will include information on causes, preventive measures, symptoms, and treatments for Valley fever; outreach and coordination with the California Department of Public Health and county departments to make information on Valley fever readily available to residents, schools, and businesses; and dedication of a qualified person who will oversee implementation of the Valley fever prevention measures including fugitive dust control measures and construction worker protection measures. A Valley Fever Health and Safety designee will coordinate with the County Public Health Officer to determine what measures will be required by the Authority as part of the Safety and Security Management Plan that will be developed and implemented by the Authority under SS-IAMF#2, to minimize Valley fever exposure. The Valley Fever Health and Safety designee will manage implementation of the Valley fever control measures, which will include, but would not be limited to, training workers and supervisors on how to recognize symptoms of illness and ways to minimize exposure; providing washing facilities; providing vehicles with enclosed air-conditioned cabs; equipping heavy equipment cabs with high-efficiency particulate air filters; and making National Institute for Occupational Safety and Health–approved respiratory protection with particulate filters available to workers who request them.

4494-9567

Under the comment letter's heading for Section 3.11: Safety and Security, the commenter lists various statements about seismic risks, emergency response, flooding, methane gas, fire hazards, road closure, and permanent interference with emergency response times. Following these statements, the commenter asks how the project will be designed to account for, and how the Authority will respond to, an earthquake when trains are in a tunnel.

Regarding the commenter's reference to the history of earthquakes, the region's seismicity is addressed in EIR/EIS Section 3.9.5.5. The commenter's reference to an emergency response plan that acknowledges that a large earthquake could exceed response capabilities of individual cities is contained on Draft EIR/EIS page 3.11-39. The description refers to the content of the County of Los Angeles Operation Area Emergency Response Plan. The commenter's statement about a 1 percent annual flood risk is contained on Draft EIR/EIS page 3.11-39. The commenter's statement about methane gas from landfills is also found on Draft EIR/EIS page 3.11-39. Methane occurs in the soil in the Palmdale to Burbank project area. Methane is a particular concern in the vicinity of landfill sites where methane may build up in the landfill material in addition to naturally occurring methane in the ground. On June 24, 1971, a methane explosion occurred at a tunnel construction site in Sylmar. The Authority of aware of the potential presence of, and danger of methane buildup during construction of the tunnels included as part of the preferred alternative alignment. The Palmdale to Burbank Project Section EIR/EIS specifically identifies HMW-IAMF#2 to address methane during construction and operation. GEO-IAMF#3 and HMW-IAMF#2 will establish measures to protect against methane-related hazards associated with construction activities near landfill sites. HMW-IAMF#2 will require the contractor to prepare a technical memorandum outlining methane protection measures for ground-disturbing work within 1,000 feet of a landfill, including gas detection systems and personnel training. This will be undertaken pursuant to State of California Title 27, Environmental Protection –Division 2, Solid Waste. The statement about wildfire hazards appears to have been derived from material in EIR/EIS Section 3.11.5.3. This topic is further discussed in Standard Responses PB-Response-S&S-1: Wildfire. The commenter's statement about temporary road closures is derived from Table 3.11-2 of the EIR/EIS, while the statement about permanent road closures is derived from Table 3.11-3. The commenter raises no specific concerns related to these statements derived from EIR/EIS material; therefore,

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no substantive response is required. However, note that to the extent these impacts could occur, these issues are addressed in the EIR/EIS. As defined on page 3.8-14 of the Draft EIR/EIS, a 1-percent risk flood is called a 100-year flood or base flood. This corresponds to FEMA Zone A, Zone AE, or Zone AO as defined on page 3.8-23 of the Draft EIR/EIS. The Draft EIR/EIS discusses floodplain designations along the project in Section 3.8.5.3. The EIR/EIS addresses wildfire risk and discloses which parts of the alignment are located within FHSZs in Section 3.11.5.3 and Impact S&S#16. The temporary road closures are addressed in the Draft EIR/EIS under Impact S&S#1, and the permanent road closures are addressed under Impact S&S#2. Regarding landfill gas refer to EIR/EIS Impact HMW#4 for a discussion of potential impacts during construction and operation.

Regarding design and impacts about tunnels, seismic risks and impacts are analyzed in detail in Section 3.9, Geology, Soils, Seismicity and Paleontological Resources of the EIR/EIS. Refer to Impact GSSP#7 (Fault Rupture and Seismic Ground Shaking Could Endanger People or Structures During Construction), Impact GSSP#8 (Liquefaction, Lateral Spreading, and Ground Lurching Could Endanger People or Structures During Construction) and Impact GSSP#16 (Effects of Geologic Hazards During Operations). Extensive measures would be implemented to address seismic risks in the design of the project. GEO-IAMF#10 requires incorporation of design guidelines to limit vulnerability to fault ruptures, including for tunnels. As required by GEO-IAMF#10, the alignment, including tunnels, would be constructed in compliance with applicable codes and design standards to address and minimize these risks. These applicable codes and design standards and recommendations include 2015 American Association of State Highway and Transportation Officials (AASHTO) Federal Highway Administration Circulars and Reference Manuals; American Railway Engineering and Maintenance-of-Way Association Manual; California Building Code; International Building Code (IBC); American Society of Civil Engineers (ASCE)-7; Caltrans Design Standards; American Society for Testing and Materials (ASTM); and the Authority's Technical Memoranda (TM).

In addition, the Authority's Technical Memoranda provides guidance and procedures to advance the preliminary engineering. Preliminary design of the tunnel structures has been completed in accordance with the following TMs: TM 2.4.5 Train Tunnel

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Structures, TM 2.4.2 Basic Tunnel Configuration, TM 1.1.21 Typical Cross Sections for 15% Design, TM 2.4.6 Tunnel Portal Facilities, and TM 2.4.8 Tunnel Service and Maintenance Considerations. Please also refer to Response to Comment #10527, which discusses design of tunnels where they cross a Hazardous Fault zone. The HSR system project design also includes several components that minimize the effects from seismic events and the potential safety risks from seismic events (GEO-IAMF#6). These include a train control system with Early Earthquake Detection System (EEDS), which is a system integrated with train control, communications and signal systems capable of detecting early P-wave ground motions, calculating the expected magnitude of shaking, and triggering braking response for at-risk trains. This would help identify situations where fault rupture and/or liquefaction have the potential to damage facilities and enable control of trains in a manner that would reduce the potential for accidents. Response to Comment #10528 also discusses the EEDS required under GEO-IAMF#6 and how it would function.

Regarding tunnel seismic design, refer to TM 2.10.5 Seismic Design Criteria, which establishes design criteria for tunnels and other primary structures. For 15% seismic design, all tunnels shall be considered "complex". The objective of the Technical Memoranda Guidelines is to ensure that complex structures under consideration are feasible and will meet the "No Collapse" performance level under the Maximum Considered Earthquake (MCE) event at the 15% Design level of project development. The project will also be designed in accordance with TM 2.10.6 Fault Hazard Analysis and Mitigation Guidelines, which provides guidelines for identifying Hazardous Fault Zones (HFZs) in terms of their fault displacements, recurrence rates, orientation, sense of slip, and other characteristics. The methodology for assessing fault hazard displacement includes both deterministic and probabilistic approaches to quantify the best estimates of fault displacement to be used in design. According to the Authority's TM 2.10.6 R1 Fault Rupture Analysis and Mitigation, where the tunnels cross a Hazardous Fault zone, a larger cross-section has been considered to allow clear passage and realignment of the tracks after a seismic event below grade. Also, the length of the track realignment zone has been extended beyond the fault zone. The fault chamber is designed to accommodate fault displacement by the failure of the initial lining while preserving the integrity of the interior lining. Please refer to Draft EIR/EIS Volume 3 Tunnel Plans Drawings TN-C0300 through TN-C0302 for a description of the

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fault chamber design. Before and after the fault chamber, the tunnel will have a widened cross section to allow the alignment recovery. The Authority has developed an emergency access plan for operation of the California HSR System, pursuant to NFPA Standard 130: Standard for Fixed Guideway Transit and Passenger Rail Systems, the principal guidance document. The plan includes emergency access provisions with regard to fire and safety for stations, tunnels, ventilation systems, procedures, control systems, communication, and vehicles. The twin tunnels will be connected by cross passages every 800 feet for emergency egress between the tunnels. Response to Comment #10529 also addresses the EEDS function when trains are in a tunnel, as well as passenger evacuation. In addition, the project design includes fire warning systems and ventilation, as well as emergency exits and notification systems, consistent with the requirements of the NFPA Safety Code and Standard for Fixed Guideway Transit and Passenger Rail Systems, the California Building Code, and the International Building Code. Therefore, the tunnel design will have sufficient components to facilitate safe harbor and/or egress of passengers from tunnel areas following a seismic event.

The project's design also incorporates IAMFs such as the preparation of a Construction Management Plan (GEO-IAMF#1) that requires an assessment of geotechnical conditions prior to construction, which includes seismicity. In accordance with GEO-IAMF#7, prior to final design, the contractor shall conduct additional seismic studies to establish site-specific ground motions to be used in developing the seismic design parameters for the design of project elements in accordance with Authority's Technical Memoranda. Final design would be further supported by additional seismic studies and compliance with Caltrans seismic design criteria. These design procedures and features reduce to the greatest practical potential movements, shear forces, and displacements that result from inertial response of the structure. In critical locations, pendulum base isolators may be used to reduce the levels of inertial forces.

Because of the effectiveness of the above-mentioned design features and IAMFs, the Authority concluded that impacts related to fault rupture and seismic ground shaking endangering people or structures during construction (Impact GSSP#7); liquefaction, lateral spreading, and ground lurching endangering people or structures during construction (Impact GSSP#8); and the effects of geologic hazards during operations (Impact GSSP#16) would be less than significant under CEQA for all six Build

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Alternatives.

The Authority has developed an emergency access plan for operation of the California HSR System, pursuant to NFPA Standard 130: Standard for Fixed Guideway Transit and Passenger Rail Systems, the principal guidance document. The plan includes emergency access provisions with regard to fire and safety for stations, tunnels, ventilation systems, procedures, control systems, communication, and vehicles. The twin tunnels will be connected by cross passages every 800 feet for emergency egress between the tunnels. In addition, the project design includes fire warning systems and ventilation, as well as emergency exits and notification systems, consistent with the requirements of the NFPA Safety Code and Standard for Fixed Guideway Transit and Passenger Rail Systems, the California Building Code, and the International Building Code. The tunnel design will have sufficient components to facilitate safe harbor and/or egress of passengers from tunnel areas following a seismic event. Emergency egress for long, twin-bore tunnels is expected to be done by the passengers and crew from one tunnel to the other one, through the cross passages, which will be located every 800 feet. The typical procedure will be to wait inside these cross passages until a rescue train is able to reach the incident section, or at least until the traffic on the other tunnel has been confirmed to have stopped by the control center, to perform a self-rescue walking along the tunnel to the nearest portal.

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The commenter expressed concerns about the proposed heights of structures within the vicinity of the Hollywood Burbank Airport and potential impacts on airport operations. Permanent interference with airport safety, including the Hollywood Burbank Airport, is evaluated in Impact S&S#9, in Section 3.11, Safety and Security, of the Draft EIR/EIS. To address the potential for disruption of airfield and airspace operations at Hollywood Burbank Airport as a result of operation of the project, each of the HSR Build Alternatives incorporates SS-IAMF#5, which requires the Authority to submit designs and/or information to the Federal Aviation Administration (FAA) as required by the Code of Federal Regulations (C.F.R.), Title 14, Part 77, which may include the location of planned HSR construction and construction staging areas within and adjacent to the boundary of the Hollywood Burbank Airport, the types and height of proposed equipment, and planned time/duration of construction, to ensure that permanent HSR features within and adjacent to the boundary of Hollywood Burbank Airport do not intrude into imaginary surfaces as defined in 14 C.F.R. Section 77.9(b). SS-IAMF#5 also requires the implementation of measures required by the FAA to ensure continued safety of air navigation during HSR Build Alternative operation, pursuant to 14 C.F.R Section 77.5(c). If necessary, coordination with Hollywood Burbank Airport to amend the current Airport Layout Plan (Burbank-Glendale-Pasadena Airport Authority 2017) for any permanent construction-related facilities required for the HSR project will be submitted to the FAA for approval. The Airport Layout Plan amendment would be developed consistent with FAA's Standard Operating Procedures, including Standard Operating Procedure No. 2. In addition to the Airport Layout Plan amendment, as stated in SS-IAMF#5, the Authority will submit engineering design and/or information to the Burbank-Glendale-Pasadena Airport Authority for ultimate submittal to the FAA as required by 14 C.F.R Part 77, to ensure temporary construction, and permanent HSR features within and adjacent to the boundary of the Hollywood Burbank Airport do not intrude into imaginary surfaces as defined in 14 C.F.R. Section 77.9(b). Each of the HSR Build Alternatives also incorporates SS-IAMF#6, which requires continued coordination with the FAA and the Burbank-Glendale-Pasadena Airport Authority to avoid conflicts due to overlapping construction schedules and future operations at the Hollywood Burbank Airport as design of the Build Alternatives progresses. SS-IAMF#6 will require coordination to support full operations of the runway and taxiway systems during construction (please refer to Appendix 2-E, Impact Avoidance and Minimization Features, for further descriptions of IAMFs that will be incorporated into project design).

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Furthermore, as discussed in Section 9.6, Table 9-5 of the Draft EIR/EIS, the Authority has been in coordination with the Burbank-Glendale-Pasadena Airport Authority (BGPAA) and the Federal Aviation Administration (FAA) since 2014 and continues to work closely with those entities to avoid impacts to airfield operations. Additionally, the FAA is a Cooperating Agency under NEPA for the Palmdale to Burbank Project Section.

4494-9569

The commenter requested further information on wildfire avoidance and minimization measures during project construction. Project construction could increase fire risks in designated Fire Hazard Severity Zones (FHSZs) due to the storage and use of flammable or combustible materials, operation of vehicles and heavy machinery, or other factors resulting from increased human activity. However, all HSR right-of-way and facility vegetation control programs would conform to California Department of Forestry and Fire protection (CAL FIRE) guidelines for defensible space to reduce fire hazards. Additionally, ancillary features would be co-located with existing infrastructure of a similar nature and located in disturbed areas where possible, in order to reduce wildfire risks. Furthermore, the Authority will develop and incorporate fire and life safety programs into the project design and construction (SS-IAMF#1 and SS-IAMF#2) as part of the California HSR System. Fire risks would also be reduced by the Authority's formation of a statewide Fire and Life Safety and Security Committee (FLSSC) through implementation of SS-IAMF#2, which will be composed of representatives from fire, police, and local building code agencies The FLSSC will ensure the incorporation of local building codes and other fire safety features into the project design. Through co-location of infrastructure with existing structures and disturbed areas, implementation of the FLSSC, implementation of SS-IAMF#1 and SS-IAMF#2, and limitation of the use of flammable building materials, the Build Alternatives will not require the installation of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts on the environment.

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4494-9570

The commenter expresses concern over the year of Council on Environmental Quality (CEQ) regulations, the year of Census data, and the peak construction year used for the purposes of the Draft EIR/EIS. The commenter also asks more broadly why "outdated data" is used "throughout" the EIR/EIS.

As explained in Section 3.1, Introduction, (Section 3.1.4.5) of the Final EIR/EIS, "The existing conditions baseline year for this Draft EIR/EIS is generally 2015, the year when the environmental analysis for the Palmdale to Burbank Project Section began following issuance of the federal Notice of Intent and the State Notice of Preparation for this project section."

Regarding specific data referenced by the commenter:
• Census data: The Community Impact Assessment and the Relocation Impact Report to support the Draft EIR/EIS, from which the environmental analyses in Section 3.12, Socioeconomics and Communities, Section 3.18, Regional Growth, and Chapter 5, Environmental Justice, are based on, were initiated in 2016. The Draft EIR/EIS therefore relied upon the latest census data available in 2016 (2015 data) for its analyses in these sections as an adequate representation of existing conditions at the time the NOP was issued. Based upon its review of more recent census data (U.S. Census 2021), the Authority concluded that the population characteristics in the resource study area (RSA) have not changed and the socioeconomics, communities, and environmental justice impact conclusions would not be affected. For example, the Authority also refreshed its economic impact analysis based on the Regional Input-Output Multipliers System (RIMS) using more recent data. This updated analysis did not change the impact conclusions. The Authority's review of existing conditions is further discussed in Section 3.1.4.5 of the Final EIR/EIS.

• Housing prices: As noted above, the Community Impact Assessment and the Relocation Impact Report to support the Draft EIR/EIS was initiated in 2016. The Draft EIR/EIS therefore relied upon the latest housing stock and housing characteristics data (2015 data) and the latest housing price data (2016 data) available in 2016 for its analysis in Section 3.12 as an adequate representation of existing conditions at the time the NOP was issued. While the commenter claims that "Housing prices are dated from 2008 and 2017", this is incorrect; Table 3.12-9 in Section 3.12, Socioeconomics and

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Communities, of the Draft EIR/EIS, only presents 2016 average housing prices for jurisdictions in the RSA. The Authority is unaware of any reason that 2016 data on housing prices would be substantially different than 2015 data and therefore used it as baseline data and therefore believes it is an adequate representation of baseline for the analysis in the EIR/EIS. For more information on housing price data over time, see Standard Response PB-Response-SOCIO-2: Property Values.

• Employment and unemployment rates: As noted above, the Community Impact Assessment and the Relocation Impact Report to support the Draft EIR/EIS was initiated in 2016. The Draft EIR/EIS therefore relied upon the latest employment and unemployment rates (2016 data) available in 2016 for its analysis in Section 3.12 as an adequate representation of existing conditions at the time the NOP was issued. The Authority is unaware of any reason that 2016 data on employment would be substantially different than 2015 data and therefore used it as baseline data and therefore believes it is an adequate representation of baseline for the analysis in the EIR/EIS. Section 3.1.4.6 of the Final EIR/EIS explains how the Authority has continued updating its employment forecasts.

• General Plans: The Authority updated the list of general plans used for the analysis of project consistency, which is reflected in the revised Appendix 2.0-H, Regional and Local Policy Consistency Analysis in the Final EIR/EIS. Therefore, in the Final EIR/EIS, the most recent general plans are used. No land use analysis or conclusions changed as a result of updating any general plans in the Final EIR/EIS.

Regarding NEPA regulations, they are not considered data or environmental conditions for the purpose of the impact analysis. Commencement of the Palmdale to Burbank Project Section EIR/EIS began in 2016, prior to the release of the new 2020 Council on Environmental Quality (CEQ) regulations. As explained in footnote 2 in Section 3.12 of this Final EIR/EIS:

"The CEQ issued new regulations, effective September 14, 2020, updating the NEPA implementing procedures at 40 C.F.R. 1500. However, this project initiated NEPA before the effective date and is not subject to the new regulations, relying on the 1978 regulations [amended in 1986, 51 Federal Register 15618 (April 25,1986)] as they

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existed prior to September 14, 2020. All subsequent citations to CEQ regulations in this environmental document refer to the 1978 regulations, pursuant to 40 C.F.R. 1506.13 (2020) and the preamble at 85 Federal Register 43340."

The commenter asks how accurate projections can be made if the Authority is relying on older data. In response, the "peak year" of construction was assumed to be 2023 at the onset of environmental analysis, as presented in the Draft EIR/EIS. As explained in footnote 4, under the Employment subheading in Section 3.12.4.3 of the Draft EIR/EIS: "For each Build Alternative, 2023 is assumed to be the peak year of construction. For the purposes of this analysis, delays are not expected to change the magnitude of impacts. Operations would commence upon completion of construction." The 2040 projections presented in Section 3.12, Socioeconomics and Communities, are based on a separate report that were obtained from the Southern California Association of Governments' (SCAG) 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The purpose of including population and demographic projections for 2040 is to provide context for the affected environment during which it is anticipated the project would be operating.

4494-9571

Refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations.

The commenter refers to Chapter 3.12 Socioeconomics and Communities and associated Appendices 3.12-A, 3.12-B, and 3.12-C and requests information on the methodology that will be used to calculate fair compensation for displaced businesses unable to find suitable relocation sites. This topic is further discussed under Impact SOCIO#6: Permanent Displacement of Commercial and Industrial Businesses from Construction.

Although the displacement of local businesses is not considered an environmental impact under CEQA, the Authority has incorporated IAMFs that would apply to any of the six Build Alternatives and that will assist displaced businesses. As described in Section 3.12.4.2 of the Draft EIR/EIS, relevant IAMFs include SOCIO-IAMF#2: Compliance with Relocation Assistance and Real Property Acquisition Policies Act, which describes the Authority's commitment to compliance with the Act, which guarantees the right to appeal and states that any person may file an appeal with the head of the responsible agency if that person believes that the agency has failed to determine properly the person's eligibility or the amount of a payment authorized by the Act. The Authority would also implement SOCIO-IAMF#3: Relocation Mitigation Plan, which requires the Authority to develop a relocation plan that includes a program to minimize economic disruption and includes the creation of an ombudsman's position to act as a single point-of-contact for questions about the relocation process.

Also, please refer to Appendix 2-E of the Draft EIR/EIS for more information regarding these IAMFs. Detailed information regarding the Authority's relocation assistance policies is available in Appendix 3.12-A Residential, Business, and Mobile Home Relocation and Assistance Brochures of the Draft EIR/EIS. Additionally, PB-Response-SOCIO-1: Parcel Acquisitions and Relocations provides more information on the topics of methodology and calculation of benefits for displaced businesses, including the process and methodology in the event eminent domain is used.

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4494-9572

The commenter requests further information on mitigation regarding community cohesion and division effects from the project.

Impact SOCIO#1 and Impact SOCIO#2, in Section 3.12 of this Final EIR/EIS, describe effects on community cohesion/division effects from the project, and includes discussions of IAMFs/mitigation measures to ameliorate these effects. Construction of the Build Alternatives would present some new physical and visual barriers with the potential to divide existing communities. New physical and visual barriers from the at-grade or above-grade Build Alternative footprint would occur at the unincorporated community of Harold (Refined SR14, E1, and E2 Build Alternatives), the Boulders at the Lake Mobile Home Park (SR14A, E1A, and E2A Build Alternatives), the residential area near Vasquez High School in Acton (Refined SR14 Build Alternative only), the residential area near Big Springs Road in Agua Dulce (Refined SR14 Alternative), the residential area west of the SCE Vincent Substation in Acton (E1, E1A, E2, and E2A Build Alternatives), and the Lake View Terrace Neighborhood (E2 and E2A Build Alternatives).

Where new physical and visual barriers would occur within existing communities, access between properties and the local road networks would be maintained. The project would provide adequate roadway overcrossings and undercrossings to facilitate pedestrian, bicycle, and vehicular circulation. Impact SOCIO#1 (temporary disruption to community cohesion or division of existing communities from construction) would be less than significant for all Build Alternatives. Impact SOCIO#2 (permanent disruption to community cohesion or division of established communities from construction) would be potentially significant and require mitigation. SO-MM#2 (discussed in Section 3.12.7, of this Final EIR/EIS) will be implemented to minimize these effects, and will require the Authority to conduct special outreach to affected residential neighborhood and community residents, community organizations, and local officials, as well as require the Authority's evaluation of the community's modified access, in order to enable the Authority to maintain community cohesion and avoid physical deterioration.

Upon gathering feedback from the community, the Authority would utilize the input and define solutions. The Authority will report the decisions at a public workshop and in a written report made available to the public. The Authority would be responsible for

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implementing the measures to reduce impacts through project design and through the long-term management of the measures, which would involve documenting the desired design concepts, incorporating them into the final design, and facilitating ongoing maintenance. The commenter is correct that CEQA does not require consideration of effects that are solely economic or social; however NEPA does require some consideration of these and other related effects, which is why they are analyzed in the EIR/EIS.

4494-9573

The commenter requested further information on the type of data used to project anticipated local and regional growth. Growth projections for local and regional population, employment, and housing growth for the purposes of this analysis are based on the Southern California Association of Government's (SCAG) projections in its 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (please refer to Section 3.12.5 of this Draft EIR/EIS for further information).

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4494-9574

The commenter expressed concern on the year of Census data used for the purposes of the Draft EIR/EIS. The baseline year for the analysis of project impacts was established after the Notice of Preparation was filed on July 24, 2014, just after the public scoping period for the project was completed and at the onset of environmental analysis (see Draft EIR/EIS, pp. S-7, 3.3-23 to 3.3-24). CEQA Guidelines section 15125(a)(1) explicitly supports establishing baseline physical conditions in this manner, therefore, the use of a 2015 baseline is appropriate.

Preparation of the technical reports and appendices for the Palmdale to Burbank Project Section EIR/EIS was initiated in 2016, and thus the analysis is based on 2016 data. In reviewing more recent census data, the population and population characteristics of the study area have not changed substantially, as to where it would affect the analysis and significance conclusion presented. The Authority reviewed existing conditions data during preparation of the Final EIR/EIS and concluded that the 2015 baseline continues to be appropriate (see Section 3.1.4.5). The Authority also updated the list of general plans used for the analysis of project consistency which is reflected in a revised Appendix 2.0-H, Regional and Local Policy Consistency Analysis.

4494-9575

The commenter expressed concern about the year of CEQ regulations used for the purposes of the Draft EIR/EIS. As a matter of clarification, the regulations are not considered data for the purpose of the analysis. Commencement of the Palmdale to Burbank Project Section EIR/EIS began in 2016, prior to the release of the new 2020 CEQ regulations. As explained in footnote 2 in Section 3.12 of this Final EIR/EIS, the project initiated NEPA before the effective date and is not subject to the new regulations, relying on the 1978 regulations as they existed prior to September 14, 2020.

4494-9576

The commenter requested further information on access to the Draft EIR/EIS for residents with Limited English Proficiency. In March 2012 the High-Speed Rail Authority Board adopted a Title VI Program, in May 2012 the Board adopted a Limited English Proficiency (LEP) Policy, and in August 2012 the Board adopted EJ guidance. The adoption of these policies formalized the Authority's long-standing efforts to ensure that no person in the state of California is excluded from participation in, nor denied the benefits of, its programs, activities, and services on the basis of race, color, national origin, age, sex, or disability as afforded by Title VI of the Civil Rights Act of 1964 and related statutes. As described in Section 5.2.2, California High-Speed Rail Limited English Proficiency Policy and Plan, in Chapter 5 of this Final EIR/EIS, the LEP Policy articulates the Authority's policy to communicate effectively, with respect, and to provide meaningful access to limited English proficient (LEP) individuals to all the Authority's programs, services, and activities. Consistent with the Authority's LEP policy, the Authority has provided free language assistance services to LEP individuals encountered during public outreach or whenever requested by LEP individuals.

Language assistance may be provided through a variety of methods, including but not limited to Interpretation (verbal) and/or translation (written) of vital text (or a summary of that vital text). This has been accomplished through the translation of noticing materials and the Executive Summary distributed with the Draft EIR/EIS. It is the policy of the California High-Speed Rail Authority (Authority) to communicate effectively and to provide meaningful access to Limited English Proficient (LEP) individuals to the Authority's programs, services, and activities.

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4494-9577

The commenter requests further information on how project inconsistencies with Community Plans would be mitigated. The Authority, as the lead state and federal agency proposing to construct and operate the HSR System, is required to comply with all federal and state laws and regulations and to secure all applicable federal and state permits prior to initiating construction on the selected Build Alternative. Therefore, there would be no inconsistencies between the six Build Alternatives and these federal and state laws and regulations. The Authority is a state agency and therefore is not required to comply with local land use and zoning regulations; however, it has endeavored to design and construct the California HSR System so that it is consistent with land use and zoning regulations. For example, the proposed Build Alternatives will incorporate IAMFs that require the contractor to prepare a plan to demonstrate how construction socioeconomic and community impacts will be managed such that they comply with applicable standards. This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

4494-9578

The commenter asked whether the General Plans used for the purposes of the Draft EIR/EIS are the most recent versions. Please refer to response to comment 9570 regarding the references to General Plans.

4494-9579

The commenter requests further information on the type of data used to project anticipated local and regional growth. Growth projections for local and regional population, employment, and housing growth for the purposes of this analysis are based on the Southern California Association of Government's (SCAG) projections in their 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (please refer to Section 3.12.5 of this Final EIR/EIS for further information). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

4494-9580

The commenter refers to Chapter 3.12 Socioeconomics and Communities, Section 3.12.5.1 Social Setting, and asks whether the 2015 information presented in Tables 3.12-3 Regional Population Density, 3.12-4 Regional Race and Ethnicity, 3.12-5 Regional Household Income, and 3.12-6 Sensitive Populations in Areas of Residential Displacements remains relevant and appropriate to future construction of the Palmdale to Burbank Project Section. Specifically, the commenter refers to tables that rely on census data available in 2015. CEQA Guidelines section 15125(a)(1) specifies that the environmental baseline generally consists of the physical environmental conditions as they exist at the time the notice of preparation was published.

In response, the baseline year for the analysis of project impacts was established after the Notice of Preparation (NOP) was filed on July 24, 2014, just after the public scoping period for the project was completed and at the onset of environmental analysis. Therefore, the use of a 2015 (or later, depending) baseline is appropriate. The Authority reviewed existing conditions data during preparation of the Final EIR/EIS and concluded that the 2015 baseline continues to be appropriate. Please see Section 3.1.4.5 of the Final EIR/EIS for further explanation, including citations for the U.S. Census data used in the analysis (the 2010-2014 American Community Survey 5-year estimates) presented in the Final EIR/EIS, and the most recent U.S. Census data available (the 2017-2021 American Community Survey 5-year estimates available at https://data.census.gov/table) that the Authority reviewed. In addition, the 2040 projections presented in Section 3.12, Socioeconomics and Communities, comes from the Southern California Association of Governments' (SCAG) 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The 2016-2040 RTP/SCS anticipates annual population growth in the SCAG region to be approximately 0.7 percent per year.

The purpose of including population and demographic projections for 2040 is to provide context for the affected environment for the horizon year for analysis of California HSR System operations. Although these 2040 projections are based upon data available in 2015, the Authority's review of more recent data did not identify substantial changes, and concluded that the projections remain valid. Section 3.1, Introduction, specifically Section 3.1.4.5 Affected Environment and Section 3.12, Socioeconomics and Communities, specifically Section 3.12.1 Introduction have been updated to explain the

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4494-9580

Authority's review of existing conditions data since publication of the Draft EIR/EIS.

4494-9581

The commenter refers to Figure 3.12-8 Population and Community Resource Study Area (Map 7 of 11), and requests specific information as to the location where the E1 Build Alternative emerges from tunnel near Little Tujunga Canyon. The Refined SR14, SR14A, E1, and E1A Build Alternative tunnel opening depicted on Figure 3.12-8 is located at Montague Street, northeast of Ralston Avenue. The E2 and E2A Build Alternative tunnel openings depicted on Figure 3.12-8 are located south of Wentworth Street and along Oliver Road between Oliver and Cassie Canyons, east of Little Tujunga Canyon.

4494-9582

The commenter expresses confusion over the E2 and E2A Build Alternatives being "inconsistent" due to lack of available replacement units, but "consistent with the majority of local and regional policies and plans."

The reference to inconsistency is specific to two policies: the City of Los Angeles Plan for a Healthy Los Angeles (Policy 1.7), which calls for mitigating the potential displacement caused by large-scale investment and development; and the Sunland-Tujunga-Lake View Terrace-Shadow Hills-East La Tuna Canyon Community Plan (Policy 1.1.4), which promotes neighborhood preservation in existing residential neighborhoods. Certain project alternatives are inconsistent with Policy 1.7 because Sun Valley and Lake View Terrace would have insufficient replacement units available to accommodate all displaced residents in these communities from the E2 and E2A Build Alternatives. These same project alternatives are inconsistent with Policy 1.1.4 because they would displace existing residential land within neighborhoods (Lake View Terrace and Shadow Hills) and convert residential uses to transportation use to accommodate construction staging, rail alignment, utility easement, and access.

At the end of Section 3.12.3, Consistency with Plans and Laws, the EIR/EIS states "Despite the inconsistencies, the project is consistent with the *majority* of regional and local policies and plans." This is not double-speak nor contradictory, as suggested by the commenter. While the E2 and E2A Build Alternatives would be inconsistent with two distinct policies, the project generally would be consistent with hundreds of policies analyzed across 12 regional and local plans. The full analysis of the project's consistency with local and regional plans is provided in Appendix 2.0-H, Regional and Local Policy Consistency Analysis. Because the E2 and E2A Build Alternatives would be consistent with the vast majority of the policies analyzed, the statement in Section 3.12.3 is accurate.

4494-9583

The commenter questions why certain jurisdictions are not included in the study area. As described in Section 3.12.4 and Section 3.12.5 of this Final EIR/EIS, both the City of San Fernando and the Sylmar neighborhood are included in the study area.

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4494-9584

The commenter asks when the project's mitigation plans will be available. The detailed mitigation plans specified in the EIR/EIS will be prepared during the detailed design and before construction begins. Currently, the Authority does not have funding for detailed design or construction of this project section. Therefore, the timing for preparation of these plans is not known. Future funding is being sought for continued progress. As funds become available, the Authority will proceed with advanced design and prepare for other pre-construction work, including work on finalization and distribution of the project mitigation plan.

4494-9585

The commenter inquired about the anticipated construction years used for the purposes of the Draft EIR/EIS.

The baseline year for the analysis of project impacts was established after the Notice of Preparation was filed on July 24, 2014, just after the public scoping period for the project was completed and at the onset of environmental analysis (see Draft EIR/EIS, pp. S-7, 3.3-23 to 3.3-24). CEQA Guidelines section 15125(a)(1) explicitly supports establishing baseline physical conditions in this manner, therefore, the use of a 2015 baseline (or later, as applicable) is appropriate.

Preparation of the Palmdale to Burbank Project Section EIR/EIS, including technical reports and appendices, began in 2016, and thus the analysis, including construction assumptions, is based on 2016. At that time, peak construction was anticipated to occur in 2023. Currently, the Authority does not have funding for construction of this project section. Therefore, planning efforts have not begun for this specific stage of the project. Future funding is being sought for continued progress.

The Authority reviewed existing conditions data during preparation of the Final EIR/EIS and concluded that the 2015 baseline continues to be appropriate (see discussion in the Final EIR/EIS, Section 3.1.4.5). Because the analysis in the EIR/EIS applies the project's effects in light of existing or baseline conditions, and those conditions have not changed substantially since 2015, the impact analysis and results continue to be accurate notwithstanding the peak year of construction not being 2023.

4494-9586

The commenter requests further information on the basis of describing the Courtship Ranch equestrian facility as an element of community cohesion in the Lake View Terrace area. The statement on the consideration of Courtship Ranch as an element of community cohesion, in the Affected Environment discussion (Section 3.12.5.1), has been deleted from the Final EIR/EIS. This facility would not be displaced and is not further evaluated in the document.

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4494-9587

The commenter requests further information on the verification of use of recreational areas, considering the recent pandemic.

Based on the latest Centers for Disease Control and Prevention (CDC) guidelines on Covid-19, published in May 2023, the federal COVID-19 Public Health Emergency declaration ended on May 11, 2023 (please refer to: https://www.cdc.gov/coronavirus/2019-ncov/your-health/end-of-phe.html). In addition, the California COVID-19 State of Emergency was terminated as of February 28, 2023.

The Governor has also phased out the executive actions put in place since March 2020 as part of the pandemic response (please refer to: https://covid19.ca.gov/safely-reopening/#:~:text=California%20has%20moved%20Beyond%20the,part%20of%20the%20pandemic%20response).

Since the lifting of COVID restrictions, prior uses of recreational areas and facilities are reasonably expected to have resumed. Sun Valley parks and the Sun Valley Recreation Center are open (see https://www.laparks.org/reccenter/sun-valley).

4494-9588

The commenter refers to Chapter 3.12, Socioeconomics and Communities, Section 3.12.5.2 Housing Setting which provides data from 2015 and 2016, and observes that housing figures have changed and homeless populations have increased in the Lake View Terrace and Hansen Dam areas. The commenter asks about the current homeless populations for those areas. CEQA Guidelines section 15125(a)(1) specifies that the environmental baseline generally consists of the physical environmental conditions as they exist at the time the notice of preparation was published.

The baseline year for the analysis of project impacts was established after the Notice of Preparation (NOP) was filed on July 24, 2014, just after the public scoping period for the project was completed and at the onset of environmental analysis. Therefore, the use of a 2015 (or later, depending) baseline is appropriate. The Authority reviewed existing conditions data during preparation of the Final EIR/EIS and concluded that the 2015 baseline continues to be appropriate. Please see Section 3.1.4.5 of the Final EIR/EIS for further explanation. Specifically, Table 3.12-7, Regional Housing Characteristics, and Table 3.12-8, Regional Housing Stock, within Section 3.12.5.2, Housing Setting, of the Draft EIR/EIS to which the commenter refers, rely on census data available in 2015. Based upon its review of more recent census data (U.S. Census 2021), the Authority concluded that the population (including homeless population) and housing characteristics in the resource study area (RSA) have not changed and the socioeconomics, communities, and environmental justice impact conclusions would not be affected. As a result, Section 3.1, Introduction (specifically Section 3.1.4.5, Affected Environment), and Section 3.12, Socioeconomics and Communities (specifically Section 3.12.1, Introduction) have been updated in the Final EIR/EIS to explain the Authority's review of existing conditions data since publication of the Draft EIR/EIS.

4494-9589

The commenter requests further information on the quantity of workers in certain employment sectors commuting from Palmdale/Lancaster to Burbank/LA. Further information on this topic is available in the Greater Antelope Valley Economic Alliance's (GAVEA) Economic Roundtable Reports (https://avedgeca.org/wp-content/uploads/2021/01/2020-GAVEA-Econ-Round-Table.pdf).

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9590

The commenter inquires as to the purpose of including 2015 and 2040 State and Los Angeles County employment and projected growth data. Growth projections for local and regional population, employment, and housing growth for the purposes of this analysis are based on the Southern California Association of Government's (SCAG) projections in their 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (please refer to Section 3.12.5 of this Final EIR/EIS for further information). The Authority's goals are to support HSR ridership by promoting, in partnership with local agencies, transit-oriented development (TOD) around HSR stations.

The analyses presented in this Final EIR/EIS, including Section 3.12, Socioeconomics and Communities, and Section 3.13, Station Planning, Land Use, and Development, evaluates the impacts of the project alternatives based on projected 2040 future conditions, which is the horizon year for analysis of California HSR System operations. These projections allow for the evaluation of how the HSR system and its project sections would operate in the context of anticipated growth.

The scope of this analysis includes population growth within Los Angeles County, rather than the state in its entirety. Recent statewide exodus figures which have occurred since 2016 were not accounted for in this analysis. However, it is not anticipated these figures would substantially affect that data presented for LA County in this Final EIR/EIS, such that it would affect the conclusions presented. Population projections are always snapshots, reflecting the historical data available, and the analysis of trends, growth capacities, and growth constraints apparent at the times the projections are prepared. More important than the specific population projection is the recognition and examination of how the HSR system and its project sections would operate in the context of anticipated growth. Updating the document with 2020 data or with more recent population projections for 2040 would not change the project's impact or the impact determinations presented in Section 3.12 and Section 3.13 as the Palmdale to Burbank Project Section which is the project is not anticipated to induce substantial unplanned population growth beyond what is planned for the project study area.

4494-9591

The commenter requested further information on how property taxes in the area have changed since 2015. The year 2015 was used as the baseline year for assessing impacts because the Notice of Preparation was filed on July 24, 2014, just after the public scoping period for the project was completed and at the onset of environmental analysis (see Draft EIR/EIS, pp. S-7, 3.3-23 to 3.3-24), and CEQA Guidelines section15125(a)(1) explicitly supports establishing baseline physical conditions in this manner. Therefore, the use of a 2015 baseline is appropriate. Impact SOCIO#12, in Section 3.12 of this Final EIR/EIS, provides further discussion of anticipated property tax effects from the project. Property tax impacts were estimated using Los Angeles County Assessor parcel data reflecting the assessed value of full- and partial-acquisition parcels along the alternatives. A detailed discussion of this methodology can be found in Appendix C, Economic Analysis, of the Community Impact Assessment of this Final EIR/EIS. Electronic versions of Technical Reports prepared for this Final EIR/EIS are available through submitting a request on the Public Records Act portal (available at: https://hsr-ca.nextrequest.com/). Property is assessed, and the corresponding property tax is collected at the county level in California. Property owners pay one percent of assessed property value in general property tax, along with any special or direct assessments levied by local taxing entities that must be voter-approved. Property tax distribution varies from jurisdiction to jurisdiction, even within jurisdictions, and from year to year. The property tax revenues and ensuing loss in property tax revenues for each Build Alternative are calculated at a collective local level, reflecting the full one percent tax rate that is distributed between cities, Los Angeles County, local school districts, and other special districts.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9592

The commenter refers to Chapter 3.12 Socioeconomics and Communities (Section 3.12.5.3) in the Draft EIR/EIS and asks whether the information presented in Table 3.12-15 regarding School District Funding for 2015 remains useful, given changes due to attrition, gaps in attendance after COVID-19, and decreases in population.

CEQA Guidelines section 15125(a)(1) specifies that the environmental baseline generally consists of the physical environmental conditions as they exist at the time the notice of preparation was published. The baseline year for the analysis of project impacts was established after the Notice of Preparation (NOP) was filed on July 24, 2014, just after the public scoping period for the project was completed and at the onset of environmental analysis. Therefore, the use of a 2015 (or later, depending) baseline is appropriate. The Authority reviewed existing conditions data during preparation of the Final EIR/EIS and concluded that the 2015 baseline continues to be appropriate. Please see Section 3.1.4.5 of the Final EIR/EIS for further explanation. With respect to the school district funding, the Authority reviewed more recent data from the 2021-2022 fiscal year (available from the California Department of Education at http://www.ed-data.org/) to determine whether the analysis presented in the Draft EIR/EIS remains valid. Upon reviewing the 2021-2022 data, each of the eight school districts in the project study area listed in Table 3.12-15 have seen an increase in property tax revenue, and in total revenue, which includes property tax revenue and ADA-based revenue.

As discussed in Section 3.12.6.6, Impact SOCIO#13, each of the Build Alternatives could result in a loss of total affected school district funding. However, property tax revenues contribute a small amount to the district funding, and it is unlikely that a reduction in only property tax revenues would trigger school closures within the district. Additionally, the total revenue of school funding increased in the fiscal year 2021-2022 for all school districts, meaning that the loss of revenue from property taxes represents an even smaller percentage with the updated data. For the reasons above, the analysis presented in the Draft EIR/EIS remains valid. As described above, Section 3.1.4.5 of the Final EIR/EIS, has been updated to explain the Authority's review of existing conditions data since the publication of the Draft EIR/EIS.

4494-9593

The commenter cites page 3.12-49 of the Draft EIR/EIS, which states that the No Project Alternative could have similar effects as the HSR Palmdale to Burbank Project Section due to other later projects, and accuses the Authority of ignoring the possibility of land remaining in its "natural, undisturbed form."

The commenter appears to be commenting on the following statement on page 3.12-49 of the Draft EIR/EIS: "Anticipated growth under the No Project Alternative includes other projects that could result in
potential economic benefits and losses."

Pursuant to CEQA Guidelines, the No Project Alternative represents conditions in the study area in the absence of approval of the proposed project (CEQA Guidelines Section 15126.6(e)(1)). The No Project Alternative must discuss current conditions as well as reasonably foreseeable future conditions expected to occur if the project were not approved (CEQA Guidelines Section 15126.6(e)(2)). Pursuant to the aforementioned CEQA Guidelines, the No Project Alternative for this EIR/EIS includes all currently known, programmed, and funded improvements to the intercity transportation system (highway, rail, and transit) and reasonably foreseeable local development projects (with funding sources already identified) expected to be developed as planned by 2040, the planning horizon used in the EIR/EIS.

Furthermore, the analysis of the No Project Alternative included the assumption made by the commenter (i.e., that under the No Project Alternative, land would remain in its natural, undisturbed form). Page 3.12-49 of the Draft EIR/EIS includes the following statement: "Development under No Project Alternative conditions would primarily occur within existing urban/suburban communities within the project area, including Palmdale and the San Fernando Valley, and would generally avoid portions of the San Gabriel Mountains that preclude development because of topographical constraints or protected land designations (such as within the ANF including SGMNM)."

The Draft EIR/EIS, thus, does not ignore that some land, specifically land in mountainous regions, would remain in its existing form under the No Project Alternative. The Draft EIR/EIS specifically states that under the No Project Alternative, development would generally avoid portions of the San Gabriel Mountains.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9594

Refer to Standard Response PB-Response-TRA-1: Temporary Traffic Associated with Construction.

The commenter points out a minor error in Section 3.12, inadvertently referring to "SR-188" as "SR-118". This minor error has been corrected in the Final EIR/EIS. The commenter also inquires about freeway traffic effects from project construction staging areas that would be located near where the I-210 and SR-118 freeways connect. This topic is addressed in Standard Response PB-Response-TRA-1, which explains that trips for construction workers would generally occur outside of the peak hours for freeway and street traffic (TR-IAMF#6). The movement of heavy construction equipment such as cranes, bulldozers, and dump trucks to and from the site would generally occur during off-peak hours on designated truck routes (TR-IAMF#6 and TR-IAMF#7). The contractor will be responsible for identifying adequate off-street parking for construction-related vehicles and, if necessary, designating remote parking areas for these workers, with shuttles to bring them to and from the construction area if the remote parking areas are distant from the project site (TR-IAMF#3). At this specific location, there is proposed to be an intermediate window area for the SR14/SR14A and E1/E1A Build Alternatives. Access to the construction site is planned to be from Foothill Boulevard and I-210 and SR 118 freeways (depending on the spoils deposit sites), thereby minimizing the amount of construction spoils truck traffic on neighborhood streets. As documented in Section 3.2.4.3, five intersections and two roadway segments were assessed in this area, including along Foothill Boulevard and Paxton Street. Construction activities were found to result in a significant impact to two intersections (I-280 Ramps at Paxton Street and Foothill Boulevard at the Spoils Area 15 Access Road). To address these issues, mitigation measures have been identified, including TR-MM#12, which would address the impacts of construction by preparing a Transportation Construction Management Plan to manage circulation and connections for modes of travel during the construction duration.

4494-9595

The commenter requests further information on the project Construction Management Plan, including development of the CMP and anticipated water use used for dust control measures. Please refer to Appendix 2-E of this Final EIR/EIS for the full text on project IAMFs, including the proposed CMP (SOCIO-IAMF#1). Management plans, including the CMP, are to be prepared by the construction contractor, the preparation of which is outside of the scope of an EIR/EIS. As described under Impact PUE#4, in Section 3.6, Public Utilities and Energy, of this Final EIR/EIS, the average annual water use over the construction period for the Build Alternatives would be approximately 907 acre-feet/year; this figure includes water used for for dust suppression during construction.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9596

The commenter refers to Impact SOCIO#1: Temporary Disruption to Community Cohesion or Division of Existing Communities from Construction, in Section 3.12, Socioeconomics and Communities, of the Draft EIR/EIS. The commenter asks how residents can address temporary impacts resulting from light and glare during nighttime construction should efforts to minimize them prove insufficient.

Effects from construction light and glare are discussed under Impact AVQ#2: Temporary Construction Impacts from Light and Glare, in Section 3.16, Aesthetics and Visual Quality, of the Draft EIR/EIS. Construction light and glare would be an annoyance to viewers along the alignment where construction activities would occur, reducing the visual quality rating by one or more levels depending upon the setting. Construction would occur only intermittently at night throughout the construction period. Construction at any given location would typically last 1 to 2 years. Combined with an overall viewer sensitivity rating of moderate, the effect of construction light and glare would be significant under CEQA. To mitigate this impact, AVQ-MM#2 Minimize Light Disturbance During Construction requires the contractor to prepare a technical memorandum verifying how they will shield nighttime construction lighting and direct it downward in such a manner to minimize light that falls outside the construction site boundaries. The technical memorandum will be submitted to the Authority for review and approval.

Following implementation of AVQ-MM#2 and if light and glare from nighttime construction activities continues to be objectionable, residents or others will be able to contact the Authority through a toll-free hotline for construction-related activities to make their concerns known. A designated representative of the Authority will respond to hotline messages within 24 hours (excluding weekends and holidays). The Authority will make a reasonable, good-faith effort to address all concerns and answer all questions and shall include in a log its responses to all callers. The Authority shall make the log of the incoming messages including the Authority's responsive actions publicly available on its website.

4494-9597

The commenter requests further information on mitigation measures specific to the area along the E2 and E2A Build Alternatives where it emerges from tunnel in the Lake View Terrace area. The E2 and E2A Build Alternatives would result in both permanent and temporary impacts in this area. The EIR/EIS identifies these impacts by topic and specific to the E2 and E2A Build Alternatives. In this area the E2 and E2A alternatives would result in displacement of residential and commercial land uses to construct the project. As described in the EIR/EIS, construction impacts related to noise, traffic, and air quality that may disrupt residents and motorists would be minimized through NV-IAMF#1 (minimization of noise near sensitive receptors), AQ-IAMF#1 (implementation of a fugitive dust control plan), AQ-IAMF#2 (selection of coatings), AQ-IAMF#6 (reduce the potential impact of concrete batch plants), and TR-IAMF#2 (implementation of best management practices through a CTP), and impacts from temporary construction activities would be minimized such that existing land-use patterns and community cohesion would be preserved. The Authority's preferred alternative is SR14A would avoid the Lake View Terrace area.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9598

Refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations.

The commenter inquires about how the Authority engages and coordinates with agents from the Uniform Act. The Uniform Act is a federal law that establishes minimum standards for federally funded programs and projects that require the acquisition of real property (real estate) or displace persons from their homes, businesses, or farms. The Authority employs various specialists who will assist with compliance with the Uniform Act, including relocation specialists (individuals who perform early studies of the general needs of persons who may be relocated ant the types of replacement properties which may be required), property surveyors (perform field surveys, delineate property lines, and map the Authority's right-of-way needs), and right-of-way agents or appraisers (assess the value of private property). Some of these specialists may be directly employed by the Authority, while others would be contractors working on behalf of and under the oversight of Authority staff. As explained in the Authority's booklet, "Your Property, Your High-Speed Rail Project," (available on the Authority's website: https://hsr.ca.gov/wp-content/uploads/docs/programs/private_property/Your-Property-Your-HSR-Project-Factsheet.pdf), property owners will be given the opportunity to accompany the appraiser on the inspection of their property. The appraiser will analyze the property and examine all features that contribute to its market value. Property owners can provide information about improvements that have been made and any other special features that may affect the market value of their property to the appraiser to ensure that he/she has all the relevant information. The owner will receive a copy of the appraisal or a summary of the valuation upon which the Authority's offer is based. However, at the time an offer is made to purchase the property, an owner may also choose obtain their own independent appraisal by a state-licensed appraiser. Please refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations, which includes additional information about how the Authority complies with the Uniform Act.

4494-9599

The commenter inquires about the validity of the analysis for the No Project Alternative. As described in Section 2.5.1 of this Final EIR/EIS, the No Project Alternative assumes that the Palmdale to Burbank Project Section would not be constructed. In assessing future conditions, it was assumed that all currently known, programmed, and funded improvements to the intercity transportation system (highway, rail, and transit) and reasonably foreseeable local development projects (with funding sources already identified) would be developed as planned by 2040. The No Project Alternative is based on a review of all city and county general plans, regional transportation plans for all modes of travel, and agency-provided lists of pending and approved projects within Los Angeles County. For the environmental analysis, the No Project Alternative considers the effects of growth planned for the region, as well as existing and planned improvements to the highway, aviation, conventional passenger rail, and freight rail systems in the Palmdale to Burbank Project Section area through 2040. The scenario is based on future development projects and improvements to the intercity transportation system that are programmed and funded for construction. Therefore, the analysis of the No Project Alternative is not based on speculation but on existing and approved land uses and development.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9600

Refer to Standard Response PB-Response-SOCIO-3: Health and Safety of Children.

The commenter refers to Section 3.12.6.3, Impact SOCIO#1: Temporary Disruption to Community Cohesion or Division of Existing Communities from Construction, and requests further information related to the impacts that adjacent construction staging may have on students at Hillery T. Broadous Elementary School related to the Refined SR14 Build Alternative.

The proposed construction staging area for Refined SR14-W2 would be located directly south of the I-210/SR 118 intersection, within 250 feet of Hillery T. Broadous Elementary School. The proposed staging site is currently used as industrial warehousing facilities, which would be removed. The site would be fenced and screened from the school and other surrounding uses for aesthetic purposes. To minimize interference with school-related circulation and traffic impacts, construction equipment/trucks would enter the proposed staging site through specified entrance and exit location via Foothill Boulevard, which is a major arterial and truck route. As such, the school and circulation immediately around the school will not be affected. No truck traffic is proposed to pass by the school. Nor will children be exposed to construction activities as the site will be securely fenced and screened from view from the school and surrounding neighborhood. Please refer to Standard Response PB-Response-SOCIO-3: Health and Safety of Children for a discussion of construction impacts to schools.

4494-9601

The commenter requests further information on the length of time construction effects would be experienced at a given location. Construction at any given location would typically last 1 to 2 years, although construction activities at concrete batch plants and some construction laydown areas would last for up to 5 years. For further information on construction timeline estimates, please refer to Section 2.9.2 in Chapter 2, Alternatives, of this Final EIR/EIS.

4494-9602

The commenter requests further information on the verification of recreational areas, accounting for the recent pandemic. Per the latest Centers for Disease Control and Prevention (CDC) guidelines on Covid-19, as of June 2021, prior health orders regarding social distancing and capacity limits have been lifted, with exceptions related to masking and mega-events, as well as settings serving children and youth (please refer to: https://covid19.ca.gov/safely-reopening/#what-to-do-now).

4494-9603

The commenter requests further information about mitigation regarding community cohesion and division effects from the project on the communities of Acton and Agua Dulce. Impact SOCIO#1 and Impact SOCIO#2, in Section 3.12 of this Final EIR/EIS, describe effects on community cohesion/division effects from the project, and includes discussions of IAMFs/mitigation measures to ameliorate these effects. Construction of the Build Alternatives would present new physical and visual barriers with the potential to divide existing communities. New physical and visual barriers from the at-grade or above-grade Build Alternative footprint would occur at the residential area near Vasquez High School in Acton (Refined SR14 Build Alternative only), the residential area near Big Springs Road in Agua Dulce (Refined SR14 Alternative), and the residential area west of the SCE Vincent Substation in Acton (E1, E1A, E2, and E2A Build Alternatives). Where new physical and visual barriers would occur within existing communities, access between properties and the local road networks would be maintained. The project would provide adequate roadway overcrossings and undercrossings to facilitate pedestrian, bicycle, and vehicular circulation. SO-MM#2 (discussed in Section 3.12.7, of this Final EIR/EIS) will be implemented to minimize these effects, and will require special outreach to affected residential neighborhood and community residents, community organizations, and local officials, as well as require the Authority's evaluation of the community's modified access, in order to enable the Authority to maintain community cohesion and avoid physical deterioration. Upon gathering feedback from the community, the Authority would use the input and develop enhancements to ameliorate effects associated with community cohesion and community division. The Authority would be responsible for implementing the measures to reduce impacts through project design and through the long-term management of the measures, which would involve documenting the desired design concepts, incorporating them into the final design, and facilitating ongoing maintenance.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9604

The commenter refers to the Draft EIR/EIS discussion in Section 3.12, Socioeconomics and Communities, related to Impact SOCIO#2: Permanent Disruption to Community Cohesion or Division of Established Communities from Construction of the E2 Build Alternative, asks for more information regarding reduction of views and paths in the Lake View Terrace neighborhood, and expresses concern about social isolation.

Entering the San Fernando Valley from the north, the E2 Build Alternative would transition from tunnel to at-grade for approximately 1,000 feet before rising onto an elevated viaduct structure at Lake View Terrace. Due to its at-grade and on-viaduct construction, the E2 Build Alternative would divide the Lake View Terrace neighborhood between Jimenez Street and Wheatland Avenue. Connectivity between the divided neighborhood would be maintained via Arnwood Road and Foothill Boulevard, both of which would pass underneath the elevated HSR right-of-way. Foothill Boulevard would continue to provide the neighborhood with access to the regional road network. Nevertheless, the Draft EIS/EIS identifies that construction of the E2 Build Alternative would present new physical and visual barriers with the potential to divide the Lake View Terrace neighborhood, which is a significant impact requiring mitigation.

The Authority has incorporated an Impact Avoidance and Minimization Feature (IAMF) SOCIO-IAMF#1: Construction Management Plan, that will address the potential of the E2 Build Alternative to temporarily disrupt the Lake View Terrace neighborhood during construction. SOCIO-IAMF#1 will provide measures that minimize impacts on low-income households and minority populations such as directing all street users around the construction to allow them to access their destinations. These detours will be within urban areas, making them shorter as multiple nearby streets traffic could be rerouted to. Access between existing communities and the local road networks would be maintained through the project providing adequate roadway overcrossings and undercrossing to facilitate pedestrian, bicycle, and vehicular circulation. Please refer to Section 3.12.4.2 and Volume 2, Appendix 2-E, for more information regarding this IAMF.

Notwithstanding the implementation of a Construction Management Plan, the significant impact of the E2 Build Alternative must still be mitigated. Mitigation Measure SO-MM#2, discussed in Section 3.12.7 of this Final EIR/EIS, provides for implementation of measures to reduce impacts associated with the division of residential neighborhoods. It

4494-9604

requires special outreach to affected residential neighborhood and community residents, community organizations, and local officials, as well as require the Authority's evaluation of the community's modified access, in order to enable the Authority to maintain community cohesion and avoid physical deterioration.

Upon gathering feedback from the community, the Authority would use the input and develop enhancements to ameliorate effects associated with community cohesion and community division. For example, if safety considerations prohibit such uses as bike paths or community gardens, alternatives, such as sculpture gardens or managed landscaping, could be considered. The Authority would be responsible for implementing the measures to reduce impacts through project design and through the long-term management of the measures, which would involve documenting the desired design concepts, incorporating them into the final design, and facilitating ongoing maintenance. With implementation of Mitigation Measure SO-MM#2, the impact of physically dividing the Lake View Terrace neighborhood by the E2 Build Alternative would be less than significant.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9605

The commenter asks how Burbank can be considered as a replacement property for the Los Angeles County Department of Social Services.

It is not uncommon for County buildings or facilities to be located within the jurisdictional limits of a City. For example, the Los Angeles County Department of Regional Planning is located in downtown Los Angeles, and the Los Angeles County Public Works Department is located in the City of Alhambra. Notably, the Los Angeles County Department of Social Services has an existing office in Burbank, located at 3307 North Blenoaks Boulevard and within the city limits.

The Relocation Impact Report prepared for this Final EIR/EIS includes the methodology used to identify potential replacement sites for displaced properties (this process is referred to as a "gap analysis"). As described in Section 4, Methods of Evaluating Impacts, of the Relocation Impact Report, replacement sites were sought within, or as near to displacement sites as possible to help ensure comparability and suitability. Electronic versions of Technical Reports prepared for this Final EIR/EIS are available through submitting a written request on the Public Records Act portal (available at: https://hsr-ca.nextrequest.com/).

4494-9606

The commenter questions the relevance of 2017 housing data in the impact analysis presented in Section 3.12, Socioeconomics and Communities, of the Draft EIR/EIS.

It is noted that the population and housing data included in the Draft EIR/EIS is from 2016, not 2017, as stated by the commenter. As stated in Section 3.12.1, Introduction, of Section 3.12, Socioeconomics and Communities, of the Final EIR/EIS, "During preparation of the Final EIR/EIS, the Authority reviewed more recent census data (U.S. Census 2021) and concluded that the population characteristics in the resource study areas (RSA), including census block group boundaries and low-income and minority populations, have not changed substantially. Section 5.4.4 of the Final EIR/EIS also clarified that between publication of the 2010-2014 ACS and 2017-2021 ACS, the geographic delineation of Census block groups has changed. In this context, "substantially" refers to a deviation of the population and population characteristics in the RSA that is greater than 5 percent. The Authority also reviewed school district funding data from the 2021-2022 fiscal year available from the California Department of Education and determined that the analysis presented in the Draft EIR/EIS remains valid (CDE 2021-2022)." Therefore, the analysis and conclusion for Impact SOCIO#4: Permanent Displacement of Residences from Construction remains valid. No additional analysis is warranted with regard to housing effects from the Build Alternatives.

4494-9607

Refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations.

The commenter requests further information on the logistics of outreach to communities regarding relocation. This topic is further discussed in Standard Response PB-Response-SOCIO-1. Outreach to affected homeowners will be conducted during advanced design and other pre-construction work. Consistent with the requirements of the Uniform Act and California Relocation Assistance Act, the Authority is committed to working closely and proactively with residents and businesses to help them plan ahead for relocation, find a new home or business site, and solve problems related to the acquisitions and relocation.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9608

Refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations.

The commenter requests further information on effects to property values and property tax from the project. Effects to property values from the project are discussed in Standard Response PB-Response-SOCIO-2.

As discussed in Appendix C, Economic Analysis, of the Community Impact Assessment prepared for this Final EIR/EIS, reduced property tax revenues would also be a direct effect of project operation because of the potential reductions in property values associated with train nuisances (e.g., visual effects). Property is assessed, and the corresponding property tax is collected at the county level in California. Property owners pay 1 percent of assessed property value in general property tax, along with any special or direct assessments levied by local taxing entities that must be voter-approved. Electronic versions of Technical Reports prepared for this Final EIR/EIS are available through submitting a request on the Public Records Act portal (available at: https://hsr-ca.nextrequest.com/).

4494-9609

Refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations.

The commenter refers to the Draft EIR/EIS discussion in Section 3.12, Socioeconomics and Communities, related to Impact SOCIO#5: Permanent Displacement and Relocation of Sensitive Residential Population from Construction, and asks about assistance for and communication with sensitive populations.

Although the displacement of sensitive populations is not considered, in itself, an environmental impact under CEQA, the Authority has nevertheless incorporated Impact Avoidance and Minimization Features (IAMFs) into all six Build Alternatives that will assist sensitive populations, specifically SOCIO-IAMF#2 Compliance with Relocation Assistance and Real Property Acquisition Policies Act which will provide relocation assistance to all residents displaced by the Build Alternative in compliance with the Uniform Act, and SOCIO-IAMF#3 which will establish an appraisal, acquisition, and relocation process in consultation with the affected cities, counties, and property owners.

Please refer to Section 3.12.4.2 and Volume 2, Appendix 2-E, for more information regarding these IAMFs. PB-Response-SOCIO-1: Parcel Acquisitions and Relocations provides more information regarding the Authority's analysis of and efforts to avoid and minimize relocation impacts. Currently, the Authority does not have funding for construction of this project section. Therefore, planning efforts have not begun for this specific stage of the project. Future funding is being sought for continued progress. As funds become available, the Authority will proceed with advanced design and prepare for other pre-construction work, which includes outreach to affected homeowners.

The following guidelines are used to conduct outreach during all phases of the project: Title VI of the Civil Rights Act of 1964; Executive Order 12898 (February 16, 1994); Executive Order 13166 (August 11, 2000); U.S. Department of Transportation Order 5610.2. Please refer to Section 5.2.1, Federal Laws, Regulations, and Order, in Chapter 5 of this Final EIR/EIS for further description of federal policies concerning EJ communities, including EJ programs and outreach.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9610

The commenter refers to page 3.12-77 of the Draft EIR/EIS and asks what constitutes a "substantial number of existing homes." The commenter also asks why the conclusion of Impact SOCIO#5 is less than significant when the project would result in displacement.

The term referenced by the commenter, "substantial number of homes," comes from the CEQA Guidelines. Appendix G of the CEQA Guidelines identifies that a significant impact could occur if a project would "displace substantial numbers of existing people or housing units, necessitating the construction of replacement housing elsewhere." The Authority identifies that they use this threshold on page 3.12-29 in Section 3.12, Socioeconomics and Communities of the Draft EIR/EIS. Consistent with CEQA, the Authority defines a significant impact as occurring if the project would displace substantial numbers of existing people or housing units, necessitating the construction of replacement housing elsewhere. In other words, if a certain number of homes would be displaced, such that it would necessitate the construction of replacement housing elsewhere, then that would be considered a "substantial number of homes."

As discussed in Impact SOCIO#4 in Section 3.12, Socioeconomics and Communities of the Draft EIR/EIS, construction of the Build Alternatives would result in displacement of 28 to 64 residences, depending on the adit and window options. Southeast Antelope Valley and Lake View Terrace were found to have insufficient replacement housing for the households displaced by the Palmdale to Burbank Project Section; however, adequate replacement housing could be available in nearby communities, provided that such housing can be made available at affordable prices. As there is available housing in nearby communities, the impact would not necessitate the construction of replacement housing and is not considered significant.

Although mitigation is not required, SOCIO-IAMF#2 (Compliance with Uniform Relocation Assistance and Real Property Acquisitions Act) will provide relocation assistance for persons displaced. SOCIO-IAMF#3 (Relocation Mitigation Plan) will require the Authority to develop a relocation mitigation plan which will establish an appraisal, acquisition, and relocation process to minimize economic disruption related to relocation in consultation with affected property owners. Additionally, prior to construction, fulfillment of SO-MM#1 will require special outreach efforts to affected residential neighborhood and community residents to better determine relocation needs

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and locate suitable replacement properties and facilities. Impact SOCIO#5 in Section 3.12, Socioeconomics and Communities of the Draft EIR/EIS, analyzes the potential for those residential displacements identified under Impact SOCIO#4 to affect sensitive populations in particular. For these reasons, which are described in further detail in Section 3.12 of the Draft EIR/EIS, the Authority concluded that impacts would be less than significant.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9611

Refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations.

The commenter refers to the Draft EIR/EIS discussion in Chapter 3.12 related to Impact SOCIO#6: Permanent Displacement of Commercial and Industrial Businesses from Construction, and notes the difficulties facing relocated businesses with respect to locating suitable replacement sites, which the Authority acknowledges.

Chapter 3.12 of the Draft EIR/EIS discusses commercial and industrial business displacements that would result from the construction of each Build Alternative and the availability of suitable replacement sites in each affected community at a general level. For greater detail, Section 6.4 Commercial and Industrial of the Draft Relocation Impact Report prepared for this Final EIR/EIS. (Please note: the Relocation Impact Report is available upon request to the Authority). As described in Section 4 of the Relocation Impact Report, Methods of Evaluating Impacts, identifying potential replacement sites for non-residential properties required a search for properties currently for sale or lease within each of the project's replacement area cities. Searches were performed using CoStar and a gap analysis was performed between the number of resulting potential replacement units and the displacements identified for each city. Replacement sites were sought within, or as near to displacement sites as possible to help ensure comparability and suitability. However, until appraisals and relocation interviews are conducted, it isn't possible to know for certain that replacement sites will be able to accommodate the specific needs of each displaced business.

Although the displacement of local businesses is not considered an environmental impact under CEQA, the Authority has nevertheless incorporated Impact Avoidance and Minimization Features (IAMFs) into all six Build Alternatives that will assist displaced businesses, specifically SOCIO-IAMF#2 Compliance with Relocation Assistance and Real Property Acquisition Policies Act which describes the Authority's commitment to compliance with the Act, and SOCIO-IAMF#3 Relocation Mitigation Plan, which requires the Authority to develop a relocation plan that includes a program to minimize economic disruption. Refer to Section 3.12.4.2 of Chapter 3.12 and Appendix 2-E for more information regarding these IAMFs. PB-Response-SOCIO-1: Parcel Acquisitions and Relocations provides more information regarding the Authority's analysis of and efforts

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to avoid and minimize relocation impacts.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9612

The commenter refers to the Draft EIR/EIS discussion in Chapter 3.12 related to Impact SOCIO#6: Permanent Displacement of Commercial and Industrial Businesses from Construction, specifically to Expanded Commercial and Industrial Resources Areas for the E1 Build Alternative, and questions their merit.

Section 6.4 Commercial and Industrial of the Draft Relocation Impact Report prepared for this Final EIR/EIS discusses potential commercial and industrial business displacements that would result from the construction of each Build Alternative, the availability of suitable replacement sites in each affected community, and provides details of the Expanded Replacement Area analysis. (Please note: an electronic version of the Relocation Impact Report is available upon request to the Authority). As described in Section 4, Methods of Evaluating Impacts, identifying potential replacement sites for non-residential properties required a search for properties currently for sale or lease within each of the project's replacement area cities. Searches were performed using CoStar and a gap analysis was performed between the number of resulting potential replacement units and the displacements identified for each city. Replacement sites were sought within, or as near to displacement sites as possible to help ensure comparability and suitability. However, until appraisals and relocation interviews are conducted, it isn't possible to know for certain that replacement sites will be able to accommodate the specific needs of each displaced business. Therefore, the resource areas themselves remain valid for future construction but potential replacement sites would be different.

Although the displacement of local businesses is not considered an environmental impact under CEQA, the Authority has nevertheless incorporated Impact Avoidance and Minimization Features (IAMFs) into all six Build Alternatives that will assist displaced businesses, specifically SOCIO-IAMF#2 Compliance with Relocation Assistance and Real Property Acquisition Policies Act which describes the Authority's commitment to compliance with the Act, and SOCIO-IAMF#3 Relocation Mitigation Plan, which requires the Authority to develop a relocation plan that includes a program to minimize economic disruption. Please refer to Section 3.12.4.2 of Chapter 3.12 and Appendix 2-E for more information regarding these IAMFs.

4494-9613

Refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations.

The commenter refers to the Draft EIR/EIS discussion in Section 3.12, Socioeconomics and Communities, related to Impact SOCIO#6: Permanent Displacement of Commercial and Industrial Businesses from Construction, specifically to potential business displacements under the E2 Build Alternative, and asks whether the Draft EIR/EIS analyzes the potential loss of revenue related to a business relocating from Shadow Hills to Pacoima.

The loss of business revenue in such a circumstance is not possible to predict. Moreover, the displacement of local businesses is not considered an environmental impact under CEQA. Nevertheless, the Authority has incorporated Impact Avoidance and Minimization Features (IAMFs) into all six Build Alternatives that will assist displaced businesses and their employees, specifically SOCIO-IAMF#2 Compliance with Relocation Assistance and Real Property Acquisition Policies Act which describes the Authority's commitment to compliance with the Act, and SOCIO-IAMF#3 Relocation Mitigation Plan, which requires the Authority to develop a relocation plan that includes a program to minimize economic disruption. Refer to Section 3.12.4.2 and Volume 2, Appendix 2-E, for more information regarding these IAMFs. As discussed further in PB-Response-SOCIO-1: Parcel Acquisitions and Relocation, displacement businesses may receive financial support as part of the relocation process.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9614

Refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations.

The commenter expresses concern regarding displacements and community deterioration, and asks about individual business owners and employees. The commenter quotes from the Draft EIR/EIS discussion in Section 3.12, Socioeconomics and Communities, related to Impact SOCIO#9: Potential for Permanent Physical Deterioration from Construction. However, the commenter's concerns regarding displacement of individual business owners and employees are better addressed under Impact SOCIO#6: Permanent Displacement of Commercial and Industrial Businesses from Construction, which describes and acknowledges the difficulties likely to be faced by such businesses and their employees due to displacement.

Although the commenter is correct that the displacement of local businesses is not considered an environmental impact under CEQA, the Authority nevertheless has incorporated Impact Avoidance and Minimization Features (IAMFs) into all six Build Alternatives that will assist displaced businesses and their employees, specifically SOCIO-IAMF#2: Compliance with Relocation Assistance and Real Property Acquisition Policies Act, which describes the Authority's commitment to compliance with the Act, and SOCIO-IAMF#3: Relocation Mitigation Plan, which requires the Authority to develop a relocation plan that includes a program to minimize economic disruption.

Please refer to Section 3.12.4.2 and Volume 2, Appendix 2-E, for more information regarding these IAMFs. As discussed further in PB-Response-SOCIO-1: Parcel Acquisitions and Relocation, displacement businesses may receive financial support as part of the relocation process.

4494-9615

The commenter expresses concern about interruptions in utility service during construction; asks about the measures that will be required to reduce water loss during construction; asks how often there will be routine shutdowns of the California Aqueduct; and asks how landowners will be helped to protect pipes and ditches. The topic of interruptions in utility services is discussed under Impact PUE#2 in Section 3.6 of the Draft EIR/EIS. Given the standard precautions that would be instituted prior to and during construction, including PUE-IAMF#4, the Palmdale to Burbank Project Section would be unlikely to result in accidental disruption of utility systems. The Authority would work with irrigation agencies and landowners to protect pipelines, ditches, and related irrigation systems. Canals/ditches may be bridged or placed in pipelines beneath the HSR right-of-way. Irrigation pipelines crossing the HSR would be either re-routed or buried and placed in protective casing so that future maintenance of the line would be accomplished outside of the HSR right-of-way. The Authority's contractors will be responsible for implementing the re-routing, relocations, or protection in place of these utilities during construction. PUE-IAMF#2 requires new or relocated systems to be operational prior to disconnecting the original system, to the extent feasible. With implementation of PUE-IAMF#2, temporary utility conflicts and/or relocations associated with irrigation infrastructure would not result in lengthy and harmful interruption of service. PUE-IAMF#4 is incorporated as part of the project design to ensure construction activities will be coordinated with service providers to minimize or avoid disruptions.

The SR14A, E1A, and E2A Build Alternatives would cross the East Branch of the California Aqueduct in an elevated viaduct where the aqueduct crosses beneath the Sierra Highway. Construction of the SR14A, E1A, and E2A Build Alternatives would not result in temporary stoppage of water delivery through the aqueduct because those Build Alternatives cross over the Sierra Highway and the Soledad Siphon via an elevated viaduct and would not require realignment, nor impact any facility of the aqueduct.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9616

The commenter requests further information on the nature of construction employment during project construction. The Authority has adopted a Community Benefits Policy to support employment of individuals who reside in disadvantaged areas and those designated as disadvantaged workers, including veterans returning from military service. The Community Benefits Agreement is designed to assist small businesses and job seekers in finding or obtaining construction contracts, jobs, and training opportunities for residents who live in economically -disadvantaged areas and helps to remove potential barriers to small businesses, disadvantaged business enterprises, disabled veteran business enterprises, women-owned businesses, and microbusinesses that want to participate in building the HSR System. See California High-Speed Rail Authority, Community Benefits Agreement website at: https://hsr.ca.gov/business-opportunities/general-info/community-benefits-agreement/. Currently, the Authority does not have funding for construction of this project section. Therefore, planning efforts have not begun for this specific stage of the project. Future funding is being sought for continued progress.

4494-9617

Refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter asks how long a period of time would 89 A-weighted decibels be evident and asks what decibel level is acceptable for grazing animals and what grazing animals would be in the vicinity of project construction.

The FRA Noise and Vibration Manual (FRA 2012) establishes the noise exposure limit of a 100-dBA sound exposure level for domestic animals as an effective criterion for determining impacts of a train pass-by. Please refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife, which addresses this issue.

Regarding the commenter's question about how long of a period of time 89 dBA would be evident, as discussed under Impact SOCIO#10 in Section 3.12 of the Draft EIR/EIS and in Section 3.4 of the Draft EIR/EIS, construction noise levels are estimated to be 89 dBA of equivalent continuous sound level (Leq) at 50 feet for an 8-hour workday. During operations, the noise exposure limit of a 100-dBA sound exposure level for domestic animals would be limited to locations within 40 to 50 feet of the aboveground alignment, which is typically within the fenced right-of-way. At the maximum speed, for an HSR train pass-by, any associated noise (at any decibel level) would last for approximately 2 seconds. The sound exposure level for grazing animals would be less than 100 dBA during construction and operations at a distance of 50 feet; therefore, noise impacts to grazing animals would be less than significant.

The commenter also asks what grazing animals would be in the vicinity of project construction. As discussed under Impact AG#6: Noise and Vibration Effects on Farm Animals in Chapter 3.14 of the Draft EIR/EIS, livestock (cattle) are currently unconfined and can roam freely in the areas shown on Figures 3.14-9 and 3.14-16 in Chapter 3.14 in the Draft EIR/EIS. Because livestock would not be in a confined situation and could move away from noise sources during construction, noise impacts associated with construction of at-grade segments of the Build Alternatives would be limited. AG-IAMF#5 will be implemented to notify the agricultural property owners of noise impacts that could occur as a result of construction activities.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9618

The commenter requested further information on the project's fugitive dust control plan and Valley Fever action plan. Note that the discussion on the page referenced by the commenter is for Impact SOCIO#11, which addresses temporary effects on children's health and safety from construction, and the commenter's questions on the topic are broader. Therefore, this response is also broader.

The fugitive dust control plan and Valley Fever action plan are described in Appendix 2-E, Impact Avoidance and Minimization Features (under AQ-IAMF#1 and SS-IAMF#2, respectively) of the Draft EIR/EIS. The fugitive dust control plan will be prepared by the construction contractor and will include measures to minimize fugitive dust and PM10, as well as to reduce the risk of Valley Fever exposure. These measures include covering vehicles, cleaning trucks, watering exposed surfaces, suspending dust-generating activities when average wind speed exceeds 25 mph, and stabilizing disturbed areas. The project will also implement SS-IAMF#2, requiring a project Valley Fever action plan prepared by the construction contractor. The Valley Fever action plan will require dissemination of information, coordination, and outreach with pertinent Health Departments, and providing a qualified person dedicated to overseeing implementation of the Valley Fever prevention measures to encourage a culture of safety of the contractors and subcontractors. The Valley Fever Health and Safety (VFHS) designee is responsible for ensuring the implementation of measures in coordination with the county Public Health Officer. The VFHS designee in coordination with the county Public Health Officer will determine what measures will be added to the requirements for the Safety and Security Management Plan regarding preventive measures to avoid Valley Fever exposure. Measures shall include, but are not limited to the following: (1) Train workers and supervisors on how to recognize symptoms of illness and ways to minimize exposure; (2) Provide washing facilities nearby for washing at the end of shifts; (3) Provide vehicles with enclosed, air conditioned cabs and make sure workers keep the windows closed; (4) Equip heavy equipment cabs with high efficiency particulate air filters; and (5) Make NIOSH-approved respiratory protection with particulate filters available to workers who request them.

Regarding the number of workers who have contracted Valley Fever in the Central Valley, as of December 2023, the Authority has had no reported cases of Valley Fever for its construction workers or staff. That said, Impact S&S#10 in Section 3.11, Safety

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and Security, of the Draft EIR/EIS provides location-specific discussion of construction exposure to Valley Fever and identifies extensive measures to avoid spread of Valley Fever. During staff orientation the Authority does provide construction workers with information on how to avoid, diagnose, and treat exposure to Valley Fever. The Authority also provides staff with a Valley Fever Fact Sheet prepared by the California Department of Public Health with additional detailed guidance. In the event a construction worker or an Authority staff member is diagnosed with Valley Fever, the individual is instructed to see a healthcare provider and stay home until the symptoms have subsided and its safe for the person to return to work.

As discussed above, IAMFs would be implemented to prevent the spread of Valley Fever during construction. Regarding contractor experience, contractors would be required to comply with applicable IAMFs, and their compliance would be monitored according to CEQA requirements as described in Response to Comment #9564. Furthermore, the Valley Fever discussion in Section 3.11.5, Affected Environment, in Section 3.11, Safety and Security of the Final EIR/EIS, has been updated to reflect the most recent California Department of Public Health Data.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9619

The commenter asks who will be supervising the contractors to ensure that federal guidelines for noise reduction are met pertaining to neighborhoods, schools, parks, and construction workers. The Authority will be responsible for the implementation of the noise and vibration mitigation measures identified in the Draft EIR/EIS, for both construction and operation. The mitigation measures will be implemented in accordance with the CA HSR Noise Mitigation Guidelines, which are included as Appendix 3.4-C of the EIR/EIS. The Authority will be responsible for ensuring that construction activities throughout the corridor are carried out in compliance with federal noise reduction guidelines. In addition to the Authority's oversight as required by N&V-MM#1: Construction Noise Mitigation Measures, contained in Section 3.4, Noise and Vibration, the Authority will require contractors to prepare a noise monitoring program for the construction.

The MMEP would serve as the binding instrument to require the enforceability of mitigation measures and IAMFs identified to reduce project impacts in compliance with CEQA Guidelines section 15126.4(a)(2). The Authority will therefore regularly monitor the construction contractor to ensure the construction standards in management plans will be met, which would be outlined in the MMEP that is adopted if the project is approved.
As such, the development and implementation of management plans prepared by the construction contractor will be reviewed and monitored by the Authority. For example, the noise monitoring program described above must be approved by the Authority.

In addition, as part of N&V-MM#1, the Authority will establish and maintain (until construction is completed) a toll-free hotline for construction-related activities. The Authority will arrange for all incoming hotline messages to be logged (with summaries of the contents of each message) and for a designated representative of the Authority to respond to hotline messages within 24 hours (excluding weekends and holidays). The Authority will make a reasonable good-faith effort to address all concerns and answer all questions, and shall include on the log its responses to all callers.

4494-9620

The commenter asks how the health of students and the surrounding community would be protected in the event of an accident on the Interstate 5 Freeway involving a vehicle with hazardous wastes. Construction of the each of the six Build Alternatives could entail the handling of hazardous substances within 0.25 mile of educational facilities, thereby posing a potential health and safety hazard to students or employees.

Potentially hazardous materials and wastes generated during demolition, site preparation, and construction could pose a risk to individuals at school sites within 0.25 mile of the construction area, including school sites within 0.25 mile of a haul route. Construction of each of the six Build Alternatives would increase the quantity of hazardous materials moving along major transportation corridors (i.e., State Route 14 and Interstate 5) during construction. If unaddressed, the presence of hazardous waste near educational facilities would represent a direct hazard throughout the construction period. This represents a potentially significant impact. HMW-MM#1, described in Section 3.10.7 of the Draft EIR/EIS will require the Authority to prepare a memorandum confirming that the construction contractor will not handle or store an extremely hazardous substance within 0.25 mile of a school. Signage will be installed prior to construction to delimit work areas within 0.25 mile of a school, informing contractors not to bring extremely hazardous substances into the area. The Authority will implement IAMFs that would include steps and procedures to minimize impacts of spills to any impacted party. The Authority explains the plans that would be implemented to minimize impacts from accidental spills in Impact HMW#1 in Section 3.10, Hazardous Materials and Wastes of the Draft EIR/EIS. As explained in Impact HMW#1, HMW-IAMF#6 requires that the contractor prepare a CMP addressing spill prevention and HMW-IAMF#7 will apply regulations, such as RCRA, CERCLA, the Hazardous Materials Release Response Plans and Inventory Law, and the Hazardous Waste Control Act. A SWPPP (HYD-IAMF#3) would be prepared in advance to outline procedures for rapidly, effectively, and safely cleaning up and disposing of any spills or releases. Federal and state regulations, implemented by HMW-IAMF#4 through HMW-IAMF#8, manage and minimize threats associated with the usage, storage, transport, and disposal of hazardous materials and wastes. The IAMFs require the contractor to transport, use, and dispose of hazardous materials following procedures that avoid or reduce the potential for releases and foreseeable upset conditions that would expose persons or the environment to substantial hazards.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9621

Refer to Standard Response PB-Response-HAZ-1: Materials Hauling and Transportation of Hazardous Materials, PB-Response-SOCIO-3: Health and Safety of Children.

The commenter quotes from the CEQA conclusion text on page 3.12-90 and suggests that only adult health is considered in the Draft EIR/EIS. The commenter also expresses concern about children's health.

Although CEQA does not require an impact analysis specific to health of children (persons under 18 years of age), CEQA requires the analysis of potential impacts to the health of humans of all ages. Please refer to Section 3.3, Air Quality and Global Climate Change (see Impact AQ#1 through Impact AQ#11), Section 3.4, Noise and Vibration (see Impact N&V#1 through Impact N&V#5, Impact N&V#8, and Impact N&V#9), and Section 3.10, Hazardous Materials and Wastes (see Impact HMW#1 through Impact HMW#8), of the Draft EIR/EIS. It is noted that CEQA compliance requires an analysis of potential impacts related to handling hazardous materials or wastes within 0.25 mile of a school, which is included in Impact HMW#3 and Impact HMW#8 of the Draft EIR/EIS.

Additionally, Section 3.12, Socioeconomics and Communities, of the Draft EIR/EIS includes the analysis specific to children's health and safety from construction and operation of the project in Impact SOCIO#11 and Impact SOCIO#16, respectively. Please also refer to Appendix 3.12-C, Children's Health and Safety Risk Assessment. Section 3.12 of the Draft EIR/EIS and Appendix 3.12-C discuss impacts such as air quality, noise and vibration, and exposure to hazardous materials (as discussed in detail in Section 3.3, Air Quality and Global Climate Change, Section 3.4, Noise and Vibration, and Section 3.10, Hazardous Materials and Wastes, of the Draft EIR/EIS), and also discusses Impact Avoidance and Minimization Features (IAMFs) that would reduce impacts to children's health. Please refer to Standard Response PB-Response-SOCIO-3: Health and Safety of Children, for further discussion regarding the potential for project effects, and relevant mitigation measures, on children's health and safety. Also, please refer to Impact HMW#8, in Section 3.10, Hazardous Materials and Wastes, of this Final EIR/EIS, and Standard Response PB-Response-HAZ-1: Materials Hauling and Transportation of Hazardous Materials, for further discussion regarding the potential for project effects, and relevant mitigation measures on educational facilities.

4494-9622

The commenter asks what recourse schools and residents would have should noise exceed minimal federal requirement standards despite mitigation efforts.

The Authority will be responsible for the implementation of the noise and vibration mitigation measures identified in the Draft EIR/EIS, for both construction and operation. The mitigation measures will be implemented in accordance with the CAHSR Noise Mitigation Guidelines, which are included as Appendix 3.4-C of the Draft EIR/EIS. The Authority will be responsible for seeing that construction activities throughout the corridor are carried out in compliance with federal noise reduction guidelines. In addition to the Authority's oversight, NV-MM#1 requires the contractor to establish a construction noise monitoring program and implement measures to comply with FRA construction noise limits (an 8-hour Leq, dBA of 80 during the day and 70 at night for residential land use, 85 for both day and night for commercial land use, and 90 for both day and night for industrial land use) where a noise-sensitive receptor is present and wherever feasible. The Authority's contractors would implement noise control measures to meet the noise limits, such as installation of temporary construction-site noise barriers near a noise source, use of low-noise emission equipment, and siting of stationary construction equipment away from noise-sensitive receptors.

In addition, as required by N&V-MM#1, the Authority will require contractors to establish and maintain (until construction is completed) a toll-free hotline for construction-related activities. The Authority will arrange for all incoming hotline messages to be logged (with summaries of the contents of each message) and for a designated representative of the Authority to respond to hotline messages within 24 hours (excluding weekends and holidays). The Authority will make a reasonable good-faith effort to address all concerns and answer all questions, and shall include on the log its responses to all callers. This hotline is in active use for construction in the Central Valley, and efforts to address noise complaints have included changes to the construction schedule in certain locations (e.g., minimization of nighttime construction work).

No operational noise impacts were identified on institutional uses, including schools (see pages 3.4-75 [operational traffic noise], 3.4-81 [operational train noise for the SR14A and Refined SR14 Build Alternatives], 3.4-89 [operational train noise for the E1 and E1A Build Alternatives], and 3.4-98 [operational train noise for the E2 and E2A Build

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Alternatives] of the Draft EIR/EIS]. Table 3.4-30 in Impact N&V#6: Operation Train Noise Impacts in the Draft EIR/EIS shows the impacts to residential sensitive receivers during operation of the project. Mitigation Measures N&V-MM#3, N&V-MM#4, N&V-MM#5, and N&V-MM#6 would reduce noise from operation of the Palmdale to Burbank Section. These mitigation measures would reduce noise by reducing rail gaps and turnouts, by ensuring vehicles meet federal noise regulations to the extent technologically available, and by implementing noise barriers. Noise barriers included in N&V-MM#3, in most cases, would effectively reduce exterior noise below applicable thresholds. However, for all six Build Alternatives, there are scattered and isolated residences that would experience severe noise impacts for which noise barriers would not meet the criteria discussed in Section 3.4.7. In such cases, other noise-reducing measures discussed in Mitigation Measures N&V-MM#3, such as sound insulation and noise easements, would reduce impacts but may not completely reduce noise below thresholds at every location.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9623

The commenter asks how year 2014-2015 "figures" can be relevant for construction that will take place at a later time. Commencement of the Palmdale to Burbank Project Section EIR/EIS preparation, including technical reports and appendices, began in 2016, and thus the analysis is based on baseline data from 2015. The baseline year for the analysis of project impacts can be established after the Notice of Preparation was filed on July 24, 2014, just after the public scoping period for the project was completed and at the onset of environmental analysis (see Draft EIR/EIS, pp. S-7, 3.3-23 to 3.3-24).CEQA Guidelines section 15125(a)(1) explicitly supports establishing baseline physical conditions in this manner, therefore, the use of a 2015 baseline is appropriate.

Nevertheless, the Authority reviewed existing conditions data during preparation of the Final EIR/EIS and concluded that the 2015 baseline continues to be appropriate. For example, the Draft EIR/EIS relied upon the census data available in 2015 for its analyses in Section 3.12, Socioeconomics and Communities, and Chapter 5, Environmental Justice. Based upon its review of more recent census data, the Authority concluded that the population and population characteristics in the Resource Study Area (RSA) have not changed substantially and the socioeconomics, communities, and environmental justice impact conclusions would not be affected. The Authority also refreshed its economic impact analysis based on the Regional Input-Output Multipliers System (RIMS) using more recent data. This updated analysis did not change the impact conclusions. Chapter 3.1 of the Final EIR/EIS, specifically Section 3.1.4.5 Affected Environment, has been updated to explain the Authority's review of existing conditions data since publication of the Draft EIR/EIS.

4494-9624

The commenter requests further information on the estimated number of available housing units in the expanded residential relocation area. Available housing estimates in the nearby communities of Sylmar, Tujunga, and Sunland are included in evaluation of the expanded residential relocation area (as assessed in the Relocation Impact Report prepared for this Final EIR/EIS). Electronic versions of Technical Reports prepared for this Final EIR/EIS are available through submitting a request on the Public Records Act portal (available at: https://hsr-ca.nextrequest.com/). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

4494-9625

The commenter inquired about the quantity of utility poles that would be placed on agricultural land. Currently, the exact count of utility poles is unknown. As noted in Section 3.14, Agricultural Farmland and Forest Land, Impact AG#2, the Refined SR14 and SR14A Build Alternatives would include the construction of a new electrical utility corridor for electrical facilities that would affect 1 acre of a 9-acre vineyard that is considered Important Farmland. AG-IAMF#2 though AG-IAMF#6 will be implemented to reduce indirect impacts from placing utility poles near Important Farmland, through permitting, farmland consolidation programs, notification to affected residents, and creation of temporary livestock and equipment crossings. However, direct conversion of Important Farmland would still represent a substantial impact for the Refined SR14 and SR14A Build Alternatives. Therefore, adherence to AG-MM#1 would be required to avoid placing structures on agricultural lands. This mitigation measure entails coordination with the farm owners to ensure that electrical utilities are placed on poles with powerlines that span agricultural land uses, within the identified project footprint, so that no agricultural land would be converted to a nonagricultural use either directly or indirectly. Electrical utility lines are generally spaced from 125 to 300 feet apart and can often span over 1,000 feet between towers. Therefore, the electrical utility line could span the parcel of farmland for at least a length of approximately 250 feet without requiring conversion of farmland for the relocation of electrical towers. Utility easements would not affect existing agricultural operations and activities. The E1, E1A, E2, and E2A Build Alternatives would not result in permanent surface conversions of Important Farmland. No revisions to this Final EIR/EIS have been made in response to this comment.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9626

Refer to Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events, PB-Response-HAZ-1: Materials Hauling and Transportation of Hazardous Materials.
The commenter asks questions about the State's threshold quantity of hazardous substances, the hazardous substances expected to be stored outside of 0.25 mile from a school, if there are any schools within 0.25 mile of above ground tracks, and what magnitude earthquake might derail a train above ground.

Regarding the question about the State's threshold quantity of hazardous substances, the State does not have a quantified threshold for hazardous substances. Consistent with CEQA Guidelines, the Authority identified the thresholds of significance used in the Draft EIR/EIS in Section 3.10.4.5. The quantity of hazardous materials will be determined in the future, per implementation of HMW-IAMF#1 and HMW-IAMF#4, as described in Section 3.10.4.2 of the Draft EIR/EIS.

Regarding the question about the hazardous substances expected to be stored outside of 0.25 mile from a school, discussion related to hazardous materials handling in relation to schools within 0.25 mile is outlined in Impact HMW#3: Potential for Handling Hazardous Materials or Waste Within 0.25 mile of an Educational Facility during Construction. As described in Impact HMW#3, the Authority would implement HMW-MM#1, which will require the Authority to prepare a memorandum confirming that the construction contractor will not handle or store an extremely hazardous substance within 0.25 mile of a school.

Regarding the question if there are any schools within 0.25 mile of above ground tracks, there are schools located within 0.25 mile of the Build Alternatives. Please refer to Table 3.10-6 in Section 3.10, Hazardous Materials and Wastes and the figures in Appendix 3.10-A Hazardous Materials
and Wastes Figures of the Draft EIR/EIS for schools located within 0.25 mile of the Build Alternatives.

Regarding the question what magnitude earthquake might derail a train above ground, calculations to determine a specific earthquake magnitude that would result in derailment of the HSR train was not performed as part of the Draft EIR/EIS, as the

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magnitude can very drastically depending on the fault where earthquake occurs, distance of that fault to the alignment, and depth of the fault. However, the Authority did consider seismic activity and safety in its Draft EIR/EIS. Please refer to Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events, for additional information regarding how the Authority considered seismic events in the Draft EIR/EIS.

4494-9627

The commenter requests further information on the timing of outreach to affected homeowners under SO-MM#1. Consistent with the requirements of the Uniform Act and California Relocation Assistance Act, the Authority is committed to working closely and proactively with residents and businesses to help them plan ahead for relocation, find a new home or business site, and solve problems related to the acquisitions and relocation. The Uniform Act program ensures that persons displaced as a result of a federal action or by an undertaking involving federal funds are treated fairly, consistently, and equitably. This helps to ensure persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Currently, the Authority does not have funding for construction of this project section. Therefore, planning efforts have not begun for this specific stage of the project. Future funding is being sought for continued progress. As funds become available, the Authority will proceed with advanced design and prepare for other pre-construction work, which includes special outreach to affected homeowners.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9628

The commenter requests further information on the logistics of workshops for the project. Currently, the Authority does not have funding for construction of this project section. Therefore, planning efforts have not begun for this specific stage of the project. Future funding is being sought for continued progress. The public can participate in the project by staying informed and offering comments and suggestions throughout each project phase, including public comment periods. This engagement helps the Authority gather important information for decision-making. Table 5-A-1 lists Regional Household Income Corridor Environmental Justice Advocacy and Community Groups that are targeted for inclusion in the master Project Section database. Once added, these organizations will be part of the project's notification list and receive updates and notifications for future meetings and events. If a community organization wants to schedule a meeting with the Authority to discuss project-related concerns, they can do so by calling the project information line at (800) 630-1039 or sending an email to palmdale_burbank@hsr.ca.gov.

4494-9629

The commenter appears to be requesting further information on the funding of project mitigation, and the potential for impacts from implementing mitigation measures, in the context of SO-MM#1, SO-MM#2, and SO-MM#3.
Mitigation and maintenance of these changes is expected to be funded by the Authority. Under SO-MM#1, SO-MM#2, and SO-MM#3, identifying replacement residential properties, consulting with local authorities, conducting community workshops, and implementing of design concepts suggested during public workshops would not result in secondary environmental effects. However, if replacement sites for displaced residents and businesses are built, new development could result in construction and operation period effects typical of residential and commercial / industrial business facility development. These may include emissions and noise from construction equipment, traffic effects from road closures, and effects on biological and cultural resources

4494-9630

The commenter requests additional information on the nature of construction employment during project construction. As discussed in Section 5.8.3, in Chapter 5, Environmental Justice, of this Final EIR/EIS, through the Authority's Community Benefits Agreement, the Authority has implemented a variety of programs to increase both the number and ability of local workers and firms to compete for available HSR construction jobs. Through this cooperative partnership with skilled craft unions, the Authority is promoting and helping to develop education, pre-apprenticeship, and apprenticeship training programs. These activities in economically disadvantaged communities focus on helping lower-income persons, persons receiving public assistance, single parents, persons with no high school or a General Education Development diploma, and/or those who suffer from chronic unemployment to compete for available jobs. Community organizations have implemented similar programs to get workers trained, retrained, and certified for upcoming construction work. Through the Community Benefits Agreement, the Authority would require each prime contractor of an awarded construction package to commit 30 percent of all construction dollars to hiring small businesses, including separate goals for the hiring of disadvantaged and disabled veterans' businesses. The jobs noted in this EIR/EIS would be specific to construction of the Palmdale to Burbank project section and separate from employment and training occurring on other project sections throughout the state.

4494-9631

The commenter queried the use of 2023 as the "peak year" of construction for the purposes of the Draft EIR/EIS. Commencement of the Palmdale to Burbank Project Section EIR/EIS, including technical reports and appendices, began in 2016, and thus the analysis is based on data available in 2016, at which point peak construction was projected to occur in 2023. Although 2023 is no longer the "peak year" of construction, the analysis of the project's effects would not change (as explained in footnote 4 of Section 3.12 of the Draft EIR/EIS). The level of activity and employment generated by the project during its "peak year" of construction has not changed, and comparing the project's peak activity to recent/current data provides a reasonable and accurate evaluation of the project's impacts.

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4494-9632

The commenter requests additional information on increases in local and regional sales tax resulting during project construction. Impact SOCIO#8, in Section 3.12 of this Final EIR/EIS, provides further discussion of temporary sales tax revenue gains during construction. Sales tax gains would be generated from taxable purchases made for the construction of the project. Sales tax revenue estimates were generated using preliminary cost estimates from the project engineer (please refer to Appendix 6-B, PEPD Record Set Capital Cost Estimate Report for preliminary cost estimates for the project). This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

4494-9633

Refer to Standard Response PB-Response-SOCIO-3: Health and Safety of Children.

The commenter requested further information on the effects of project construction on children's health and safety. A detailed assessment of the potential for the construction and operation of the Build Alternatives to result in effects on children's health and safety found that none of the six Build Alternatives are anticipated to result in a substantial risk to children's health and safety over the long term. The assessment is provided in Appendix 3.12-C, Children's Health and Safety Risk Assessment, of the Final EIR/EIS. This topic is further discussed in Standard Response PB-Response-SOCIO-3: Health and Safety of Children.

4494-9634

Refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations.

The commenter requests further information on relocation assistance for residents displaced that are located on private property in the Angeles National Forest. This topic is discussed in Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations. Consistent with the requirements of the Uniform Act and California Relocation Assistance Act, the Authority is committed to working closely and proactively with residents, including those located on private in-holdings in the Angeles National Forest, to help them plan ahead for relocation, find a new home, and solve problems related to the acquisitions and relocation.

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The commenter provides brief summary overview of Appendix 3.12-A, Residential, Business, and Mobile Home Relocation Assistance Brochures, of this Final EIR/EIS. No further response is required.

4494-9636

The commenter provides a brief summary overview of Appendix 3.12-B, Effects on School District Funding and Transportation Bus Routes, of this Final EIR/EIS. No further response is required.

4494-9637

The commenter provides a brief summary overview of Appendix 3.12-C, Children's Health and Safety Risk Assessment, of this Final EIR/EIS. No further response is required.

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4494-9638

The commenter asserts that the Palmdale to Burbank Project Section would be inconsistent with the Federal Land Policy and Management Act of 1976 (FLPMA) due to impacts to the Angeles National Forest (ANF), the San Gabriel Mountains National Monument (SGMNM), and the Hansen Dam Open Space/Recreation Area. The commenter asks how the project would be consistent with the federal directive under FLPMA to preserve and protect public lands in their natural condition, or how the Authority determined that the ANF, the SGMNM, and Hansen Dam Open Space are not worthy of protection. To the contrary, the Authority is acting consistently with the federal laws and directions the commenter identified. As noted by the commenter, Section 102(a)(8) of the FLPMA, 43 U.S.C. 1701(a)(8), states that it is the policy of the United States that, "the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and domestic animals; and that will provide for outdoor recreation and human occupancy and use." Congress's policy statement contains caveats. It directs preservation "where appropriate," and it allows "human occupancy and use." Agencies routinely balance multiple directives in different statutes, and the NEPA process provides decision-makers information they need to make those difficult decisions. As noted in Section 2.7 in Appendix 3.1-B, Section 501(a) of the Draft EIR/EIS, the FLPMA authorizes the Secretary of Agriculture to grant, issue, or renew rights-of-way through National Forest System Lands for a variety of uses which may include railroads, tunnels, or other necessary means of transportation that are in the public interest [43 U.S.C §1761(a)]. Furthermore, Section 505 of FLPMA provides that right-of-way authorizations are required to provide terms and conditions that will, among other things, minimize damage to scenic and aesthetic values and fish and wildlife habitat and otherwise protect the environment, and require compliance with applicable air and water quality standards established by or pursuant to applicable Federal or State law [43 U.S.C. §1765]. Regulations guiding the issuance of special use authorizations are found in Forest Service, Department of Agriculture (Title 36 of Code of Federal Regulations [CFR], Chapter II, part 251, subpart B), under Special Uses. Pursuant to the requirements of FLPMA, the HSR Project would be consistent with these laws and regulations.

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Consistency of the HSR Project with the requirements of FLPMA is discussed in Section 4 of Appendix 3.1-B, USFS Policy Consistency Analysis of the Draft EIR/EIS. As noted on page 3.1-B-35, the Build Alternatives would be implemented pursuant to the special use authorization (SUA) issued by USFS. However, as noted by the USFS in its comments (See Comment #10297), the Secretary of Transportation may have separate authority to issue an easement for the project under the FAST Act. The Authority has not determined that the ANF, the SGMNM, or the Hansen Dam Open Space are unworthy of protection, as suggested by the commenter. The Hansen Dam Open Space is not located within the ANF or the SGMNM and therefore not subject to these federal-land-management statutes. The Authority believes that the proposed project would be consistent with FLPMA and provides this analysis in Appendix 3.1-D.

The Refined SR14, SR14A, E1 and E1A alternatives would all avoid the Hansen Dam Open space area. The E2 and E2A Build Alternatives would cross the Hansen Dam open space area (Big Tujunga Wash) and the impacts associated with these Build Alternative on the Open Space area are discussed in Section 3.15, Parks and Recreational Facilities in Table 3.15-4. The E2 and E2A Build Alternatives would construct a viaduct within the Hansen Dam Open Space. The viaduct structure, vertical piers, and distant tunnel portals would be highly visible and would contrast with the existing visual setting. Patrons of the open space area would be highly sensitive to these visual changes, as the changes would impinge upon the natural harmony of the views in this area. The total area of the Hansen Dam Open Space is 813 acres, and the total permanent acquisition area for the E2 and E2A Build Alternatives would be approximately 13 acres. The resource would remain accessible in the long term, and users would be able to pass under the viaduct to move from one area of the open space to another. Noise from passing trains would be perceptible to patrons of the open space area. Given the above visual and noise-related impacts associated with operation of the viaduct within the Hansen Dam Open Space area, the E2 and E2A Build Alternatives would change the character of this recreation resource. However, these changes would not reduce the capacity or the value of the open space area to the surrounding communities.

All Build Alternatives would utilize bored tunnels to travel underneath the ANF to avoid impacts to surface features and resources present. While construction activities would

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4494-9638

occur within the ANF and SGMNM, permanent project elements would be limited within the ANF to utility and roadway improvements which generally follow existing utility and roadway corridors as a way to reduce effects on the resources within the ANF. Permanent facilities associated with portals would be located immediately adjacent to, but outside the boundaries of the ANF and SGMNM. Adits would be located on private in-holding property within the ANF.

Please also refer to Table 3.1-B-1 through Table 3.1-B-3 in Appendix 3.1-B, USFS Policy Consistency Analysis in the Draft EIR/EIS for a discussion of consistency of the proposed Build Alternatives with specific policies of the ANF Management Plan and the SGMNM Management Plan.

4494-9639

The commenter inquired about the project's applicability with Section 36 CFR, Chapter II of the Forest Service, Department of Agriculture. The commenter also questions what permanent structures would be located within the Angeles National Forest (ANF) and San Gabriel Mountains National Monument (SGMNM), and what the impacts associated with permanent structures would entail. The commenter stated that unless the alignment is vacated at some point in the future, the tunnels and other infrastructure could create a perpetual right of use or occupancy under 36 C.F.R. 251.54(e)(4), such that the project would not qualify for a U.S. Forest Service (USFS) Special Use Permit, and asked whether there is a plan to remove facilities at the end of the train's lifecycle.

The specific authorization for the project to use the ANF has not yet been determined. While the Authority anticipates it will apply for a special use authorization pursuant to 36 CFR part 251, the Authority will continue coordinating with the USFS and other applicable federal agencies to obtain a permit, easement, or other authorization for the project to use the ANF. (Refer to Submission PB-4525, Comment #10297, and the Authority's response to that comment.) If the USFS grants a special use authorization for the project, the USFS could allow the Authority to abandon project infrastructure in-place rather than removing it at the end of its beneficial life, pursuant to 36 CFR 251.60(i). The approach and process for the project lifecycle will be addressed during the special use authorization application process.

The commenter correctly identifies project infrastructure that would be located outside, and adjacent to, the ANF. The commenter asserts that this project infrastructure will unreasonably conflict with or interfere with the use of lands adjacent to the forest. As discussed, throughout Section 3.13.6, all six Build Alternatives would require land acquisition and right-of-way easements adjacent to the ANF. In addition, the Authority would acquire private inholdings within the ANF, including within the SGMNM, to construct and maintain adit facilities. Acquisition and use of property within and adjacent to the ANF would not interfere with USFS land acquisitions that would support appropriate national forest activities, public needs, or other goals per Part 2 of the Angeles National Forest Management Plan Section.

As described in Section 3.13.10.2 operation of the HSR trains within the tunnels would not have direct surface effects on USFS lands. Tunnel depth and construction design

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4494-9639

would prevent vibration- and noise-related effects within the ANF, as shown on Figure 3.13-29 through Figure 3.13-41. Given that portal locations would be immediately adjacent to ANF there could be some increase in noise levels on lands within USFS lands immediately adjacent to the portal areas. Land uses within the ANF immediately surrounding proposed portals do not include human activity areas (e.g., campgrounds, hiking paths, etc.). Land uses within the ANF and immediately adjacent to portal areas would predominantly provide habitat for wildlife.

As indicated in Section 3.4, Noise and Vibration, and Section 3.7, Biological and Aquatic Resources, noise increases that would affect animals/wildlife would be limited to areas within 50 feet from the alignment centerline which would be predominately within the operating railroad right of way. Activities at adits would consist of occasional access for maintenance. For further information on the potential effects of tunneling on wildlife and flora in the ANF and water resources in the ANF including the SGNMN, see Section 3.7.11 and Section 3.8.11, respectively, of the EIR/EIS. As explained in these sections of the EIR/EIS, the project (with implementation of identified mitigation) will not have significant impacts on wildlife, flora, and water resources in the ANF. Therefore, HSR operations of underground tunnels, adits on in-holdings and in areas immediately adjacent to the ANF would have limited effect on the land use within the ANF and would not inhibit implementation of the ANF Land Management Plan.

The USFS recognized that "[t]he criterion is limited to unreasonable conflicts or interference; some conflict or interference with existing uses would still be allowed." Special Uses, 63 Fed. Reg. 65,950, 65,955 (November 30, 1998). This criterion would be considered by the USFS as part of the special use authorization process.

The commenter also asserts that the project will have significant impacts to authorized existing uses of the ANF including wildlife, flora, and water resources. The Authority disagrees with this assertion and as noted immediately above believes that impacts of the project both on in-holdings within the ANF and at portals immediately adjacent to the ANF will not result in significant impacts to existing uses in the ANF.

In addition to the Authority's analysis of effects on uses within the ANF described in this EIR/EIS, the project's impacts on authorized existing uses will also be evaluated further by the USFS as part of the special use authorization process.

4494-9640

The commenter raises concerns about the project's consistency with USFS policy, specifically the consistency of the project with the following five evaluation criteria: "(i) The proposed use would be inconsistent or incompatible with the purposes for which the lands are managed, or with other uses; or (ii) The proposed use would not be in the public interest; or (iii) The proponent is not qualified; or (iv) The proponent does not or cannot demonstrate technical or economic feasibility of the proposed use or the financial or technical capability to undertake the use and to fully comply with the terms and conditions of the authorization; or (v) There is no person or entity authorized to sign a special use authorization and/or there is no person or entity willing to accept responsibility for adherence to the terms and conditions of the authorization. The commenter contends that the USFS should deny the Palmdale to Burbank Project Section special use authorization because it asserts the Authority's plans do not meet the requirements of USFS special authorization requirements related to the compatibility of the project with the land use designations in the ANF and related to the economic feasibility requirement. The commenter asks for clarification as to how the Authority will meet these requirements to secure a special use authorization from the USFS.

The USFS is a cooperating agency in the preparation of this EIR/EIS and the Authority has coordinated and consulted with the USFS regarding the project for many years. Appendix 3.1-B, USFS Policy Consistency Analysis in the Draft EIR/EIS concludes that the project would be consistent with non-recreation special use authorization because the Build Alternatives would be implemented pursuant to the special-use authorization issued by USFS. HSR would demonstrate compliance with all laws, regulations, and policies governing the issuance of a Special Use Authorization (SUA). Please refer to Appendix 3.1-B for further details. The Draft EIR/EIS also includes an evaluation of the project alternatives' consistency with the land use designations in the ANF in Section 3.13.10, United States Forest Service Impact Analysis; any inconsistencies with these land use designations are appropriately disclosed. With respect to economic feasibility of the project, the comment is correct that the Palmdale to Burbank Project Section is not fully funded to proceed into detailed design and construction. The Authority is actively seeking additional funding and would submit a SUA application to the USFS once funding for detailed design and construction has been identified. Accordingly, the Authority would meet the economic feasibility requirement at the time of submittal of the SUA application. The Final EIR/EIS is intended to include a sufficient level of analysis to

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4494-9640

support the issuance by the USFS of a SUA that would allow for construction and operation of the selected Preferred Alternative. Ultimately, the USFS would need to make a determination of consistency with USFS laws, regulations, and policies before issuing a Special Use Authorization.

4494-9641

The commenter underscores the importance of the San Gabriel Mountains National Monument (SGMNM) and notes that new mineral and energy resource exploration is not permitted within the Monument. The commenter questions the justification for allowing tunneling through the Monument based on the opinion that many of the impacts of mining overlap with and yet are less invasive than the impacts of tunneling. The commenter also questions how constructing a tunnel through the Monument does not constitute a violation of the spirit of the USFS directive when mineral and energy resource exploration is not permitted.

As discussed in Section 3.13.6, tunnel construction would not result in inconsistencies with land use designations within the Angeles National Forest (ANF), including SGMNM, because all construction activities would occur below the surface, except for the Vulcan Mine area, where a section of the at-grade, covered tunnel would be located in an area disturbed by existing mining operations. Construction within the Developed Area Interface designation would be generally consistent with allowable uses. Operation of the HSR trains within the tunnels would not have direct surface effects on USFS lands. Tunnel depth and construction design would prevent vibration- and noise-related effects, as shown on Figure 3.13-29 through Figure 3.13-41 of the Draft EIR/EIS.

Given that portal locations would be immediately adjacent to the ANF, including the SGMNM, there could be some increase in noise levels on lands within USFS lands immediately adjacent to the portal areas, but HSR operations would have limited effect on the land use within the ANF including the SGMNM and would not inhibit implementation of the LMP. As discussed under Impact LU#2, such related effects would be temporary in nature and would be minimized through the implementation of appropriate IAMFs. Therefore, construction-related land use conflicts in these areas would be avoided. Additionally, the USFS is a cooperating agency and is involved with ongoing coordination regarding the ANF including the SGMNM.

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4494-9642

The commenter refers to Appendix 3.1-B: USFS Consistency Analysis; specifically, Section 4.3, San Gabriel Mountains National Monument (SGMNM) Management Plan (www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd1055780.pdf). The commenter asserts that stated goals of the San Gabriel National Monument Management Plan are "1. Road density within the Monument remains stable or is decreasing," and "2. Consider opportunities to reduce the size of the road system by decommissioning individual roads or converting them to non-motorized trails."

The SGNMN Management Plan defines a goal as "a broad statement of intent, other than desired conditions, usually related to process or interaction with the public. Goals are expressed in broad, general terms, but do not include completion dates." Although the commenter suggests that the quoted text from the SGMNM Plan refers to goals, the cited text regarding road density is located in Chapter 2 on of the SGNMN Plan under the heading Plan Components, sub-heading Transportation, and sub-sub-heading Desired Conditions. The cited text regarding reducing the size of the road system is located in Chapter 3, under the heading Transportation System Maintenance and the sub-heading Maintenance Strategy. These quotes, therefore, relate to desired conditions and maintenance strategy, but are not goals of the SGNMN Management Plan.

Table 3.1-B-3 in Section 4.3, SGMNM Management Plan (Draft EIR/EIS Appendix 3.1-B, USFS Policy Consistency Analysis) sets forth the Authority's analysis of the Palmdale to Burbank Project Section's consistency with the Management Plan's goals. SGMNM Management Plan's goal with respect to Transportation reads "Evaluate alternative transportation and public transportation opportunities, including identifying programs that facilitate access from underserved communities, ways to link to public transportation options in gateway communities, and sites appropriate for bus access at key recreation areas," which the Authority concludes in Table 3.1-B-3 is not applicable to the proposed work in the SGMNM related to the Palmdale to Burbank Project Section. As discussed in Section 4.3 SGMNM Management Plan in Appendix 3.1-B, USFS Policy Consistency Analysis, the Authority concludes that Palmdale to Burbank Project Section is consistent with the SGNMN Management Plan.

Predicated on erroneous characterizations of the SGMNM Management Plans goals,

4494-9642

the commenter asks how the Authority justifies the introduction of access roads within the SGMNM. The introduction of new access roads would not be inconsistent with the goals of the SGMNM Management Plan.

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4494-9643

The commenter inquires how construction of the project is not in violation of the 2014 Presidential Proclamation on the SGMNM (Proclamation), because construction equipment would be used in areas without existing roads. The Proclamation is silent on the use of temporary construction equipment, directs the preparation of a transportation plan, and allows exceptions to the limitations on motor vehicle use for authorized administrative purposes.

Consistency of the Build Alternatives with the Presidential Proclamation of the SGMNM is discussed in Table 3.1-B-3 of Appendix 3.1-B in the Draft EIR/EIS. The Build Alternatives for the most part would tunnel under USFS lands thereby avoiding impacts to resources at the surface. Some facilities would be located within the forest such as adits and utilities (water and power) during construction. Adits would be located on in-holdings, which are private property within the ANF. Utilities needed for construction would be located along existing roads and/or follow existing utility corridors within the forest, thereby reducing impacts and complying with the 2014 Presidential Proclamation on the SGMNM. Additionally, as described in Appendix 3.1-B of the Draft EIR/EIS, in 2016, the U.S. Forest Service proposed to amend the 2006 ANF Land Management Plan with a specific management plan to provide for the proper care and management of the objects protected by the proclamation establishing the SGMNM. The plan is intended to provide for protection and interpretation of the scientific and historic objects identified in the proclamation and for continued public access, consistent with their protection. The draft environmental assessment associated with the draft SGMNM Plan Amendment was published in August 2016 for public review and finalized in May 2019.

4494-9644

The commenter asks how the desired future conditions with the San Gabriel Mountains National Monument are expected to be met, including stable and improving habitat conditions and special status species managed for preservation and protection. The majority of the HSR Palmdale to Burbank Project Section for all Build Alternatives would be tunneled under the ANF and SGMNM and result in little direct temporary or permanent surface construction or operation and maintenance disturbances. A small section of the overlapping portion of the E1, E1A, E2, and EA2 Build Alternatives is at grade and on viaduct at Aliso Canyon Road, just adjacent and outside of the SGMNM, where medium- to high-density residential development occurs (see Figure 3.13-9). A tunnel entrance portal for the overlapping portion of the Refined SR14 and SR14A Build Alternatives would be constructed on the existing development of Vulcan Mine, which is within the SGMNM, but is historically developed (see Figure 3.13-4). Acreages of surface footprint within the ANF and SGMNM can be seen on Table 3.13-17. Minimal surface footprint occurs that would affect critical biological areas across all Build Alternatives, and no surface footprint to undisturbed areas occurs for the SR14A Preferred Alternative. These temporary and permanent construction footprints are not expected to interfere with meeting the desired future conditions for the SGMNM according to the Management Plan. The Authority determined in Section 3.13 that the project would have no temporary or permanent land use conflicts with the SGMNM Management Plan.

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4494-9645

The commenter asks how the Authority plans to stage construction for more than 7 years adjacent to a wilderness area is consistent with USFS directives.

The Magic Mountain Wilderness Area is the only wilderness area within the study area. No surface construction would occur within this wilderness area, nor would any tunnels cross underneath this wilderness area. The closest surface construction to the wilderness area would occur at the Vulcan mine site, which is located within the SGMNM portion of the ANF. The Vulcan mine site has been an active mining operation within the ANF for many years. The Refined SR14 and SR14A Build Alternatives would utilize this mine site to construct a tunnel portal. Upon completion, approximately 219 acres of land within the Vulcan Mine site would be regraded and restored to a condition better reflecting the surrounding topography, improving the appearance of the area and no above-ground HSR facilities would be located within the SGMNM boundary. Given project's activities will occur within the Vulcan mine site, which is already highly altered and was an active mining operation for many years, and is not located within an area designated as Wilderness nor an area recommended to be designated as wilderness, the project would not conflict with the conditions cited by the commenter.

Regarding construction activities, no construction activities would occur within designated wilderness areas or areas recommended for wilderness designation. While the project would result in construction activities near the designated wilderness area, this would not create a substantially different condition than what existed for many years while the Vulcan mine was in operation which was much longer than the construction period for the project. Once HSR construction is complete, and as noted above, the project would result in an improved condition in this area near the wilderness area as the area's topography would be restored to a more natural condition. Section 4 of Appendix 3.1-B, USFS Policy Consistency Analysis in the Draft EIR/EIS, analyzes consistency with specific policies and regulations of the adopted plans for ANF and SGMNM. The analysis concludes the project is consistent with protecting and managing wilderness, since the build alternatives do not include any construction, surface activities or subsurface facilities within the designated wilderness area in the project study area, the Magic Mountain Wilderness Area.

4494-9646

The commenter asks how potential hydrogeological impacts from tunneling may contravene USFS policies and goals to reduce wildfires and to reduce drought-caused mortality in Southern California National Forests. The high and moderate impact risk areas associated with the build alternative alignments are anticipated to be restricted to areas where geologic faults cross the alignments. The Refined SR14 and SR14A Build Alternative alignments would cross the fewest identified risk areas compared to the other build alignments. The ANF Land Management Plan Goal 1.1, indicated in the comment, is tied to limiting loss of life and property and of life and property recovery from high intensity wildfires in the wildland-urban interface. USFS stated that it aims to treat vegetation to enhance community protection and to reduce the risk of loss of human life, structures, improvements, and natural resources from wildland fire and subsequent floods. Firefighters have improved opportunities for tactical operations and safety near structures, improvements, and high resource values. This goal focuses on providing defensible space and enhanced safety. Local jurisdictional authorities, citizen groups and the Forest Service act together to mitigate hazardous fuel conditions in areas surrounding urban interface, urban intermix, and/or outlying improvements. Since the project would be constructed and operate underground beneath the ANF, it would not impede or preclude achieving these goals in the ANF. Likewise, any potential impacts to groundwater would not contravene this goal because such impacts would not preclude the ability to limit the loss of life and property resulting from wildfires because the Authority anticipates no reasonably foreseeable changes to the hydrogeological conditions resulting from implementation of the Build Alternative alignments and therefore would not impede the Forest Service's ability to reduce wildfires or to reduce drought-caused mortality in Southern California National Forests. The ANF Land Management Plan Goal 1.2, indicated in the comment, is tied to restoring forest health where alteration of natural fire regimes have put human and natural resource values at risk. This includes reducing the potential for widespread losses of montane conifer forests caused by severe, extensive, and stand replacing fires. This also includes reducing the number of acres at risk from excessively frequent fires while improving defensible space around communities, and maintaining long fire-free intervals in habitats which are slow to recover. While changes in groundwater levels may temporarily occur during tunnel construction, the Authority will implement an AMMP (BIO-MM#93 and HWR-MM#4), described in Appendix 3.8-C. The AMMP includes monitoring protocols to establish baseline conditions for surface water resources and to allow for the detection

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4494-9646

of changes in groundwater conditions related to tunnel construction to ensure timely implementation of remedial measures. The monitoring program would continue for up to 10 years after the completion of construction. The AMMP also includes provisions for augmenting water supplies for surface water resources and wells and establishes performance standards that the remedial actions must achieve to approximately match baseline conditions. The sources and means of conveyance of such water supplies are discussed in Appendix 3.8-D. The AMMP also includes actions to restore affected resources and, if necessary, to provide compensatory mitigation for affected water resource if effects cannot be arrested or substantially reduced through other response actions. As a result, the AMMP would effectively mitigate or offset impacts to affected water resources. The project will have no reasonably foreseeable permanent changes to groundwater levels or impact the stated goals in the Land Management Plan Goal 1.2.

4494-9647

The commenter asks how the project is consistent with USFS Policy WL-1 of LMP2, which addresses Threatened, Endangered, Proposed, Candidate, and Sensitive Species Management. The USFS directive is to "Use vegetation management practices to reduce the intensity of fires to reduce habitat loss due to catastrophic fires." The commenter notes on page 3.1-B-9 of the Draft EIR/EIS, CHSRA claims that its plans are consistent with this directive as, "Implementation of BIO-MM#54 involves preparation and implementation of an Annual Vegetation Control Plan (VCP). The Authority will prepare a VCP to address vegetation removal for the purpose of maintaining clear areas around HSR facilities and reducing the risk of fire." The commenter also suggests the CHSRA's response is limited to "vegetation removal," but vegetation management includes ensuring that projects do not deplete natural water supplies. Lastly, the commenter claims that CHSRA is anticipating dewatering of Forest land as a result of tunneling. The Authority disagrees with the commenter's statement that the Authority intends to dewater the forest. While temporary changes to groundwater levels may occur during tunnel construction, water levels are anticipated to return to pre-tunnel construction levels. The project's consistency with Forest Service Policy is analyzed in Appendix 3.1-B. Consistency with invasive species management is discussed on pages 3.1-B-10 and 3.1-B-11. These are all identified as consistent or not applicable to the project. The potential surface effects of tunnel construction were more appropriately evaluated under other Forest Service Standards and WL-1 is not applicable. Constructing the project within a tunnel is expected to reduce wildland fire potential, as this greatly reduce the surface area of the Build Alternatives in the ANF. Furthermore, as discussed in Section 3.11, Safety and Security, the Authority would form a statewide FLSSC to comply with state and local fire code standards and hazard programs during design of the Build Alternatives. The Authority would invite the USFS to participate in the FLSSC to ensure incorporation of applicable vegetation protection policies outlined in the ANF LMP. Implementation of HWR-MM#4, HYD-IAMF#5 (using a tunnel boring machine capable of preventing groundwater seepage while drilling preventing changes in groundwater levels during construction), HYD-IAMF#6 (creating a tunnel lining capable of resisting the groundwater pressure with minimal groundwater leakage into the tunnel during construction and operations), HYD-IAMF#7 (A grouting program used during the construction of the tunnels to reduce or prevent potential groundwater flows into the tunnels during construction and operation), HWR-MM#4 (The Authority will implement an AMMP to detect adverse changes in surface and subsurface conditions

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within the ANF that could occur during and after construction of the HSR tunnels including the construction of associated adits. The actions described in this mitigation measure would provide for timely detection of hydrological changes and, if necessary, appropriate remediation. Monitoring would ensure the effectiveness of the measures and determine if additional action would be required. Additionally, monitoring activities would continue for a period of 10 years after completion of the Palmdale to Burbank Project Section. If impacts persist after this period, monitoring would continue, as necessary), and BIO-MM#93 (The Authority will avoid, minimize and mitigate for impacts on seeps, springs, streams, riparian vegetation, and special-status plant and wildlife species, the Authority will prepare and implement an adaptive management and monitoring plan (AMMP) prior to, during, and after tunnel construction to implement the requirements described under HYD-MM#4 and as described below concerning biological resources. The AMMP will require monitoring of groundwater-dependent biological resources within the tunnel construction RSA to detect and remediate adverse effects on habitat function in a timely manner.). The measures are intended to avoid or minimize the noted risk. Given the above, the Build Alternatives are consistent with Forest Service Standards for reducing risk of wildland fire.

4494-9648

Refer to Standard Response PB-Response-S&S-1: Wildfire.

The commenter requested further information on the project's consistency with the United States Forest Service (USFS) Angeles National Forest (ANF) Management Plan's policies on wildfire minimization. Please refer to Standard Response PB-Response-S&S-1: Wildfire, which describes the potential for wildfire effects from construction activities and operations associated with the project, including those associated with above-ground ancillary features. The presence of electrical facilities and operation of cars and trucks on new access roads could increase fire risks. As outlined in Section 3.11.6.3, in Section 3.11, Safety and Security, of this Final EIR/EIS, implementation of the Fire and Life Safety and Security Committee (FLSSC) will require the incorporation of fire safety measures and statewide building code requirements into the construction activities. SS-IAMF#1 and SS-IAMF#2 will require the incorporation of fire safety measures into project operations. These measures would be developed in coordination with the USFS to ensure compliance with any Special Use Authorization issued by the USFS for the project. The USFS would make a determination of consistency with USFS laws, regulations, and policies before issuing a Special Use Authorization, including requirements pertaining to safety and security of the project. For additional information about potential impacts related to wildfires, please refer to Standard Response PB-Response-S&S-1: Wildfire.

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4494-9649

Refer to Standard Response PB-Response-S&S-1: Wildfire.

The commenter requested further information on the project's consistency with Policy FIRE-2 of the LMP2 regarding wildfire minimization. The Authority believes this comment refers to the USFS ANF Management Plan's (ANFMP) Policy Fire-2, as referred to in Section 3.11 of the Draft EIR/EIS. Policy Fire-2 entails the management of high/moderate risk wildfire areas by reducing the potential for fire risks using methods including mechanical treatments, grazing, and prescribed fire. Formation of the project Fire and Life Safety and Security Committee (FLSSC) under SS-IAMF#2 will require the incorporation of fire safety measures and statewide building code requirements into project construction activities. SS-IAMF#2 will further require the incorporation of fire safety measures into project operations. These measures would be developed in coordination with the USFS to ensure compliance with any Special Use Authorization issued by the USFS for the project. The USFS would make a determination of consistency with USFS laws, regulations, and policies before issuing a Special Use Authorization, including requirements pertaining to safety and security of the project. In addition, the electrical utilities proposed within the ANF would generally follow existing utility and road corridors that currently exist within the forest. This is being done to minimize/avoid increasing areas within the forest that would be exposed to high fire risk. For additional information about potential impacts related to wildfires, please refer to Standard Response PB-Response-S&S-1: Wildfire.

4494-9650

Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest.

Commenter provided an overview of how water provisions in California are dependent on the health of our national forests, and is requesting verification on how the CHSRA will protect or improve water conditions when tunneling within the ANF. The Authority will use state-of-the-art design features and construction methods to avoid and minimize impacts on hydrologic resources, including through the use of tunnel boring machines (TBMs) with features to reduce or prevent inflows and grouting and tunnel-lining approaches that have proven effective at controlling water seepage. These measures are identified in HYD-IAMF#5 (TBM Design Features), HYD-IAMF#6 (Tunnel Lining Systems), and HYD-IAMF#7 (Grouting). HYD-IAMF#5 (TBM Design Features) would use closed-mode operations to effectively prevent water seepage from occurring at the TBM cutterhead area, with ports for drilling horizontal probe holes through the TBM cutterhead, and angled probe holes through the TBM shields. Notwithstanding these measures, in High-Risk Areas, which are zones associated with tunnels intersecting areas with faults and high hydrostatic pressure, groundwater inflow into the tunnels would likely occur during construction. Groundwater seepage into tunnel structures during construction could affect water levels of streams, springs and wells reliant on groundwater aquifers. The extent to which groundwater drains into tunnel structures depends on the tunnel lining system's ability to resist hydrostatic pressures. Specialized tunnel design (e.g., one-pass gasketed segmental lining and two-pass tunnel linings) can withstand higher hydrostatic pressure at greater depths.

To address any substantial losses of groundwater and impacts to surface aquatic resources, the Authority will implement an Adaptive Management and Monitoring Plan (AMMP) (See HWR-MM#4). The AMMP would be implemented throughout the tunnel construction RSA. HWR-MM#4 requires that the AMMP include monitoring protocols to establish baseline conditions of surface water resources and to detect changes in groundwater conditions related to tunnel construction to ensure timely implementation of remedial measures. The purpose of the AMMP is to ensure that adverse effects on subsurface and surface water resources and associated habitat within the ANF caused by tunnel construction activities are identified and that appropriate responses to address those effects are expeditiously implemented. This AMMP involves a multi-step iterative

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process to comply with U.S. Forest Service (USFS) standards, which includes remedial measures. The remedial measures include actions such as establishing adaptive management triggers for each water resource being monitored, implementation of compensatory mitigation for each affected water resource, and the minimization of effects on water resources associated species as a result of tunnel construction. For a full list of USFS standards for remedial measures, see Appendix 3.8-C, Adaptive Management and Monitoring Plan for Potential Hydrologic Effects within the Angeles National Forest. The hydrogeological changes that may occur during tunnel construction would be primarily influenced by a combination of risk factors identified above.

Based on the comparative assessment of tunnel-related hydrologic impacts between the six Build Alternatives, the Refined SR14 and SR14A Build Alternatives pose the least risk of hydrologic impacts occurring among the Build Alternatives. The Refined SR14 and SR14A Build Alternative alignments would cross the fewest identified risk areas compared to the other two alignments (E1/E1A and E2/E2A). Within those risk areas, no known seeps, springs, intermittent or perennial streams are present. As such, the Refined SR14 and SR14A Alternatives pose the least risk of hydrologic impacts occurring among the Build Alternatives. Moreover, to the extent such impacts associated with the Refined SR14 and SR14A Build Alternatives may occur, they would likely be of less severity than the other Build Alternatives. The E2 and E2A Build Alternative alignments traverse the greatest number of Moderate- and High-Risk areas and have the greatest length of tunnel in water pressure zones above 25 bar. As such the E2 and E2A alternatives would pose the highest risk of hydrologic impacts occurring when compared to the other Build Alternatives. If through further investigation additional seeps, spring, intermittent or perennial streams are discovered within the tunnel construction RSA, the risk of hydrologic impacts may increase accordingly. As noted above, implementation of HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 would minimize the severity and duration of groundwater inflow during tunnel construction, but groundwater inflow into the tunnel excavations may still occur. Implementation of the Water Resources AMMP set forth in HYD-MM#4 would minimize impacts that occur and, if necessary, provide compensatory mitigation for unavoidable impacts to surface aquatic resources, including water supply wells. See Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, for additional information regarding concerns about tunneling in the ANF.

4494-9651

Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest.

Commenter provides an overview of HYD-MM#4, which calls for importing water to meet U.S. Forest Service needs and maintain baseline water levels during tunneling construction. Commenter is requesting clarification on how the proposed tunneling plans will conserve and protect water sources to meet the needs of the Angeles National Forest. The Authority will use state-of-the-art design features and construction methods to avoid and minimize impacts on hydrologic resources, including through the use of tunnel boring machines (TBMs) with features to reduce or prevent inflows and grouting and tunnel lining approaches that have proven effective at controlling water seepage. These measures are identified in HYD-IAMF#5 (TBM Design Features), HYD-IAMF#6 (Tunnel Lining Systems), and HYD-IAMF#7 (Grouting). HYD-IAMF#5 (TBM Design Features). The TBM would use closed-mode operations to effectively prevent water seepage from occurring at the TBM cutterhead area, with ports for drilling horizontal probe holes through the TBM cutterhead, and angled probe holes through the TBM shields. These holes will allow for water pressures and flow rates to be measured ahead of the TBM, and further allow for pre-excavation grouting ahead of the TBM to cut-off groundwater inflows into the tunnel. HYD-IAMF#6 (Tunnel Lining Systems) will consist of segmental, precast, concrete lining with bolted and gasketed joints, creating a tunnel lining capable of resisting the groundwater pressure with minimal, leakage in circumstances where groundwater pressures are 25 bar or less. In sections where groundwater pressures are above 25 bar, a second lining will be put in place to ensure that tunnels are watertight over time. HYD-IAMF#7 (Grouting) involves pouring coarse mortar into various narrow cavities along the tunnel lining. Several grouting methods will be used during the construction of the tunnels to avoid and minimize groundwater flows into the tunnels, including pre-excavation grouting, backfill grouting with two-component grout, and check grouting (refer to Appendix 2.0-E of the Palmdale to Burbank Project Section EIR/EIS for further descriptions of IAMFs that will be implemented as part of the project, including HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7). For proper implementation of this approach, a detailed site-specific geotechnical and hydrogeological characterization would be carried out for the selected Alternative. Notwithstanding these measures, in High-Risk Areas, which are zones associated with tunnels intersecting areas with faults and high hydrostatic pressure, groundwater inflow

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into the tunnels would likely occur during construction. Groundwater seepage into tunnel structures during construction and operation could affect water levels of streams, springs, and wells reliant on groundwater aquifers. To address this, the Authority will implement an Adaptive Management and Monitoring Plan (AMMP) (See HWR-MM#4). The AMMP would be implemented throughout the tunnel construction RSA. HWR-MM#4 requires that the AMMP include monitoring protocols to establish baseline conditions of surface water resources and to detect changes in groundwater conditions related to tunnel construction to ensure timely implementation of remedial measures. The purpose of the AMMP is to ensure that adverse effects on surface water resources and associated habitat within the ANF caused by tunnel construction activities are identified and that appropriate responses to address those effects are expeditiously implemented. This AMMP involves a multi-step iterative process to comply with U.S. Forest Service (USFS) standards, which includes remedial measures. The remedial measures include, but are not limited to actions such as establishing adaptive management triggers for each water resource being monitored, implementation of compensatory mitigation for affected surface waters, and the minimization of effects on water resources-associated species as a result of tunnel construction. For a full list of USFS standards for remedial measures, see Appendix 3.8-C, Adaptive Management. See Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, for additional information regarding concerns about tunneling in the ANF.

4494-9652

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/ Tunneling Impacts in the Angeles National Forest.

The commenter asks why the Authority did not design and select an alternative that would not tunnel through the Angeles National Forest, thereby not jeopardizing natural water sources. Please refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, which provides information how the Build Alternatives were evaluated and selected for consideration. Additionally, refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, for concerns regarding impacts to water resources, wildlife, and fauna within the Angeles National Forest.

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4494-9653

The commenter requests further details regarding calculation of in-lieu fees and project impacts to national forests, and indicates that the preferable course of action is to avoid causing unmitigable damage in the first place. The Authority has no intention of impacting sensitive resources any more than absolutely necessary after implementing IAMFs and MMs, including HYD-IAMF#5, HYD-IAMF#6, HYD-IAMF#7, BIO-MM#93, to avoid and to minimize impacts on those sensitive resources. The Authority designed the project with a tunnel under the ANF in an effort to avoid substantial impacts and to minimize direct impacts to sensitive surface resources (see Draft EIR/EIS Chapter 2, Alternatives, Section 2.4). It also designed a project with no at-grade or above-ground project facilities in the SGMNM other than Vulcan mine–and there, the Authority found that the project could provide substantial restoration beyond the reclamation requirements currently in place (see Draft EIR/EIS, Section 2.5.3.1). Where the project requires at grade/above-ground facilities within the ANF, these would be located on private in holding (private property) or along existing roads or utility corridors where they would cause less impacts. Based on these careful efforts, the Draft EIR/EIS found impacts within and near national forests to include impacts to FSS species habitat within the ANF, including the SGMNM, by all six build alternatives. Most impacts on FSS species would occur during construction-period ground disturbance and installation of trackway and ancillary features. Implementation of IAMFs and MMs listed above would minimize impacts on biological resources and aquatic resources during construction and operation of the six Build Alternatives (see Draft EIR/EIS, Section 3.7.11). If, after these efforts, the Authority nonetheless finds that the project impacted the ANF in ways that require compensatory mitigation, the amount and type of compensatory mitigation will be determined through consultation with the USFS and/or other applicable natural resource agencies.

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4494-9654

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife, PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest.
The commenter asks why the Authority did not design and select an alternative that would not tunnel through the Angeles National Forest, thereby not jeopardizing natural water sources and affecting wildlife, flora, and humans dependent upon the water sources. Please refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, which provides information relating to how the Build Alternatives were evaluated and selected for consideration. Additionally, refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, for concerns regarding impacts to water resources. Standard Response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife addresses concerns regarding impacts to wildlife.

4494-9655

The commenter asks how compensatory mitigation can mitigate project impacts to aquatic, riparian, and upland ecosystems. The Authority has developed IAMFs as design features to avoid and minimize impacts (BIO-IAMF#1 - BIO-IAMF#12) as well as MMs to avoid, minimize, and compensate project impacts to sensitive resources within national forests (BIO-MM#1 - BIO-MM#101). With implementation of mitigation measures, the project would have a less-than-significant effect on biological resources within national forests (see Draft EIR/EIS Section 3.7.11). The Authority has developed a contingency plan through coordination with the USFS, as explained in the last provision of BIO-MM#92 (see Draft EIR/EIS, p. 3.7-237), where the Authority would fund compensatory mitigation to offset the loss of habitat pursuant to terms set forth in BIO-MM#47 and BIO-MM#53. This compensatory mitigation would not be paid to the USFS, as indicated in the comment, but to applicable agencies or organizations approved by agencies who provide the mitigatory habitat that is created and maintained. See BIO-MM#47 and BIO-MM#53 for more detail, as well as BIO-MM#38, BIO-MM#39, BIO-MM#44, BIO-MM#46, BIO-M#67, BIO-MM#70 where compensatory mitigation is further discussed.

4494-9656

The commenter notes that mitigation measures exist to mitigate impacts to aquatic and other ecosystems within USFS jurisdiction land, and appears to question the authenticity of certain impact conclusions that require mitigation and/or IAMFs to achieve a less-than-significant or non-adverse impact conclusion. These implications, however, are unwarranted. CEQA explicitly provides that mitigation measures may be used to minimize, rectify, reduce, or compensate for a potential impact where such an impact cannot be fully avoided (see CEQA Guidelines sections 15126.4 and 15370). Here, however, often times a potential impact is indeed avoided through the use of project design features, i.e., IAMFs.

The Authority identifies potential adverse affects to aquatic, riparian and upland ecosystems, however, the implementation of IAMFs described below are anticipated to avoid or minimize those potential affects resulting in a no adverse impact determination for this resource.If and where these impacts may not be fully avoided and may remain at a certain level of significance, the EIR/EIS includes mitigation, also described below.

The Authority has incorporated HYD-IAMF#5,Tunnel Boring Machine Design, HYD-IAMF#6, Tunnel Lining Systems, and HYD-IAMF#7, Grouting into the project design and construction methods for tunnels under the ANF to avoid or minimize groundwater inflows into and around tunnels during and after construction. While HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 are anticipated to reduce the amount of potential groundwater depletion due to tunnel construction some groundwater inflow into the tunnels could still occur in during construction. Implementation of the Adaptive Management and Monitoring Program (BIO-MM#93 and HYD-MM#4) to monitor ground water dependent surface water resources and riparian resources would use supplemental watering if necessary to minimize impacts during the construction phase. Only if this approach results in unsuccessful avoidance or minimization of the impact specifically after construction is completed would compensatory mitigation be applied to further offset these impacts.

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4494-9657

The commenter believes that the project is in violation with USFS directive WAT-1. The Authority disagrees with the comment and indicates in Appendix 3.1-B USFS Policy Consistency Analysis of the Draft EIR/EIS, that the project is consistent with WAT-1. IAMFs such as BIO-IAMF#1, BIO-IAMF#2, BIO-IAMF#3, and BIO-IAMF#5 through BIO-IAMF#11 (described in Section 3.7.4.2 in Section 3.7, Biological and Aquatic Resources of the Draft EIR/EIS) would ensure that construction activities comply with all regulatory requirements (such as USFS directive WAT-1) to avoid and minimize impacts on to riparian habitat, watersheds, streams, and other riparian-dependent upland ecosystems from the Build Alternatives to the extent feasible. BIO-IAMF#5, for example, would require the preparation and implementation of a Biological Resources Management Plan that would compile the specific mitigation measures for the protection of vernal pool habitat and riparian areas and resources during construction and operation of the Build Alternatives. Implementation of mitigation measures such as BIO-MM#32 and BIO-MM#46 would minimize temporary and permanent impacts to riparian habitat through habitat restoration and revegetation. In addition, the implementation of BIO-MM#34 during construction activities will minimize temporary construction impacts to riparian resources. Any permanent impacts to riparian habitats would be compensated at a 2:1 (or greater) ratio to fully mitigate and offset these impacts (BIO-MM#46).

4494-9658

The commenter questions the determination that the project is consistent with USFS directive WAT-1.

The primary goal of directive WAT-1 is to protect, maintain and restore natural watershed functions including slope processes, surface water and groundwater flow and retention, and riparian area sustainability. Under this goal WAT-1 includes the following desired conditions: Assess impacts of proposed groundwater extraction proposals to assure that developments will not adversely affect aquatic, riparian or upland ecosystems; Restore, maintain and improve watershed conditions. Assure approved and funded rehabilitation and emergency watershed treatments are implemented in an effective and timely manner.

As discussed in Appendix 3.1-B (page 3.1-B-15 in the Draft EIR/EIS), tunnel construction under the ANF has the potential to alter hydrogeological conditions, resulting in inflows of groundwater into the tunnel and the subsequent depletion of groundwater aquifers. Depletion of groundwater aquifers could affect the hydrology of groundwater-dependent ecosystems, resulting in effects on species. The Authority has incorporated HYD-IAMF#5, Tunnel Boring Machine Design, HYD-IAMF#6, Tunnel Lining Systems, and HYD-IAMF#7, Grouting into the design and construction methods for tunnels under the ANF to avoid or minimize groundwater inflows into and around tunnels during and after construction. These measures are specifically intended to avoid or reduce these potential impacts from occurring in the first place. The mitigation measures cited by the commentor would only be implemented if the measure above do not fully reduce or avoid the impact from occurring. The approach the Authority has taken is consistent with the desired conditions under WAT-1. The Authority has assessed the impacts of tunneling on groundwater and potential effects on surface aquatic, riparian ecosystem and will implement multiple measure to assure these effects are avoided or substantially reduced.

The Authority has also committed to prepare and implement an AMMP (HWR-MM#4) to monitor and restore potential effects to aquatic and riparian ecosystems in an effective and timely manner if they were to occur. The primary approach to restoring and maintaining affected aquatic and riparian ecosystems affected by tunneling would be to maintain the baseline surface water requirements of the affected ecosystem through

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4494-9658

application of supplemental water. Contrary to the commenter's assertion, compensatory mitigation strategies would only be applied should application of supplemental water not be effective or not feasible. These compensatory mitigation strategies would focus on restoring and improving habitat within the ANF. Restoring and improving habitat would be consistent with the desired conditions of WAT-1 to maintain, restore and improve watershed conditions.

4494-9659

Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest.

The commenter expresses concerns about the effect of tunneling on groundwater in the ANF and how this may affect aquatic, riparian, or upland ecosystems and be consistent with directives from USFS.

Please refer to standard response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, which discusses the potential impacts on groundwater-surface water resources in the ANF and measures to reduce and mitigate potential impacts. With the implementation of the measures specified in the EIR/EIS, the amount of water lost due to tunnel construction would be minimal and as noted would return to pre-construction levels once tunnel construction is complete and groundwater levels are allowed to recover.

4494-9660

Refer to Standard Response PB-Response-ALT-2: Unique Tunnel Elements – Windows, Adits, Tunnel Boring Machines, etc., PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest.

The commenter raises concerns about conflicts between USFS directives related to water conservation and water required to construct the project, including water required to bring groundwater levels back to baseline.

As noted in Response to Comment #9659, with the implementation of measures specified in the EIR/EIS the amount of groundwater loss during construction would be avoided and minimized, and once construction is complete groundwater levels are expected to return to baseline conditions. The Authority does not anticipate that supplemental water will be needed or used for recharging groundwater in the ANF. Trucking of water into the ANF would be done if needed to support a habitat that is affected by tunnel construction. The measures included in the EIR/EIS involve steps to avoid impacts on surface habitat from occurring, such as changing tunnel construction techniques. The intent of these measures is to reduce or avoid the need for supplemental water in the first place.

4494-9661

The commenter inquired what mitigation measures involve the application of water, and if the mitigation measures are consistent with the USFS directive to conserve water at authorized facilities. See Response to Comments #9659 and #9660.

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4494-9662

Refer to Standard Response PB-Response-ALT-2: Unique Tunnel Elements – Windows, Adits, Tunnel Boring Machines, etc..

The commenter requested further information on IAMFs and mitigation measures that the Authority will implement as part of the project to avoid and minimize adverse effects on groundwater and surface water features within the ANF. The Authority understands that the construction of tunnels within the ANF may adversely affect groundwater and other aquatic resources. These potential impacts are analyzed in detail in Section 3.8, Hydrology and Water Resources, specifically in Impact HWR#4 (Changes in Groundwater Recharge Associated with Temporary Construction Activities and Permanent Structures Required for the Build Alternatives) and HWR#5 (Changes in Hydrogeologic Conditions Associated with Tunnel Construction Beneath the ANF which May Affect Surface and Subsurface Water Resources). Please refer to standard responses PB-Response-ALT-2: Unique Tunnel Elements –Windows, Adits, Tunnel Boring Machines, etc., which discusses the Authority's analysis of this issue as well as the tunneling equipment, techniques and measures that would be implemented to avoid and minimize groundwater seepage into the tunnels during construction. Based on these measures, the Authority anticipates that the project will be in compliance with USFS LMP3 policies pertaining to "Soil, Water, Riparian, and Heritage Standards."

4494-9663

The commenter inquired how the Authority proposes to import water to offset the loss due to its extraction and asserts that water extracted as a result of tunnel construction within the ANF would be considered excess to the current and foreseeable needs of forest resources. Please see Response to Comments #9659 and #9660.

4494-9664

The commenter cites the LMP2 and questions how tunneling and building corollary infrastructure within the Angeles National Forest (ANF) is not a violation of the legislative mandate to use forest lands conservatively.

As discussed in Section 3.13.6 of the Draft EIR/EIS, tunnel construction would not result in inconsistencies with land use designations within the ANF, including the San Gabriel Mountains National Monument (SGMNM), because all construction activities would occur below the surface, except for the Vulcan Mine area, where a section of the at-grade, covered tunnel would be located in an area disturbed by existing mining operations.

Construction within the Developed Area Interface designation would be generally consistent with allowable uses. Operation of the HSR trains within the tunnels would not have direct surface effects on USFS lands. Tunnel depth and construction design would prevent vibration- and noise-related effects, as shown on Figure 3.13-29 through Figure 3.13-41 of the Draft EIR/EIS. There would be no aboveground Build Alternative alignment within the ANF, and wildlife would not experience adverse noise or startle effects on USFS lands. Therefore, HSR operations would have limited effect on the land use within the ANF including the SGMNM and would not inhibit implementation of the LMP. Please refer to Section 3.13.10 for a discussion on Land Use consistency with the ANF and SGMNM LMPs.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9665

The commenter notes that Table 2.1.3 of the LMP2 states that Major Transportation Corridors are not a suitable use in several categories of USFS land. The commenter questions whether tunneling and building corollary infrastructure within the Angeles National Forest (ANF) is a violation of the USFS "Suitable Uses" as delineated in Table 2.1.3 of the LMP2. The commenter questions if CHSRA would be granted a Special Use Permit by the USFS for the construction and operation of its high-speed rail system.

The LMP defines Major Transportation Corridors as "county, state, and federal highways." As the project is a rail line that would be in tunnel through most of the ANF, it would not be considered a Major Transportation Corridor as defined by the LMP. Additionally, since temporary footprint areas would not permanently alter existing land uses, impacts associated with temporary construction areas would not be inconsistent with the LMP. For all six Build Alternatives, temporary construction areas (staging areas, grading, and earthwork) within the ANF, including the San Gabriel Mountains National Monument (SGMNM), will be revegetated or restored following construction (see LU IAMF#3 described in Section 3.13.4.2). Furthermore, as part of the evaluation of the Authority's application for a Special Use Authorization, the USFS would evaluate and determine the Palmdale to Burbank Project Section's consistency with ANF and the SGMNM LMPs, including existing and planned uses.

4494-9666

The commenter cites the Land Management Plan (LMP) in which the intent for "Back Country" is to retain the natural character inherent in the zone and limit the level and type of development. Based on this designation, the commenter questions how tunneling through the Angeles National Forest (ANF) and building corollary infrastructure is not a violation of USFS's intent.

As discussed in Section 3.13.6, all six Build Alternatives would require the construction of adit structures and associated utilities in the ANF. The Refined SR14 and SR14A Build Alternatives would require the construction of the adit structure SR14-A1 while the E1, E1A, E2, and E2A Build Alternatives would require an adit to be constructed near Arrastre Canyon Road. As identified in the ANF LMP and the San Gabriel Mountains National Monument (SGMNM) LMP, moderate levels of human use and infrastructure development may be permissible within the Back Country land use designation. Therefore, the construction of adits may be consistent with the allowable uses with in "Back Country" designation identified in the ANF LMP and the SGMNM LMP. In addition, most temporary or permanent land conversions to accommodate the adits would involve the removal of existing development, including residential structures, and lands that have been previously disturbed. The adit structure and associated utilities would be consistent with the existing development on the private in-holding.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9667

The commenter questions whether tunneling and building corollary infrastructure within the ANF is a "violation of the intent of USFS." Allowable land uses within the Angeles National Forest (ANF) are designated and defined by the ANF Land Management Plan (LMP) and the 2019 San Gabriel Mountain National Monument LMP Amendment, which was mandated by the 2014 Presidential Proclamation 9194 (USFS 2017). These land use designations indicate allowable land use types and intensities within the ANF and within areas designated as the SGMNM. Proposed uses are evaluated against these land use designations to determine whether such uses would be consistent with the LMP. Operation of the HSR trains within the tunnels would not have direct surface effects on USFS lands. Therefore, HSR operations would have limited effect on the land use within the ANF including the SGMNM and would not inhibit implementation of the LMP's. See Section 2.4.2, Alternative Considered and Findings, of Chapter 2.0, Alternatives of the Final EIR/EIS, for more information regarding the alternative routes considered but not applied due to the avoidance of impacts to the ANF.

4494-9668

The commenter inquires how the project would restore impacted areas of the ANF to existing conditions, and remove significant infrastructure upon completion or termination of the Special Use Authorization from the USFS. The terms and duration of any SUA for the project have not been identified at this time. However, given the project involves construction of vital transportation infrastructure, it is not envisioned that the infrastructure for the HSR project would be removed from the ANF; rather, it is anticipated that the SUA would permit the HSR project to operate in perpetuity. The Build Alternatives for the most part would tunnel under USFS lands thereby avoiding impacts to resources at the surface. Some facilities would be located within the forest such as adits and utilities (for water and power supply) during construction. Adits would be located on in-holdings which are private property within the ANF. Utilities needed for construction would be located along existing roads and/or follow existing utility corridors within the forest thereby reducing their environmental impacts. If above ground facilities such as utilities and adits were removed at some point, these areas would be restored as specified in any SUA issued by the USFS.

4494-9669

The commenter inquires how numerous threatened, endangered, proposed, candidate, and sensitive species in the ANF (Angeles Uplands West) would be protected and enhanced during construction of the project, consistent with the goals of the ANF LMP.

The Authority has endeavored to design the project and incorporate project features that would be protective of the natural environment. For the most part, the Build Alternatives would tunnel under USFS lands thereby avoiding impacts to biological resources at the surface. Accordingly, relatively little suitable habitat for special-status plants and wildlife would be directly or indirectly affected by construction and operation of the project in the ANF. Refer to Tables 3.7-39 through 3.7-41 in Section 3.7, Biological and Aquatic Resources of the Draft EIR/EIS, for quantification of potential impacts to the special-status plant, wildlife, and aquatic life within the ANF. As shown in these tables, the project alternatives have differing impacts on special-status species and certain alternatives avoid impacts to some special-status species in the ANF (e.g., Alternatives E1, E1A, E2, and E2A avoid impacts to arroyo toad; SR 14A avoids impacts to Southwester willow flycatcher). To minimize impacts on biological resources during project construction, the Authority has incorporated numerous project features that would facilitate the identification and preservation of biological resources in compliance with relevant regulatory requirements (e.g., BIO-IAMF#1, BIO-IAMF#2, BIO-IAMF#3, BIO-IAMF#5, BIO-IAMF#8, BIOIAMF#9, BIO-IAMF#10, and BIO-IAMF#11). In addition, the Authority has proposed extensive mitigation measures to minimize and compensate for the adverse effects on special status plants and wildlife, which are described in detail in Draft EIR/EIS Section 3.7.7, Mitigation Measures. With implementation of these measures, the analysis concluded that impacts to special-status plant, wildlife, and aquatic resources would be less than significant.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9670

The commenter requests further detail regarding hydrogeological impacts associated with tunnel construction as they pertain to the Program Emphasis in Big Tujunga Canyon Place. The Authority has incorporated HYD-IAMF#5,Tunnel Boring Machine Design, HYD-IAMF#6, Tunnel Lining Systems, and HYD-IAMF#7, Grouting into the design and construction methods for tunnels under the ANF to avoid or minimize groundwater inflows into and around tunnels during and after construction. Although HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 would reduce the amount of potential groundwater depletion due to tunnel construction, based on the available information and based on prior tunnel construction experience elsewhere, some groundwater inflow into the tunnels could still occur during construction. There may be times and locations during construction when these IAMFs do not fully avoid or minimize impacts and additional measures may be appropriate as a contingency to mitigate impacts. To address this issue, the Authority will prepare a long-term AMMP (HWR-MM#4) to monitor and remediate potential changes in groundwater conditions resulting from implementation of the build alignment alternative tunneling. The Build Alternatives would be consistent with USFS Program Emphasis to manage forest ecosystem needs and instream flows necessary to support surface and subsurface resources because the IAMFs would be implemented to avoid or minimize impacts, and mitigation would be provided when avoidance and minimization does not sufficiently reduce the impact (HWR-MM#4) such that forest ecosystem needs are maintained.

4494-9671

The commenter references the Angeles National Forest Land Management Plan Program Emphasis, specifically Big Tujunga Canyon Place, and asks how the project construction in multiple locations is consistent with the USFS stated objectives of protection and enhancement of sensitive biological species. The Angeles National Forest Land Management Plan includes a discussion of place-based program emphasis, which endeavors to provide readers with a better understanding of what types of management is expected in specific areas of the national forest. The Build Alternatives would have minimal surface disturbance within the USFS geographical unit, Big Tujunga Canyon, as the alignments are primarily within a tunnel under the forest. The construction of the viaduct over Big Tujunga Wash would be constructed outside of the Angeles National Forest jurisdiction. Any potential impacts within Big Tujunga Wash inside or outside the forest jurisdiction to impacts to threatened, endangered, proposed, candidate and listed species would be avoided or minimized by the implementation of BIO-IAMF#1 - BIO-IAMF#12 (3.7.4.2) and BIO-MM#1 - BIO-MM#101 (3.3.7). While the E2 and E2A Build Alternatives would cross Big Tujunga Wash as a viaduct, the Authority's Preferred Alternative (SR14A) would avoid impacts to Big Tujunga Wash altogether. Page 3.8-87 describes the E2 and E2A alignment alternative in relationship to Big Tujunga Wash. Given the above, the Build Alternatives would not conflict with the Angeles National Forest Land Management Plan program emphasis for Big Tujunga Canyon.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9672

The commenter asks how the project can be considered consistent with the goals and objectives relating to the Soledad Front Country. Surface construction for the project within the Soledad Front Country would be limited to the Vulcan mine area (SR14A and Refined SR14) and utilities (E1/E1A, E2/E2A). The Build Alternatives would be underground within areas designated as the Soledad Front Country. The portions of the Build Alternatives that are above ground within the Soledad Front Country would consist of utilities along Aliso Canyon Road. These utilities would follow existing utilities within the Soledad Front Country. Vulcan mine is an existing mining operation located within the Soledad Front Country. The project (SR14A and Refined SR14) would utilize this site for a tunnel portal as well as disposal of tunnel spoils material. The tunnel spoils material would be used to restore the area to more natural topography. Once construction is completed, all permanent HSR facilities, including the tunnel portal, would be located outside the Soledad Front Country. The project would not construct or operate any at-grade or viaduct structures within the Soledad Front Country. As noted above, the Build Alternatives are underground. For these reasons, because the project would not include at-grade or viaduct structures through the Soledad Front Country, it would support the USFS goals and program emphasis related to the Soledad Front Country.

4494-9673

Refer to Standard Response PB-Response-AVQ-1: Impacts to Scenic Vistas and Scenic Drives, PB-Response-AVQ-2: Visual Effects on Big Tujunga Wash, PB-Response-AVQ-3: Effects on Visual Quality during Construction.

The commenter is concerned with impacts to visual resources as a result of the project. Refer to Section 3.16.4, Methods for Evaluating Impacts, which describes the methods used to analyze aesthetic and visual quality impacts of the Palmdale to Burbank Project Project Section. Specifically, Section 3.16.4.4, Methods for Evaluating Impacts under NEPA, and Section 3.16.4.5, Method for Determining Significance under CEQA, describe the considerations and thresholds used to assess project impacts. Please also refer to Standard Responses PB-Response-AVQ-1: Impacts to Scenic Vistas and Scenic Drives, PB-Response-AVQ-2: Visual Effects on Big Tujunga Wash, and PB-Response-AVQ-3: Effects on Visual Quality During Construction, which address the specific areas of visual concern raised by the commenter.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9674

Refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest.

The commenter inquired about the project's consistency with the plans and federal laws and regulations regarding the ANF Land Management Plan, and questioned the project's consistency with the Landscape Character section of the Land Management Plan. Appendix 3.1-B of the Draft EIR/EIS, USFS Policy Consistency Analysis, assesses the consistency of the Palmdale to Burbank Project Section Build Alternatives with applicable laws, regulations, plans, and policies governing proposed uses and activities within the national forests and national monuments, specifically the Angeles National Forest and the San Gabriel Mountains National Monument. The analysis in this appendix determined that the project would be consistent with the directives in the LMP with respect to landscape character because, as discussed in Section 3.16 of the Draft EIR/EIS, Aesthetics and Visual Quality, the Build Alternatives would generally be underground within the ANF and SGMNM and would therefore have minimal visual effects on USFS land. Above-ground infrastructure would typically be located on private in-holdings within the ANF and would therefore have limited visibility from public vantage points. Publicly accessible viewpoints from within the ANF towards areas outside of the ANF boundaries where the Build Alternatives would be visible are limited. The main location where this would occur along Aliso Canyon Road looking north toward Blum Ranch (KVP 1.13). Although the E1, E1A, E2, and E2A Build Alternatives would introduce highly visible elevated trackway in this area, viewers would be limited to motorists along Aliso Canyon Road who would not be particularly sensitive to visual changes and whose views would be brief in duration.

The commenter asserts that the project's tunneling would negatively impact water resources in the ANF, resulting in an increase in fire fuels, and questions how this is consistent with the Landscape Character directives established in the LMP. Regarding concerns about the tunnels affecting groundwater and surface flora, please refer to Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, which explains that implementation of HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 would minimize and, if necessary, mitigation measure HWR-MM#4 would compensate for, any changes to surface and groundwater conditions and associated habitat due to project construction.

4494-9674

Accordingly, the analysis concludes that tunnel construction would not result in substantial adverse effects on surface water resources, groundwater resources, or special-status species and habitat. For this reason, the Authority disagrees with the commenter's assertion that the tunnel construction would result in an increase in fire fuels that is inconsistent with the Landscape Character directives of the LMP.

4494-9675

The commenter inquires about the issuance and duration of the USFS Special Use Permit that the project will require. The terms and duration of any Special Use Permit for the project have not been identified at this time. The Authority recognizes that the USFS may not issue a Special Use Permit that "create[s] an exclusive or perpetual right of use or occupancy." 36 C.F.R. §251.54(e)(1)(iv). However, the USFS may issue a Special Use Permit of sufficient duration to accommodate the long-term operation of the HSR and that includes provisions that establish that the Authority is not being granted an exclusive right of use.

4494-9676

The commenter asks how the project is not violating the Angeles National Forest's status as a class I area under the Clean Air Act. The project is committed to generating the least amount of emissions possible during construction (please refer to IAMFs and MMs). In addition, emissions generated during construction will be offset with the SCAQMD. Finally, the Clean Air Act does not apply because the project does not have the potential to emit two hundred and fifty tons per year or more of any air emissions generated from stationary sources inside the ANF.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9677

Specifically with respect to the Angeles National Forest (ANF), the commenter inquired how the proposed project would protect the quality of air and atmospheric values that are required under the Federal Land Policy and Management Act (FLPMA) of 1976, given the commenter's assertion of pollution generated during project construction. Additionally, the commenter inquired how the proposed project would protect the quality of groundwater resources in the ANF. The text quoted by the commenter is located within Title 1 General Provisions of the FLMPA (www.blm.gov/sites/default/files/AboutUs_LawsandRegs_FLPMA.pdf).

As discussed in Section 3.3, Air Quality and Global Climate Change of the Draft EIR/EIS, specifically Section 3.3.10.2, most of the infrastructure associated with the proposed Build Alternatives on U.S. Forest Service (USFS) lands would consist of underground tunnels, and construction-related emissions in the ANF would be concentrated around portals and adit locations. Construction activities, therefore, could generate fugitive dust in the ANF. Section 3.3.6.3, specifically Impact AQ#2, includes discussion of these potential impacts and the Authority's commitment to implement impact avoidance and minimization features (IAMFs) such as AQ-IAMF#1, which requires the preparation of fugitive dust control plans. Nevertheless, project construction activities would result in a temporary increase in emissions. Mitigation measures (AQ-MM#1, AQ-MM#2, and AQ-MM#3) would offset project emissions by funding stationary and mobile-source emission reduction strategies and would commit to stringent emissions requirements from project-related on-road vehicles and off-road equipment. Project operations would have a beneficial long-term effect on statewide and regional air emissions and greenhouse gases because it is anticipated that people would shift from using on-road vehicles and aircraft to the California HSR System, which is less emissions intensive than other transportation modes.

Section 3.8, Hydrology and Water Resources in the Draft EIR/EIS, specifically Section 3.8.10, acknowledges that groundwater impacts may occur where the construction of aboveground and at grade alignments, grading, trenching, and the placement of utility lines would be required within groundwater basins mapped in the ANF. Please refer to Impact HWR#2 which concludes that with implementation of construction BMPs (e.g., erosion control requirements, stormwater management) to minimize water quality impacts and mitigation measure HWR-MM#1, which requires the Authority to treat

4494-9677

potential groundwater contamination pursuant to RWQCB permit requirements, project construction would not substantially degrade water quality. Similarly, the analysis under Impact HWR#6 concludes that project operation would not substantially degrade surface or groundwater quality.

A summary of FLPMA is provided in Land Management Plan, Part 3 Design Criteria for the Southern California National Forests (including the ANF) (Part 3), specifically Appendix A –Relevant Laws, Regulations, Agreements, and Other Management Direction of the Draft EIR/EIS. Appendix A summarizes over 150 federal statutes (including FLPMA), and additionally summarizes federal regulations, executive orders, executive memorandums, agreements, federal agency management direction, and state and local laws and regulations that, while not inclusive, "provide overarching management direction for the southern California revised land management plan." (www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5166878.pdf)

Part 3 plan standards relevant to groundwater are found starting on page 10 under the heading Soil, Water, Riparian and Heritage Standards. Standards 45 and 46 relate to groundwater. Draft EIR/EIS Appendix 3.1-B, specifically Table 3.1-B-2, provides a consistency analysis with Part 3. The Authority's analysis in Table 3.1-B-2 concludes that that the project is consistent with Standards 45 and 46. Part 3 does not include standards specific to air and atmospheric values.

The Authority has and will continue to coordinate with the USFS regarding the project's impacts on the ANF and any USFS permitting decisions for the project, including any requirements.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9678

The commenter inquires as to how the project would be consistent with the federal directive under the Federal Land Policy and Management Act of 1976 to retain public lands in federal ownership and to preserve and protect certain public lands in their natural condition. Refer to Appendix 3.1-B, USFS Policy Consistency Analysis, of the Draft EIR/EIS, which assesses the consistency of the Palmdale to Burbank Project Section with applicable laws, regulations, plans, and policies governing proposed uses and activities within the ANF and SGMNM. Specifically, Section 2.7 in Appendix 3.1-B discusses project consistency with the Federal Land Policy and Management Act of 1976 and explains that Section 501(a) of the act authorizes the Secretary of Agriculture to grant, issue, or renew rights-of-way through National Forest System Lands for a variety of uses which may include railroads, tunnels, or other necessary means of transportation that are in the public interest [43 U.S.C §1761(a)].

The Authority has endeavored to design the project and incorporate design features that would be protective of the natural environment. The project's surface footprint within the ANF is primarily sited on in-holdings/private land within the ANF, which are not currently in a natural state. Utilities that would be constructed within the ANF would follow existing utility corridors and/or roads. Areas around portals next to the ANF boundaries would require some disturbance of areas during construction but all areas within the ANF boundaries would be restored to natural topography and vegetation once construction is complete.

4494-9679

The commenter asks about the cost the Authority will pay to USFS for use of the land for the HSR system. The terms of a USFS Special Use Authorization (SUA) for the project, including any associated fees, if any, have not been identified at this time. The USFS, in consultation with the Authority, would determine appropriate fees, if any, prior to issuance of an SUA.

4494-9680

The commenter notes that in Land Management Plan (LMP3), the USFS delineates a number of federal statutes that apply to the use and management of the ANF, including the Occupancy Permits Act of 1915. The commenter questioned how the Palmdale to Burbank Project Section would not be in violation of the Occupancy Permits Act of 1915, which limits USFS authorizations under that Act to 80 acres for no more than 30 years. The Occupancy Permits Act of 1915 is limited in scope to authorizations for uses such as hotels, resorts, and other structures and facilities for recreation, public convenience, or safety, education or public activities, and summer homes and stores. The Occupancy Permits Act of 1915 is not applicable to the High-Speed Rail project. Under the Federal Land Policy and Management Act (FLPMA), USFS may issue authorizations for, among other things, roads, trails, highways, railroads, canals, tunnels, tramways, and airways. The Authority will apply for a special use authorization under FLPMA, which provides that subsequent to 1976, no right-of-way for purposes listed under FLPMA (including railroads) shall be granted except under and subject to the provisions of FLPMA (see 43 U.S.C. Section 1770).

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9681

The commenter disagrees with the Authority's conclusions that the project's permanent impacts will occur outside of the Angeles National Forest boundaries. The commenter also asserts that on Page 3.14-28 of the Draft EIR/EIS highlights the "permanent facility surface footprint(s)" within the ANF that would be required to be constructed as part of each of the Build Alternatives. The commenter also states the ANF and the SGMNM lie within the "California Floristic Province," an area designated by Conservation International as a Biodiversity Hotspot —an area where, "exceptional concentrations of endemic species are undergoing exceptional loss of habitat." The commenter notes these permanent facilities would include adit structures, electrical power lines, and, in several of the Build Alternatives, a temporary construction staging area. The Authority is proposing adits and construction staging areas to be located on private in-holdings within the Angeles National Forest and not on forest managed lands. The electrical power line would be located within the existing utility corridor along Little Tujunga Road on forest managed lands. Construction staging areas are also not considered permanent disturbance and would be returned to pre-disturbance conditions upon completion of the project (AG-IAMF#1). The project is largely within a tunnel through the ANF, SGMNM and areas where historic wildlife movement occurred. This eliminates the surface impacts to wildlife movement corridors. Placement of the adits, windows, and construction staging areas outside the ANF minimizes impacts to both mountain lion and black bear habitats. Black bear are listed as a game species by CDFW and population trends for this species includes a statewide increase in the population. The black bear is not listed as a sensitive species in California. While black bear habitat in California includes a diverse range of vegetation communities, the most dense populations occupy montane hardwood and chaparral forests with a diverse vegetative structure and food sources. Mountain lion habitat includes large areas of undisturbed habitat with connectivity to allow for individual dispersal and gene flow. The use of the private inholding with modified vegetation communities and reduced habitat quality is intended to avoid impacting higher quality mountain lion and black bear habitats and the endemic plants that define the biodiversity hotspot.

4494-9682

The commenter indicates that mountain lions and black bears may be disproportionately impacted by the project and states the opinion that the Authority has suggested individuals of these species will be relocated away from the project and that this is an unacceptable measure. The Build Alternative alignments within the boundaries of the ANF are in an underground tunnel. Mountain lion habitat within the Resource Study Area of all Build Alternatives is shown in Figure 3.7-25 of the Draft EIR/EIS and potential effects to mountain lion are discussed in Impact Bio#6 and project effects on wildlife movement corridors are discussed in Impact BIO#13. Wildlife corridor impermeability maps are shown in Figures 3.7-47 through 50. BIO-MM#77 and BIO-MM#83 (fencing), BIO-MM#78 (jump-outs), BIO-MM#96 (pre-construction survey), and BIO-MM#97 (compensatory mitigation) will ensure that the effects of construction and operation on mountain lion are avoided, minimized and mitigated. Relocation of mountain lion and black bears has not been proposed as part of the project or as a mitigation measure. Occupied mountain lion dens will have a no-disturbance buffer placed around them until dens are no longer active. While black bear are not a listed special status species, the bio IAMFs and MMs developed for other species will serve to minimize impacts to black bear.

4494-9683

The commenter asks about project features within land managed by USFS and whether new power lines would put condors at risk of electrocution. The Build Alternative alignments overlay a very small percentage of the species range and there is a lack of suitable condor nesting and roosting habitat proximal to the build alternative alignments (Section 3.7.5 and Figure 3.7-19 in the Draft EIR/EIS illustrates the portions of the build alignment alternatives that are within California Condor habitat). The majority of these areas coincide with the alignments being within a tunnel. The transmission lines would be constructed to follow existing disturbances including existing roadways. The addition of this utility corridor is not considered a substantial change over the existing condition in this particular geography. In addition, implementing BIO-IAMF#12 will ensure that the electrified components are bird and raptor safe. Implementation of BIO-MM#16, BIO-MM#71, BIO-MM#72, BIO-MM#73 will minimize the potential for other types of adverse impacts to California Condor.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9684

Refer to Standard Response PB-Response-N&V-5: Impacts of Spoils Hauling (Noise), PB-Response-TRA-2: Impacts of Tunnel Spoils Off-Haul/Deposition.

The commenter expresses concerns related to the transportation of spoils, including noise and vibration impacts that will occur near forest portal entries. The commenter also claims these portals will impact Forest Service land and the San Gabriel Mountains National Monument (SGMNM), both during construction and operation of the train.

As described in Standard Response PB-Response-TRA-2: Impacts of Tunnel Spoils Off-Haul/Deposition, the EIR/EIS discloses the traffic effects of construction period spoils hauling. In addition, please refer to Standard Response PB-Response-N&V-5: Impacts of Spoils Hauling (Noise), which discusses noise impacts from spoils hauling trucks throughout the Angeles National Forest (ANF). Tunnel construction would not result in noise impacts at the surface because of the depths of the tunnels beneath the ANF. Some portions of the Build Alternative alignments would entail surface construction activities (e.g., portals and construction of adits) within and immediately adjacent to the ANF, including the SGMNM. Construction activities would generate noise at the screening distances listed in Table 3.4-24 in Section 3.4, Noise and Vibration of the Draft EIR/EIS. Truck hauling of spoils from a portal location would not last for seven years as described by the commenter. For example, the duration of truck spoils hauling from Portal 4 (E2/E2A located in Lake View Terrace area) is anticipated to be 5.1 years (See Appendix 2.0-I of the Draft EIR/EIS). Construction activities within and adjacent to the ANF, including the SGMNM, would result in perceptible noise effects during construction activities. However, this does not represent an adverse effect because the USFS-managed lands adjacent to California HSR System facilities do not contain designated recreational areas (e.g., trails, and campgrounds) and as such are not considered noise sensitive. Surface construction activities may cause ground-borne vibration levels that range from 87 VdB to 94 VdB at 25 feet from construction activities. However, this does not represent an adverse effect because the USFS-managed lands adjacent to California HSR System facilities, for the same reason as noted above, do not contain designated recreational areas (e.g., trails, and campgrounds) and are not considered sensitive to vibration effects. Regarding noise at tunnel portals during train operation, this effect is discussed under Impact N&V#5 in the Draft EIR/EIS. It should be noted that the tunnel portal would consist of two tunnel portals, one for each track and

4494-9684

would be immediately adjacent to each other, hence a reference to "twin tunnel portal." However, there are no twin tunnel portals within 0.5 mile of each other as noted by the commenter.

Regarding train noise at tunnel portals, the analysis states the following: based on the current tunnel designs, it is anticipated that roughly half of the sound generated in the tunnel would pass out through the portal, and the other half would propagate into the interior of the tunnel. The effect would be a rapid rise in sound level as the train leaves the tunnel and portal, forewarned by a propagating wave ahead of the train. Depending on the shape of the portal, shape of the train nose, and blockage ratio, the rate of pressure rise may be substantial. The pressure wave front rate of rise is reduced by friction between the moving air column and tunnel wall, so that the pressure wave does not easily develop into a shock wave. This portal noise effect has been studied theoretically and experimentally and is well understood. Attenuation of the portal noise is achieved with long, flared portals and low blockage ratios. In-tunnel cross passages and vents can reduce pressure magnitudes and rates of rise, though passage of these vents may generate additional propagating and steepening wave fronts. These tunnel and tunnel portal design features will be used to attenuate any additional noise associated with a train entering or exiting a tunnel. As such train operations at the tunnel portals would have little effect on the Forest Service lands surrounding the portals. Regarding adits and other facilities to be located within the ANF, adits would be located within in-holdings (private property not for recreational use) near existing roadways within the ANF and utilities such as electricity and water needed for the project would be conveyed along existing utility corridors and roadways within the ANF. Portions of the ANF would experience perceptible vibration during construction activities at the adit locations within the ANF. However, there are no designated recreational areas, formal campgrounds, or other noise or vibration sensitive receivers located near the adits.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9685

The commenter expresses concern regarding how visual impacts are assessed within the context of the ANF and SGMNM, and specifically critiques the use of comparing potential impacts of the project to the total acreage of the Angeles National Forest (ANF). The commenter also asks what is the rationale for the conclusion that the proposed project will not result in a change of character to ANF lands in proximity to the proposed alignment.

The Authority's analysis of operations and maintenance of permanent HSR facilities does not solely rely on comparing the acreage impacted to the total acreage of the ANF; it is just one of several factors that were considered in the analysis. As discussed in Table 3.15-4 of the Draft EIR/EIS, the conclusion was also made based on the fact that these areas do not provide active recreation resources, are not open to the public, and are not publicly owned. Thus, the Authority analyzed impacts both globally on the ANF and locally on the areas specifically impacted.

As discussed in Section 3.15.6.3 of the Draft EIR/EIS, the Build Alternatives and the Preferred Alternative would have minimal surface features within the ANF. Construction staging areas (adits) would be located on private property within the Forest. Construction period truck traffic would use existing paved and Forest Service roads. Utilities (water and power) would be installed by following existing roads and utility corridors already present on the ANF. The Build Alternative alignments cross the ANF, including the SGMNM, in underground tunnels; consequently, operations would not cause noise or vibration impacts at the surface except at areas surrounding portals (see discussion on noise effect surrounding portals near the ANF in Section 3.4, Noise and Vibration of the Draft EIR/EIS). Permanent, non-adit, non-portal facilities would be limited to one small access building located on private in-holding (private property) within the ANF. Operations of permanent HSR facilities within the ANF, including adits and tunnel portals, could require occasional maintenance visits, but these activities would be limited, short in duration, and would not alter surrounding areas within the ANF, including the SGMNM. In conclusion, as discussed in Section 3.15.8 of the Draft EIR/EIS, NEPA Impacts Summary, with the inclusion of the applicable IAMFs and implementation of the mitigation measures identified in Section 3.15.7, all six Build Alternatives would avoid, minimize, reduce, or compensate for impacts on these resources.

4494-9686

The commenter asserts that applicable law and agency standards regarding the management of landscapes aims to maintain the character and integrity of unencumbered landscape and questions if the project would violate these standard. The Authority's evaluation of project consistency with USFS policies is contained in Appendix 3.1-B USFS Policy Consistency Analysis. As noted in the evaluation the Build Alternatives would be generally be underground within the ANF and SGMNM and would therefore have minimal visual effects on USFS land. Above-ground infrastructure would typically be located on private inholdings within the ANF and would therefore have limited visibility from public vantage points. Publicly accessible viewpoints from within the ANF towards areas outside of the ANF boundaries where the Build Alternatives would be visible are limited.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9687

The commenter inquires how compensation will be determined for the taking of public resources, like Hansen Dam Open Space, and how replacement of property acquisitions will be considered.

As discussed in Section 3.15.7, PR-MM#6 will return temporarily acquired land to the property owners after construction. PR-MM#7 and PR-MM#9 will require the Authority to consult with property owners and public agencies for the acquisition or easement of private and public lands. Compensation, replacement, or enhancement will be granted as deemed necessary. These mitigation measures will ensure that each resource acquired would be accessible during construction. If construction would result in a permanent loss, the Authority will provide necessary compensation. The Authority will provide compensation or land, or both, for all permanent acquisitions of property for HSR improvements from publicly owned parks, consistent with the requirements of the California Park Preservation Act of 1971. The California Park Preservation Act requires that the compensation or land, or both, for the taking of the park land and facilities be equal to one of the following:

- The cost of acquiring substitute park land of comparable characteristics, substantially equal size, and condition
- Substitute park land of comparable characteristics, substantially equal size, and condition
- Any combination of substitute park land and compensation in an amount sufficient to provide substitute park land of comparable characteristics, substantially equal size, and condition

The Authority will work with the jurisdictional agency to establish the specific conditions of acquisition and compensation for, or replacement or enhancement of, other park property for the land that would be procured. This process would apply to all public resources, including Hansen Dam Open Space. Until such time as it is determined whether or not replacement is the appropriate remedy, it cannot be known what replacement land might be considered. This determination would be made on a case-by-case basis.

With the implementation of the standards required by SOCIO-IAMF#2 and by PR-MM#6, PR-MM#7, and PR-MM#9, there would be no net loss of park, recreation, or open space

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resources. The Authority will coordinate in advance with City of Los Angeles Department of Recreation and Parks (DRP) on any temporary or permanent impacts to DRP facilities associated with the Preferred Alternative. In Table 3.15-4, the EIR/EIS specifically analyzed impacts on the Hansen Dam Open Space associated with acquisition.

4494-9688

The commenter is concerned the Authority will not comply with local requirements, and specifically that the Project's impact on the Hansen Dam Open Space is inconsistent with Policy LU 6.3 of the Los Angeles County General Plan 2035. The Authority recognizes the importance and the spirit of the local policies, and it completed a thorough analysis of them. In Appendix 2.0-H, Regional and Local Policy Consistency Analysis, it recognized that, for all six Build Alternatives, the project is inconsistent with Policy LU 6.3. Nevertheless, the Authority believes that PR-MM#8 will advance that policy, in part, even if the Authority chooses a build alternative that is inconsistent with it. Related to the Hansen Dam Open Space, Table 3.15-4 presents the analysis of the alternatives and concluded that the Hansen Dam Open Space is outside the resource study area (RSA) which is defined as 1,000 feet from any above ground activity for the Refined SR14, SR14A, E1, and E1A Build Alternatives. Only the E2 and E2A Build Alternatives would impact the Hansen Dam Open Space. Table 3.15-4 recognizes that PR-MM#8 will maintain accessibility to park facilities or provide alternative access to ensure the park or recreation resources remain accessible. In accordance with PR-MM#8, the Authority will provide compensation for, or enhancement of, access driveways or parking areas at the recreation resource.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9689

Refer to Standard Response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife.

The commenter inquires if the proposed Build Alternative alignments would violate Angeles National Forest Management Plan Section WL-1 or the "spirit" of WL-1. The EIR/EIS evaluates and discloses the effects noted in the comment and includes mitigation where significant impact and adverse effects have been identified. The Authority designed the Build Alternatives to avoid impacts on sensitive species not only within the ANF, but also outside the ANF. This design choice advances the spirit of WL-1, which, as discussed below, includes the implementation conservation strategies.

For information about the Palmdale to Burbank Project Section consistency with the Land Management Policy WL-1, see Appendix 3.1-B, USFS Policy Consistency Analysis. As discussed in Table 3.1-B-1 on page 3.1-B-9 therein, the applicable policies for WL-1 include the implementation of priority conservation strategies, and the use of vegetation management practices to reduce the intensity of fires to reduce habitat loss due to catastrophic fires. As noted in Table 3.1-B-1 on page 3.1-B-9, the Project would be consistent with both policies, as the Build Alternatives avoid significant wash and open space areas within the ANF in order to protect sensitive species. Where impacts cannot be avoided, the Authority has proposed mitigation measures to address impacts to special-status species. Implementation of BIO-MM#54 involves preparation and implementation of an Annual Vegetation Control Plan (VCP). The Authority will prepare a VCP to address vegetation removal for the purpose of maintaining clear areas around HSR facilities and reducing the risk of fire. These topics are further discussed in PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife.

4494-9690

Refer to Standard Response PB-Response-BIO-3: Wildlife Movement Corridors.

The commenter raises concerns about the emergence of the train through the portals at the border of the ANF and its continuation on an elevated viaduct across the Big Tujunga Wash being consistent with protecting National Forest values. The comment is referring to permanent facilities associated with the E2 and E2A Build Alternatives. All permanent infrastructure noted in the comment (portals, viaduct across the I-120 freeway and Big Tujunga wash) would be located outside the ANF boundary. The portals referred to in the comment would emerge outside the ANF boundary in an area that is already developed with urban/suburban uses (residential, commercial, schools) which already abut the ANF boundaries. There is also large electrical transmission facilities located throughout this portion of the ANF and its borders and the I-210 Freeway, an 8-10-lane freeway parallels to ANF through this area less than 0.5 miles to the south. Given the existing development and infrastructure present along the boundary of the ANF in this location, the HSR facilities that would be part of the E2 and E2A alternatives would not substantially change the current condition which consists of urban and suburban development and infrastructure in the areas immediately adjacent to the ANF.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9691

Refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife, PB-Response-PR-2: Impacts on Big Tujunga Wash – Recreational Uses, Equestrian Use.

The commenter asserts that horses will not respond well to noise and visual impacts that would occur as a result of the project. The commenter inquiries how noise and visual impacts to horses would be mitigated. The EIR/EIS evaluates and discloses the effects noted in the comment and includes mitigation where significant impact and adverse effects have been identified. This topic is further discussed in PB-Response-PR-2: Impacts on Big Tujunga Wash –Recreational Uses, Equestrian Use. The Horse Park referenced by the commenter is nearly 1 mile east of the proposed viaduct. The Horse Park is located on Wentworth Street which is a major 4-lane arterial and the I-210 freeway, an 8-10 lane freeway is located within 1/4 of a mile. It is also valid to note that equestrians and horses currently using trails in the Big Tujunga Wash area are already exposed to traffic and freeway noise from the roads and freeways noted above. See PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife, which addresses the potential for startle effects and mitigation measures set forth to reduce startle effects on hikers, domestic animals, and wildlife.

4494-9692

Refer to Standard Response PB-Response-PR-2: Impacts on Big Tujunga Wash – Recreational Uses, Equestrian Use.

The commenter asserts that noise and visual impacts to horses may result in safety concerns and questions how the Authority concludes that use of the resource would not decrease as a result. The EIR/EIS evaluates and discloses the effects noted in the comment and includes mitigation where significant impact and adverse effects have been identified. This topic is further discussed in PB-Response-PR-2: Impacts on Big Tujunga Wash –Recreational Uses, Equestrian Use. Existing equestrian use within the Big Tujunga wash is currently exposed to elevated noise and startle effects from existing roads and freeways which border this area. Wentworth street which is a major 4-lane arterial and the I-210 freeway, an 8-10 lane freeway parallel the Big Tujunga Wash to both the north and the south, about 1/2 mile apart. Residential development encroaches into this area along Cristy Avenue and Woldrich street. Horse owners that live south of the wash must ride/walk their horse along public roadways and then cross Wentworth Street (a 4 lane major arterial) to access the trails in question. As such, the horses and equestrians that use this area are already exposed to traffic noise and other noise and potential startle effects as the trails are surrounded by major transportation facilities, residential, commercial and industrial development. This is called a masking effect, which is defined as reduced perception of one sound due to the persistence of on-going ambient sound. Therefore, noise in this area is not anticipated to affect or startle horses given the existing ambient noise levels.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9693

Refer to Standard Response PB-Response-PR-2: Impacts on Big Tujunga Wash – Recreational Uses, Equestrian Use.

The commenter raises concerns about construction period effects on the Hansen Dam open space and asks what mitigation would be implemented to allow Hansen Dam Horse Park to continue to operate during the construction period.

As a matter of clarification, the Refined SR14, SR14A, E1, and E1A Build Alternatives would be located approximately 2 miles west of the Hansen Dam Horse Park. The E2 and E2A Build Alternatives would be located approximately 2,295 feet east of the Hansen Dam Horse Park and construction is expected to last 8.33 to 9.25 years, depending on the Build Alternative. Because specific equipment, methods and durations of construction activities cannot be fully defined in the EIR/EIS stage, NV-IAMF#1 requires the Authority's construction contractor to prepare a noise and vibration technical memorandum documenting how the Federal Transit Administration and Federal Railroad Administration guidelines for minimizing construction noise impacts will be employed when work is being conducted within 1,000 feet of sensitive receivers. Although NV-IAMF#1 would reduce construction noise, noise impacts would temporarily or periodically substantially increase ambient noise levels in the project vicinity above levels existing without the project. Mitigation Measure N&V-MM#1 (discussed in Section 3.4.7 of this Final EIR/EIS) will require the Authority's construction contractor to prepare a noise-monitoring program describing how the contractor will monitor construction noise to verify compliance with the noise limits. Given the distance of the Build Alternatives from the Hansen Dam Horse Park, as well as the mitigation that would be implemented, the Authority anticipates that Hansen Dam Horse Park can remain operational during construction of the HSR Palmdale to Burbank Project Section. Please refer to Standard Response PB-Response-PR-2: Impacts on Big Tujunga Wash –Recreational Uses, Equestrian Use.

4494-9694

The commenter asks about the safe harboring of birds at the Tujunga Ponds Wildlife Sanctuary (Sanctuary) during construction and operation of the HSR Palmdale to Burbank Section. The closest Build Alternative alignment is not immediately adjacent to the Sanctuary; instead, it is located approximately 1 mile west of the Sanctuary. Additionally, abundant other sources of noise and vibration generation and air quality or visual changes occur between the nearest Build Alternative alignment and Tujunga Ponds. The Sanctuary is located immediately adjacent to the existing I-210 freeway (an 8- to 10-lane elevated freeway). The existing Angeles National Golf Club lies to the east across the freeway and the City of Shadow Hills lies immediately to the west. Combined, these developments already exposes birds and other wildlife to potential impacts from noise, vibration, air quality, and visual conditions. Pursuant to the Endangered Species Act Section 7, the Authority prepared a Biological Assessment (BA) for the preferred alternative (SR14A Build Alternative). As part of the BA effects analysis, a noise analysis was completed that determined noise attenuates to less than 65 dBA (an acceptable dBA level for birds) at 1,900 feet from the viaduct section of the Preferred Alternative (SR14A) alignment crossing over the I-210, and noise attenuates near at-grade sections to less than 65 dBA at only 700 feet away. Given the distance of the Sanctuary from the closest Build Alternative alignment, construction and operation of any of the six HSR Build Alternatives would not be expected to further exacerbate the existing noise and vibration conditions at the Sanctuary, nor exacerbate conditions related to air quality or visual conditions. Therefore, the project would not result in an incremental increase in impacts that would deter birds or other wildlife from safe harboring at the Sanctuary. Professional ornithologists have been consulted on project impacts to birds and the Regional Consultants include professional ornithologists on staff. Mitigation relative to birds and other wildlife will be implemented as noted throughout Section 3.7, Biological and Aquatic Resources of the Final EIR/EIS, but the mitigation does not specifically apply to the Sanctuary because direct and indirect impacts from the HSR Palmdale to Burbank Section would not occur.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9695

The commenter requests information on measures the Authority will use to avoid and minimize the potential for avian collisions with trains, catenary systems, and other infrastructure elements. As described under Impact BIO#14, the Draft EIR/EIS describes that moving trains could kill or injure birds through bird strikes or through interactions with fencing and electrical systems. As required under BIO IAMF #12, the Authority has included design features to minimize avian train strike and electrocution, including, but not limited to the following:

(1) Install perch deterrents such as pigeon wire to discourage birds from perching on the overhead catenary system throughout the rail system (as perching is one of the bird behaviors that makes birds most vulnerable to train strike)

(2) Install fencing or flight diverter poles on all viaduct structures to encourage birds to fly up and over the rail (At-grade and embankment sections are already fenced)

(3) Mark all lines in the catenary system so they have increased visibility to birds

(4) Configure catenary system lines to reduce the vertical spread (and thus the spatial extent of collision risk)

(5) Ensure sufficient spacing or covering of phase conductors to prevent bird electrocution.

In addition to these rail-wide measures, flight barriers such as fencing, pole barriers or a tubular screen will be placed to the height of the overhead catenary system in the following areas identified by the impact analysis in the Draft EIR/EIS for Palmdale to Burbank to avoid train strike and collision with the overhead catenary system in areas identified as having important avian resources:

(a) Refined SR14/SR14A/E1/E1A/E2/E2A in the vicinity of Una Lake;

(b) Refined SR14/SR14A at Agua Dulce Canyon, Bee Canyon, the Santa Clara River; crossing, and the Vulcan Mine;

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(c) E1/E1A/E2/E2A at the Aliso Canyon Creek crossing; and

(d) E2/E2A at the Big Tujunga Wash crossing.

Lastly, the Authority notes that the commenter cites the work of Malo et al. (2017), extensively in their comments. The Authority has reviewed Malo et al. (2017), which generally addresses behavior as one of the primary factors for increasing risk, as well as the use of measures such as tubular screens and perching deterrents to minimize risk. The Authority concludes that the Draft EIR/EIS analysis is generally consistent with the source cited by the commenter, because it also considers bird behavior as a primary risk factor and has included sufficient design features and measures, including the use of screens and perching deterrents, as a method to reduce the potential impacts. Consequently, the Authority did not make any changes to the analysis or measures in the Draft EIR/EIS in response to this comment.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9696

Commenter expresses concern related to the tranquility of the PCT during construction and whether there are any violations to the directive of the Monument Plan. Consistency with the San Gabriel Mountains National Monument Management Plan is analyzed in in Appendix 3.1-B under Table 3.1-B-3. As discussed in Table Appendix 3.1-B-3, San Gabriel Mountains National Monument Management Plan Policy Consistency Analysis, the Build Alternatives would not affect any active recreational resources (i.e., campgrounds, trails, etc.) or the management of such resources within the SGMNM, and therefore, would not conflict with Goal 1 under the Monument Plan related to sustainable recreation. In addition, temporary construction visual impacts would be addressed through AVQ-MM#1. As discussed in Section 3.16.6.4, temporary construction impacts, AVQ-MM#1 will require the contractor to implement measures to minimize construction-related disruption to aesthetics and visual quality, including activities such as minimizing pre-construction clearing, limiting building removal, post-construction regrading, and avoiding locating construction staging areas (CSAs) within 500 feet of existing residential neighborhoods, recreational areas, and other sensitive land uses. Furthermore, AVQ-MM#1 will require the preservation of existing vegetation where feasible that may screen views of construction activities, and require the regrading, re-contouring, and revegetation of areas disturbed by construction, staging, and storage. These measures will open up and minimize views of construction elements that may contribute to impacts to the natural and cultural environment regarding visual quality, and locate CSAs away from sensitive viewer groups, including travelers and users of recreational areas in the RSA. For the Refined SR14 Build Alternative, as noted in Section 3.15, Parks, Recreation, and Open Space, and Table 3.15-4, construction would temporarily increase dust and noise at the PCT, which could inhibit the use of the trail. Therefore, the Authority consulted with the Pacific Crest Trail Association, the Bureau of Land Management, and the USFS to develop a preliminary trail realignment that would be part of the Refined SR14 Build Alternative, if selected. Furthermore, IAMFs would reduce and avoid impacts related to dust and noise during construction (see Section 3.3, Air Quality and Global Climate Change, and Section 3.4, Noise and Vibration). Prior to construction, the contractor will prepare a fugitive dust control plan and a noise and vibration technical memorandum documenting the pertinent federal guidance for minimizing construction fugitive dust, noise, and vibration impacts. These measures would be applied when work is conducted within 1,000 feet of sensitive receivers, including the existing and proposed PCT realignment (AQ-IAMF#1 and NV-

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IAMF#1). The measures, developed as part of the construction plans, will ensure that temporary increases in dust, noise, and vibration would be reduced to a level that would allow the PCT extension to continue to operate. Staging areas would introduce major visual changes to the immediate surroundings with visually intrusive accumulations of stored material and equipment, but these impacts would only be temporary and the Authority would restore disturbed areas after construction. The PCT is outside of the RSA for SR14A, E1, E1A, E2, and E2A Build Alternatives. However, the following mitigation measures would be implemented for the construction of the E1, E1A, E2, and E2A Build Alternatives. PR-MM#1 through PR-MM#5 will be employed to reduce the effects of construction-related access, noise, vibration, air quality, and visual changes. PRMM#1 and PR-MM#2 will ensure that access to the PCT would remain unaffected by construction activities by providing alternative access routes to temporarily restricted park facilities and by ensuring that connectivity would remain after construction. PR-MM#3 will implement standard safety measures for detours, signage, and post-construction access. PR-MM#4 will set conditions for the temporary closure and/or detouring of existing trails. PR-MM#5 will set conditions to use land from park, recreation, and school play areas for temporary impact areas during the construction period.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9697

Commenter expresses concern related to construction impacts on the PCT and whether there are any violations to the directive of the Monument Plan. As noted in Section 3.15, Parks, Recreation, and Open Space, construction associated with the Refined SR14 Build Alternatives would temporarily increase dust and noise at the PCT, which could inhibit the use of the trail. Furthermore, IAMFs would reduce and avoid impacts related to dust and noise during construction (see Section 3.3, Air Quality and Global Climate Change, and Section 3.4, Noise and Vibration). Prior to construction, the contractor will prepare a fugitive dust control plan and a noise and vibration technical memorandum documenting the pertinent federal guidance for minimizing construction fugitive dust, noise, and vibration impacts. These measures would be applied when work is conducted within 1,000 feet of sensitive receivers, including the existing and proposed PCT realignment (AQ-IAMF#1 and NV-IAMF#1). The measures developed as part of the construction plans will ensure that temporary increases in dust, noise, and vibration would be reduced to a level that would allow the PCT extension to continue to operate. The PCT is outside of the RSA for SR14A, E1, E1A, E2, and E2A Build Alternatives. However, the following mitigation measures would be implemented for the construction of the E1, E1A, E2, and E2A Build Alternatives. PR-MM#1 through PR-MM#5 will be employed to reduce the effects of construction-related access, noise, vibration, air quality, and visual changes. PRMM#1 and PR-MM#2 will ensure that access to the PCT would remain unaffected by construction activities by providing alternative access routes to temporarily restricted park facilities and by ensuring that connectivity would remain after construction. PR-MM#3 will implement standard safety measures for detours, signage, and post-construction access. PR-MM#4 will set conditions for the temporary closure and/or detouring of existing trails. PR-MM#5 will set conditions to use land from park, recreation, and school play areas for temporary impact areas during the construction period.

4494-9698

Commenter inquires if the construction staging area of the Pacific Crest Trail will violate the letter or spirit of the Monument Plan. The effects of concern cited by the commenter would arise solely for the Refined SR14 Build Alternative and are disclosed in Table 3.15-4 in Section 3.15, Parks, Recreation, and Open Space. The Authority's Preferred Alternative is SR14A which avoids impacts to the PCT, both during construction and operation, by being underground though this area. The PCT is outside the SR14A, E1, E1A, E2, and E2A Build Alternatives' RSAs. Therefore, if the Authority chooses Build Alternatives SR14A, E1, E1A, E2, or E2A, the Project would not raise any of the issues the commenter identified.

The Refined SR14 Build Alternative could have temporary and permanent improvements that would directly conflict with the PCT. The portion of the PCT that would be affected is not located within the Monument. However, the Authority has consulted with the Pacific Crest Trail Association, the Bureau of Land Management, and the USFS regarding trail realignment options and has developed a preliminary trail realignment that would be part of the Refined SR14 Build Alternative, if selected. The realignment would be built and accessible to the public before construction of the Refined SR14 Build Alternatives begins, so the Authority could ensure continuous access to the PCT through the Refined SR14 Build Alternative construction footprint.

The proposed realignment has been designed to minimize visual impacts on users of the PCT by routing trail uses away from both the SR 14 freeway and the HSR rail alignment as quickly as possible. This may be an overall benefit to trail users as the existing trail runs parallel to the east side of the SR 14 freeway for roughly 0.75 mile before heading further east. Therefore, operations and maintenance of the Refined SR14 Build Alternatives would not result in adverse changes to the character of this recreation resource or reduce its capacity or value in the long term and could result in beneficial effects for PCT users.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9699

Commenter inquires how construction staging areas near the Pacific Crest Trail protect scenic integrity per ANF Forest-specific Design Criteria ANF S1, which requires the Forest Service to "protect scenic integrity of foreground views as well as from designated viewpoints" for the Pacific Crest Trail. The concerns raised by the commenter would be related to the Refined SR14 Build Alternative and are disclosed in the EIR/EIS.The Authority has consulted with the Pacific Crest Trail Association, the Bureau of Land Management, and the USFS regarding trail realignment options and has developed a preliminary trail realignment that would be part of the Refined SR14 Build Alternative, if selected. The realignment would be built and accessible to the public before construction of the Refined SR14 Build Alternative begins to ensure continuous access to the PCT through the Refined SR14 Build Alternative's construction footprint (see Figure 3.15-17). The proposed realignment has been designed to minimize visual impacts on users of the PCT by routing trail uses away from both the SR 14 freeway and the HSR rail alignment as quickly as possible. This may be an overall benefit to trail users as the existing trail runs parallel to the east side of the SR 14 freeway for roughly 0.75 mile before heading further east. Therefore, because that realignment would result in keeping the construction staging areas out of the PCT foreground views, the proposed, realigned trail would accord with Design Criteria ANF S1. The Authority's Preferred Alternative is SR14A, which avoids impacts both during construction and operation to the PCT by being underground though this area. The PCT is outside the E1, E1A, E2, and E2A Build Alternatives' RSAs.

4494-9700

The commenter expresses concerns related to the impacts on the Rim of the Valley trail extension and its compliance with ANF Forest-specific Design Criteria ANF S1, which states, "Pacific Crest Trail - Protect scenic integrity of foreground views as well as from designated viewpoints."

ANF S1 by its terms only applies to the Pacific Crest Trail, so it does not apply to the Rim of the Valley trail. Nevertheless, the Authority has analyzed the impacts on the Rim of the Valley Trail. Physical construction impacts on the Rim of the Valley Trail and the impacts on the trail's viewshed would occur if either adit location SR14-A2 or SR14-A3 were selected. Adit location SR14 - A1 would avoid this impact. With regard to the Rim of the Valley Trail, the EIR/EIS includes the following mitigation measures to reduce construction impacts from the Refined SR14, SR14A, E2, and E2A Build Alternatives. PR-MM#6 will return temporarily acquired land to the property owners after construction. PR-MM#7 and PR-MM#9 will require the Authority to consult with property owners and public agencies for the acquisition or easement of private and public lands. Compensation, replacement, or enhancement would be granted as deemed necessary. If the Authority chooses one of those build alternatives, these mitigation measures will ensure access to the Rim of the Valley Trail Extension during construction. If construction would result in a permanent loss, the Authority will provide necessary compensation. With the implementation of the standards required by PR-MM#6, PR-MM#7, and PR-MM#9, there would be no net loss of park, recreation, or open space resources. The EIR/EIS concludes there would be a less-than-significant impact with the implementation of PR-MM#6, PR-MM#7, and PR-MM#9 under the Refined SR14, SR14A, E2, and E2A Build Alternatives. The EIR/EIS recognizes that construction associated with the Refined SR14, SR14A, E2, and E2A Build Alternatives would temporarily increase dust and noise at the proposed Rim of the Valley Trail extension, which would inhibit use of the trail. Additionally, Rim of the Valley Trail users would have unobstructed views of the construction activities. Staging areas would introduce major visual changes to the immediate surroundings with visually intrusive accumulations of stored material and equipment. However, these impacts would be temporary and disturbed areas would be remediated after completion of construction. There would be no impact under the E1 and E1A Build Alternatives.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9701

Commenter expresses concerns related to the impacts of construction on the Rim of the Valley trail extension. The effects cited in the comment relative to the Rim of the Valley trail extension would occur if either adit location SR14-A2 or SR14-A3 were selected. Adit location SR14 - A1 would avoid this impact. The EIR/EIS discloses that the Refined SR14, SR14A, E2 and E2A Build Alternatives would require temporary construction staging areas that would directly conflict with the proposed Rim of the Valley Trail extension (see Impact PK#1) and would temporarily create a barrier for access or inhibit use of the trail. Construction associated with the Refined SR14 and SR14A Build Alternatives would temporarily increase dust and noise at the proposed Rim of the Valley Trail extension, which would inhibit use of the trail. However, IAMFs incorporated into the construction methods will control dust and noise during construction (see Section 3.3, Air Quality and Global Climate Change, and Section 3.4, Noise and Vibration). Prior to construction, the contractor will prepare a fugitive dust control plan and a noise and vibration technical memorandum documenting the pertinent federal guidance for controlling construction fugitive dust, noise, and vibration effects. These IAMFs will be applied when work is conducted within 1,000 feet of sensitive receivers, including the proposed Rim of the Valley Trail extension (AQ-IAMF#1 and NV-IAMF#1). The measures developed as part of the construction plans will ensure that temporary increases in dust, noise, and vibration would be reduced to a level that would allow the trail extension to continue to operate. Rim of the Valley Trail users would have unobstructed views of the construction activities. Staging areas would introduce major visual changes to the immediate surroundings with visually intrusive accumulations of stored material and equipment. However, these impacts would be temporary and disturbed areas would be remediated after completion of construction. If the proposed Rim of the Valley Trail extension is not operational at the time of project construction, there would be no temporary access, noise, vibration, air quality, or visual changes associated with the Refined SR14 and SR14A Build Alternatives. The following mitigation measures would be implemented for the construction of the Refined SR14, SR14A, E2, and E2A Build Alternatives. PR-MM#1 through PR-MM#5 will be employed to reduce the effects of construction-related access, noise, vibration, air quality, and visual changes. PR-MM#1 and PR-MM#2 will ensure that access to Rim of the Valley Trail would remain unaffected by construction activities by providing alternative access routes to temporarily restricted park facilities and by ensuring that connectivity would remain after construction. PR-MM#3 will implement standard safety measures for

4494-9701

detours, signage, and post-construction access. PR-MM#4 will set conditions for the temporary closure and/or detouring of existing trails. PR-MM#5 will set conditions to use land from park, recreation, and school play areas for temporary impact areas during the construction period.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9702

The commenter asked how compensation for public resources, specifically the Rim of the Valley Trail, is determined.

As described in Section 3.15.7 in Section 3.15, Parks, Recreation, and Open Space, of the Draft EIR/EIS, PR-MM#7 and PR-MM#9 would require the Authority to consult with property owners and public agencies for the acquisition or easement of parks, recreation resources, and trails. Compensation would be provided in accordance with the Uniform Act and the California Park Preservation Act. As described in page 3.15-177 of the Draft EIR/EIS, the California Park Preservation Act requires that the compensation or land, or both, for the taking of the park land and facilities be equal to one of the following: the cost of acquiring substitute park land of comparable characteristics, substantially equal size, and condition; substitute park land of comparable characteristics, substantially equal size, and condition; or any combination of substitute park land and compensation in an amount sufficient to provide substitute park land of comparable characteristics, substantially equal size, and condition.

As discussed in Section 3.15 of the Draft EIR/EIS, the Rim of the Valley Trail is a proposed trail extension. The E1 and E1A Build Alternatives would have no impact on the proposed Rim of the Valley Trail extension. An approximately 330-foot segment of the proposed Rim of the Valley Trail extension would be used as a construction staging area under the Refined SR14 and SR14A Build Alternatives, and an approximately 400-foot segment of the proposed Rim of the Valley Trail extension would be used as a construction staging area under the E2 and E2A Build Alternatives. There would be no effect on the trail if the project is constructed before the trail extension is built and opened to the public. However, if the trail extension is built prior to construction of the Refined SR14, SR14A, E2, or E2A Build Alternatives, temporary relocation of the trail may be necessary. As required by PR-MM#6, the Authority would return temporarily acquired land to the property owner in its original or better condition after construction is completed. Given that the proposed trail extension does not currently exist, the Refined SR14, SR14A, E2, and E2A Build Alternatives would not result in permanent acquisition of the proposed Rim of the Valley Trail extension; therefore, no compensation would need to be provided.

4494-9703

Refer to Standard Response PB-Response-GEN-4: General Opinions, Opposition or Support.

The commenter summarizes and provides a conclusion to prior comments presented, expresses concern with cumulative impacts to park and recreational areas, and expresses support for the No Project Alternative. The commenter contends that the Authority diluted the impacts by comparing them to the entire acreage of the Angeles National Forest.

Contrary to the commenter's suggestion, the Authority's analysis of operations and maintenance of permanent HSR facilities does not solely rely on comparing the acreage impacted to the total acreage of the ANF. As discussed in Table 3.15-4 in Section 3.15, Parks, Recreation, and Open Space of the Draft EIR/EIS, the conclusion was also made based on the fact that the impacted areas do not provide active recreation resources and do not provide public access, among other factors. The Authority analyzed impacts both globally on the ANF and locally on the areas specifically impacted. The comment is accurate in its statement that a total of 28 parks, recreation areas, and open space resources could be impacted by the project. This is the total number of resources within the resource study area (RSA) for all Build Alternatives. The Authority will select and only build one alternative between Palmdale and Burbank. State and local regulations typically require adequate compensation for impacts on most parks, recreation, and open space resources within the RSA. However, increased population and development near the ANF, including SGMNM, could increase usage beyond the current capacity of this recreational resource. This represents a significant cumulative impact. However, the Build Alternatives would not contribute considerably to this cumulative impact because the Build Alternatives would not affect the character or usage of recreational areas within the ANF, including SGMNM.

As discussed in Section 3.15.8, NEPA Impacts Summary, with the inclusion of the applicable IAMFs and implementation of the mitigation measures identified in Section 3.15.7, all six Build Alternatives would avoid, minimize, reduce, or compensate for impacts on these resources. Furthermore, as discussed in Section 7.2, Public Benefits of the High-Speed Rail System to Los Angeles County, the California HSR System would provide a number of public benefits, including increasing mobility options, contributing to a cleaner environment, stimulating economic activity and creating jobs,

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minimizing open space conversion, and improving safety and security. Project benefits are further described in PB-Response-GEN-4, General Opinions, Opposition or Support. The Authority, as the CEQA lead agency, will have to weigh these and other benefits of the project against identified environmental impacts pursuant to CEQA Guidelines Section 15093.

4494-9704

The commenter asks whether, in the counterfactual situation that the Authority had followed the July 16, 2020, NEPA regulations (effective September 14, 2020) instead of the NEPA regulations in effect before that, whether the Authority would have modified the analysis or the project route in a "drastic[]" way. To be clear, the Council on Environmental Quality (CEQ) updated the regulations again on April 20, 2022. Those regulations restored several provisions that were in effect decades before the 2020 modifications. As described in Footnote 1 in Section 3.16.4.5 of this Draft EIR/EIS, this project was initiated before September 14, 2020, and is therefore not subject to the new NEPA regulations, which is why the prior version was used for this analysis. Regardless of the regulations in place, NEPA could not conceivably have required any "reroute[ing]" of the project. NEPA requires only procedures and not substantive changes to a project. Although the comment speculates that some regulation may have required different analyses, it does not identify a particular regulation change that could have required a particular, different analysis. In any event, the NEPA regulations do not require the analysis under every set of NEPA regulations that the commenter raises.

4494-9705

The commenter expresses concerns with the access roads to tunnel portals including if the roads are paved and the impacts from installation of the roads.

As discussed in Section 2.3.5.3 of this Final EIR/EIS, access roads to provide emergency and maintenance access from public roadways to HSR facilities would be required. Access roads would be constructed at traction powered substations (TPSSs) (Section 2.3.7.1) and at portal facilities as listed in Section 2.5.3. Access roads within the HSR right-of-way would be paved, with a minimum width of 22 feet. Access roads within the HSR right-of-way would be restricted to use by authorized HSR personnel and emergency responders. Use would be unrestricted from public roads to the HSR right-of-way. All parcels would have roadway access or would be acquired if access to the parcel cannot reasonably be otherwise provided. For more detail on right-of-way acquisitions, see Section 3.12, Socioeconomics and Communities. Section 2.5.3 of this Final EIR/EIS provides locations and construction requirements for access roads for each of the six Build Alternatives. Additionally, Volume 3 PEPD Record Set Roadway and Grade Separation Plans show the plans, profiles, and typical sections for access road planned in the Palmdale to Burbank Project Section.

As described in Section 3.2.6.3, impacts to access roads were evaluated under Impact TRA#2 and shown in Table 3.2-23 through Table 3.2-25. Spoils hauling would degrade intersection LOS to E or F and increase vehicle delay. TR-IAMF#2, TR-IAMF#6, and TR-IAMF#7 (discussed in Section 3.2.4.2) will implement a Construction Transportation Plan (CTP), limit spoils hauling hours, and establish spoils hauling routes to minimize intersection impacts during spoils hauling. Additionally, TR-MM#12 (discussed in Section 3.2.7) will require the development of a Construction Management Plan (CMP) to address traffic circulation during spoils hauling activities, including by relocating spoils collection areas and access to minimize delays during peak hours. The CMP (TR-MM#12) is anticipated to be effective in reducing impacts associated with spoils hauling traffic. The Authority would also add traffic signals to affected unsignalized intersections to improve LOS and intersection operation. While these traffic measures are anticipated to achieve adequate LOS and decrease vehicle delay at affected intersections, impacts during spoils hauling may still occur.

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4494-9706

The commenter expressed concerns about lighting from construction and operation of the Palmdale to Burbank Project Section.

As noted in Impact AVQ#2 of this Final EIR/EIS, construction light and glare would be an impact to viewers in Landscape Unit 1 and Landscape Unit 2, reducing the visual quality rating by one or more levels depending upon the setting. Implementation of AVQ-MM#2 will require nighttime construction lighting to be shielded and directed downward to minimize light that falls outside the construction site boundaries. The contractor will be required to prepare a technical memorandum prior to construction verifying how nighttime lighting would be shielded and directed downward to reduce impacts. Shielding nighttime construction lighting would minimize the light and glare within developed areas at nighttime.

As discussed in Table 3.16-13, train lighting from HSR train headlights would be temporary and directed along the guideway, which should not cause glare that would affect nighttime views. If not properly designed and shielded, project-related lighting could create glare, increase the ambient light levels in nearby areas, and increase skyglow, which can adversely affect nighttime star viewing. This would be true during construction and operations of the California HSR System, where design-related measures, such as shielding and directing lights, would be used where appropriate to reduce glare while providing adequate lighting for safety and security.

Impact AVQ#5 of this Final EIR/EIS notes that operational lighting associated with maintenance and security would be minimal.

4494-9707

The commenter inquired as to the cleanliness and maintenance of potential transparent materials used in sound walls implemented as part of the project. As discussed in Mitigation Measure N&V-MM#3, maintenance of noise barriers would be considered in the determination and selection of noise barrier materials. Additionally, the Authority would be responsible for the maintenance of all project infrastructure, including the maintenance of noise barriers.

4494-9708

The commenter asks where the Traction Power Substations (TPSSs) would be located, how the public can ascertain impacts related to TPSSs if locations are unknown, and which properties would be acquired for TPSS locations. Section 2.5.3, High-Speed Rail Build Alternatives - Detailed Description in Chapter 2, Alternatives of the Draft EIR/EIS, describes the location of each TPSS, which would be built under each Build Alternative. Specific TPSS locations are provided in Draft EIR/EIS Figure 2-48 through Figure 2-52 for the Refined SR14 Built Alternative, Figure 2-56 through 2-60 for the SR14A Build Alternative, Figure 2-62 through 2-65 for the E1 Build Alternative, Figure 2-67 through 2-70 for the E1A Build Alternative, Figure 2-72 through 2-75 for the E2 Build Alternative, and Figure 2-77 through 2-80 for the E2A Build Alternative. Draft EIR/EIS Volume 3 consists of the Preliminary Engineering for Project Definition (PEPD) plans. TPSS locations of all Build Alternatives are also detailed within two PEPD documents, both titled Railway Systems Plan. Because the locations of TPSSs are known and included within the project footprint, impacts associated with them are disclosed and described within the Draft EIR/EIS. Please refer to the Authority's web-based interactive map that identifies property acquisitions associated with SR14A Build Alternative: https://geografika.maps.arcgis.com/apps/MapJournal/index.html?appid=ccac46af003e4a2da4528b2a7595141b.

4494-9709

The commenter inquires about the location of switching stations. The locations for switching stations are described for each Build Alternative in Section 2.5.3 of the Draft EIR/EIS. Switching stations are encompassed in the project footprint used to analyze impacts.

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4494-9710

The commenter asks about the location of communication towers, how the public can ascertain impacts related to communication towers if locations are unknown, and which properties would be acquired for communication towers. The commenter further asks whether communication towers would be located near Burbank Airport, expresses concern regarding interference with airport operations, asks whether the Authority has contacted Burbank Airport regarding possible interference, and what the airport's response is.

All open-air Traction Power Facilities and Tunnel Portals would include a 100-foot communication tower inside the project footprint. Locations for communication towers are described for each Build Alternative in Section 2.5.3, High Speed Rail Build Alternatives –Detailed Description in Chapter 2, Alternatives of the Draft EIR/EIS. Specific communication tower locations are provided in Draft EIR/EIS Figure 2-48 through Figure 2-52 for the Refined SR14 Built Alternative, Figure 2-56 through 2-60 for the SR14A Build Alternative, Figure 2-62 through 2-65 for the E1 Build Alternative, Figure 2-67 through 2-70 for the E1A Build Alternative, Figure 2-72 through 2-75 for the E2 Build Alternative, and Figure 2-77 through 2-80 for the E2A Build Alternative. Because the locations of communication towers are known and included within the project footprint, impacts associated with them, including any impacts to communities are disclosed and described within the Draft EIR/EIS. Appendix 3.1-A Palmdale to Burbank: Footprint Mapbook, of the Draft EIR/EIS includes detailed maps of the project footprint, and depicts the parcels (including their APNs) that would be needed temporarily and permanently for the HSR Palmdale to Burbank Section. In addition, please refer to the Authority's web-based interactive map that identifies property acquisitions associated with the SR14A Build Alternative: https://geografika.maps.arcgis.com/apps/MapJournal/index.html?appid=ccac46af003e4a2da4528b2a7595141b.

Figures 2-60, 2-65, 2-70, 2-75, and 2-80 provide the locations for the communication towers closest to the Burbank Airport. In Section 3.11.6 of the Draft EIR/EIS, potential safety hazards to aviation including development of land uses that are inconsistent with airport operations are addressed under Impact S&S#9 Permanent Interference with Airport Safety, which concludes that the Palmdale to Burbank Project Section would not substantially increase hazards as a result of being adjacent to an airport or within the

4494-9710

boundary of an adopted airport land use plan and would not expose people residing or working in the project area to a safety hazard in the vicinity of an airport or private airstrip. Project design includes incorporation of SS-IAMF#6 Stakeholder Coordination for the Hollywood Burbank Airport which describes the Authority's commitment to continuing coordination among the Authority, the FAA, and the Burbank-Glendale-Pasadena Airport Authority including, but not limited to, the topic of avoiding conflicts with airport operations.

4494-9711

The commenter expresses concern with the visual impacts associated with spoils hauling and provides suggestions for the Vulcan and Boulevard Mines once spoils hauling is completed.

As discussed in Section 3.16.10.2 of this Final EIR/EIS, upon the completion of mining activities at Vulcan Mine, the leaseholders will be responsible for restoring the mine site consistent with Surface Mining and Reclamation Act regulations and requirements, which would be anticipated to enhance visual harmony at the site relative to existing conditions, constituting a beneficial change in visual quality to the area.

Additionally, as discussed in Section 2.9.5.3 and Section 3.2.6 of this Final EIR/EIS, spoils hauling would occur during construction and lasting for up to 6.4 years, depending on the location and the Build Alternative. While the project would involve the placement of material at both the Vulcan and the Boulevard mine sites, the amount of material would not completely fill either site.

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4494-9712

The commenter asks how the Authority will mitigate the HSR's impacts on Pacific Crest Trail scenic views of the Vasquez Rocks. Only the Refined SR14 Build Alternative would have that effect. In Section 3.16.6.5, the EIR/EIS discloses this visual effect on the trail by stating that implementation of the Refined SR14 Build Alternative would change visual quality from high to moderate. Therefore, the Refined SR14 alternative would substantially degrade the existing visual character or quality of public views of the site and its surroundings in a non-urbanized area. Mitigation Measures AVQ-MM#3 and AVQ-MM#4, as described in Section 3.16.7, are required to reduce impacts. These measures will incorporate local design and aesthetic preferences into the design of the viaduct and require landscape treatments to screen the elevated guideway. Implementation of these measures would reduce the prominence of the elevated alignment. However, after mitigation, this impact would remain significant and unavoidable for the Refined SR14 Build Alternative. For contrast, the Authority's Preferred Alternative, SR14A, travels underground through this area and thereby avoids impacts both during construction and operation to the PCT. The commenter also asks what comments the Pacific Crest Trail Association has made on this impact. The Authority is including that comment letter and the Authority's response with these responses to comment.

4494-9713

Refer to Standard Response PB-Response-PUE-3: Water Demand and Usage.

The commenter asks where mature trees would be sourced from, and the source of the water required to irrigate them. The commenter quotes a requirement in Mitigation Measure AVQ-MM#4, which can be found on pages 3.16-82 and 3.16-83 in Section 3.16, Aesthetics and Visual Quality in the Draft EIR/EIS.

Mitigation Measure AVQ-MM#4 does not state that the Authority will plant mature trees; it requires the Authority's Contractor to plant 8-foot-tall trees that later would mature. As required in AVQ-MM#4, trees will be selected in part based on their drought tolerance. At this time, the location and quantity of trees to be planted to mitigate visual effects has not been determined. Future landscaping plans will include irrigation plans as well as identification of the source of water for irrigation. Typically, water for irrigation of landscape plantings is obtained from the water district/agency serving the specific location. Please refer to Standard Response PB-Response-PUE-3: Water Demand and Usage, which provides additional information about the water districts/agencies that provide water service within the project section.

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4494-9714

Refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter is concerned about visual and noise impacts to Big Tujunga Wash, which is utilized for recreational purposes, including equestrian activities, and provides habitat. The effects cited in the comment and described in Section 3.16 of the Draft EIR/EIS would occur with the E2 and E2A Build Alternative alignments.

As described under Impact AVQ#4 in Section 3.16 of the Draft EIR/EIS, implementation of the E2 and E2A Build Alternatives would introduce project elements that would be highly visible and would contrast with the natural harmony of the view at KVP 1.22: Lake View Terrace, and the Big Tujunga Wash area. Mitigation Measures AVQ-MM#4, AVQ-MM#5, and AVQ-MM#6 would reduce impacts on visual quality by requiring landscape screening adjacent to residential areas, landscape treatments along the HSR embankment, and planting vegetation within land acquired for the E2 and E2A Build Alternatives not used for HSR or related supporting infrastructure. While implementation of these measures would reduce the prominence of the HSR embankment and project features, this impact would remain significant and unavoidable for the E2 and E2A Build Alternatives.

However, the Authority's Preferred Alternative is the SR14A Build Alternative, which would avoid crossing Big Tujunga Wash in the area of concern noted by the commenter. Regarding noise impacts, please refer to PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife, which discusses impacts to wildlife and equestrian animals from noise, including effects on production and breeding and animal responses to startle.

4494-9715

The commenter points out that the Existing View depicted in Figure 3.16-A-30, Key Viewpoint 2.1: San Fernando Road, does not account for the newly built Avion complex. This comment relates to the visual analysis of the Burbank Airport Station, located at the southern end of the Palmdale to Burbank Project Section, which was evaluated as part of the Burbank to Los Angeles Project Section.

The Burbank to Los Angeles Project Section Final EIR/EIS was released on November 5, 2021. The Authority's Board approved the Burbank to Los Angeles Project Section Preferred Alternative, including the Burbank Airport Station, on January 20, 2022. The information and analysis within this Final EIR/EIS about the Burbank Airport Station overlap area should be understood as informational and for reference only. For the most updated information about the Burbank Airport Station approved by the Authority, please refer to the Burbank to Los Angeles Final EIR/EIS, available on the Authority's website.

The Authority is aware the site has been developed with the Avion complex since the visual analysis and simulation was prepared. While the visual setting has changed, the project's impact and resulting visual quality with implementation of the Build Alternatives as present in the Draft EIR/EIS remains accurate, as the project would remove the Avion development and replace it with the HSR station as depicted in the visual simulation.

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4494-9716

Refer to Standard Response PB-Response-GEN-2: Project Costs and Funding.

Refer to Standard Response PB-Response-GEN-2: Project Costs and Funding and PB-Response-SOCIO-1: Parcel Acquisitions and Relocations. The commenter inquires about demolition of the Avion Burbank project and the costs associated with it. The footprint of the Avion Burbank development overlaps with the Burbank Airport Station footprint, specifically the station's platform configuration options. The Burbank Airport Station would remove the Avion Burbank development. The Final EIR/EIS, specifically the Summary, Chapter 2, Section 3.2, Section 3.12, and Section 3.13, has been revised to reflect additional information related to and current status of the Avion Burbank development. Please refer to PB-Response-GEN-2: Project Costs and Funding which discusses the availability of funding for construction of the project and PB-Response-SOCIO-1: Parcel Acquisitions and Relocations which discusses the need for and process related to property acquisitions and relocations. The Burbank Airport Station, which is located at the southern end of the Palmdale to Burbank Project Section, was evaluated as part of the Burbank to Los Angeles Project Section. The Burbank to Los Angeles Project Section Final EIR/EIS was released on November 5, 2021. The Authority's Board approved the Burbank to Los Angeles Project Section Preferred Alternative, including the Burbank Airport Station on January 20, 2022. The information and analysis within this Final EIR/EIS about the Burbank Airport Station overlap area should be understood as informational and for reference only. For the most updated information about the Burbank Airport Station approved by the Authority, please refer to the Burbank to Los Angeles Final EIR/EIS, available on the Authority's website.

4494-9717

Refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations.

The commenter refers to Draft EIR/EIS Appendix 3.16-A: Photographs of the Existing Conditions and Visual Simulations with the Project and to Vol 3: PEPD Record Set REV01, Burbank Station Area Plans, and notes that the Existing View depicted in Figure 3.16-A-30a of Section 3.16, Aesthetics and Visual Quality of the Draft EIR/EIS does not account for the newly built Avion Burbank complex. As discussed in more detail below, the Notice of Preparation of the Draft EIR for the Avion Burbank Project had not been published at the time studies were initiated in 2015 for the HSR Palmdale to Burbank Project Section; therefore, the project was not considered reasonably foreseeable at that time. The baseline photograph in Figure 3.16-A-30a depicts conditions in 2015 and is consistent with the baseline analysis year identified in Section 3.1, Introduction of the Draft EIR/EIS. The commenter asserts that the Draft EIR/EIS does not comply with CEQA because it does not disclose the potential environmental impacts associated with Avion Burbank complex demolition, including air quality, hazardous materials, and socioeconomics. The Authority acknowledges that the Avion Burbank Project is now fully entitled and constructed. The Authority's goal is to integrate the Burbank Airport Station into the larger development in a mutually beneficial way, where the station enhances the development, even if some structures are displaced or changed. Any property that needs to be acquired from the Avion Burbank Project by the Authority will be done so in accordance with impact avoidance and minimization feature SOCIO-IAMF#2, which requires compliance with the Uniform Relocation and Real Property Acquisitions Policy Act.

The commenter asks where the Authority will dispose of the building spoils from demolition of the Avion Burbank complex. The area occupied by the Avion Burbank complex was evaluated in the Burbank to Los Angeles Project Section Final EIR/EIS. As shown in Table 3.6-7 of the Burbank to Los Angeles Project Section Final EIR/EIS and discussed under Impact PUE #6, there are five active landfills in the vicinity of the Burbank to Los Angeles Project Section that accept construction and demolition (C&D) material. It is estimated that the total volume of C&D material for the Burbank to Los Angeles Project Section would be approximately 77,137 cubic yards before recycling (approximately 0.06 percent of the total remaining capacity of the five active landfills that

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4494-9717

accept C&D material). After diversion, C&D material would occupy 0.03 percent of the total remaining capacity of the active landfills. The footprint of the Avion Burbank complex overlaps with the Burbank Airport Station footprint, specifically the station's platform configuration options. Although the setting has changed, the project's impact with implementation of the Build Alternatives as presented in the Draft EIR/EIS remains accurate as the project would displace the Avion Burbank complex and construct the HSR station in that location as depicted in the visual simulation in Figure 3.16-A-30b of the Palmdale to Burbank Project Section Draft EIR/EIS.

Section 3.6, Public Utilities and Energy, of the Palmdale to Burbank Draft EIR/EIS shows landfill capacity in Table 3.6-15 and effects from solid waste generation during construction in Impact PUE#5, which considers solid waste disposal broadly for the whole Palmdale to Burbank Project Section and explains the Authority's policy of recycling 100 percent of steel and concrete and 75 percent of construction waste. The Palmdale to Burbank Final EIR/EIS, specifically Chapter 2, Section 3.2, Section 3.12, and Section 3.13, has been revised to reflect additional information related to and the current status of the Avion Burbank complex. Additionally, the Burbank Airport Station, which is located at the southern end of the Palmdale to Burbank Project Section, was evaluated as part of the Burbank to Los Angeles Project Section. The Burbank to Los Angeles Project Section Final EIR/EIS was released on November 5, 2021. The Authority's Board approved the Burbank to Los Angeles Project Section Preferred Alternative, including the Burbank Airport Station on January 20, 2022. The information and analysis within this Final EIR/EIS about the Burbank Airport Station overlap area should be understood as informational and for reference only. Please refer to the Burbank to Los Angeles Final EIR/EIS, available on the Authority's website.

4494-9718

The commenter refers to Appendix 2-I Spoils Disposal Assumptions used for Environmental Analysis, specifically related to spoils proposed for removal from Portal 10-Spreading Grounds related to the Refined SR14 Build Alternative. The commenter quotes portions of the potential off-hauling scenario for this location as described on Draft EIR/EIS page 2.0-I-3. The commenter inquires what happens to the contamination removed from spoils, whether a local vendor will conduct decontamination, or whether a local vendor will have to be created. The topic of hazardous material decontamination is addressed in Draft EIR/EIS Chapter 3.10, Hazardous Materials and Wastes, specifically Impact HMW#1, Hazards Due to the Routine Transport, Use, or Disposal of Hazardous Materials during Construction. The Authority will be responsible for the transport and disposal of spoils generated by the Palmdale to Burbank Project Section. Hazardous materials would be handled in accordance with Certified Unified Program Agencies (CUPA) regulations and disposed of off-site at a properly licensed/maintained facility located within the state of California. These regulations are administered by the Enforcement and Emergency Response Division of the California Department of Toxic Substances Control. At this stage of Project development, neither the construction contractor nor the facility or facilities used for disposal of hazardous materials have been selected. Ultimate disposition of contamination will be determined in accordance with hazardous materials and wastes plans developed under HMW-IAMF-#4 (Undocumented Contamination), which describes the Authority's commitment to address provisions related to the disturbance of undocumented contamination through coordinating with the contractor to prepare a construction management plan (CMP) prior to construction, HMW-IAMF #5 (Demolition Plans), which addresses the Authority's commitment to ensure the safe dismantling and removal of building components and debris through requiring the contractor to prepare demolition plans, HMW-IAMF #6 (Spill Prevention), which describes the Authority's commitment to address spill prevention through requiring the contractor to prepare a CMP, HMW-IAMF#7 (Transport of Materials), which requires that the construction contractor comply with applicable state and federal regulations pertaining to transport of hazardous materials and wastes, and HMW-IAMF#8 (Permit Conditions), which describes the Authority's commitment to comply with the State Water Resources Control Board Construction Clean Water Act Section 402 General Permit conditions and requirements for transport, labeling, containment, cover, and other best management practices for storage of hazardous materials during construction.

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4494-9719

Refer to Standard Response PB-Response-HAZ-1: Materials Hauling and Transportation of Hazardous Materials, PB-Response-HAZ-2: Potential to Encounter PEC Sites with Known and/or Suspected Contamination during Construction.

The commenter refers to Appendix 2-I Spoils Disposal Assumptions used for Environmental Analysis in the Draft EIR/EIS, specifically with respect to spoils removal associated with the Burbank Airport Station SEM tunnel related to the Refined SR14 Build Alternative. It should be noted that SEM tunnel construction would occur south of the Burbank Airport Station, within the footprint evaluated in the Burbank to Los Angeles Project Section Final EIR/EIS. The Burbank to Los Angeles Project Section Final EIR/EIS was released on November 5, 2021. The Authority's Board approved the Burbank to Los Angeles Project Section Preferred Alternative, including the Burbank Airport Station, on January 20, 2022. The information and analysis within this Final EIR/EIS about the Burbank Airport Station overlap area should be understood as informational and for reference only.

The commenter asks whether closed trucks will be used for off-hauling and for information regarding community protection during loading, transportation, and load shifts/truck tipping. As explained in Impact HMW#1 in Section 3.10, Hazardous Materials and Wastes, in the Draft EIR/EIS, the Refined SR14 and SR14A Build Alternatives would generate the most potentially hazardous spoils (approximately 9.2 million cubic yards [mcy]). The E1 and E1A Build Alternatives would generate approximately 3.0 mcy of potentially hazardous spoils, and the E2 and E2A Build Alternatives would generate approximately 3.8 mcy of potentially hazardous spoils. Hazardous materials would be handled in accordance with state requirements and local Certified Unified Program Agencies (CUPA) regulations and disposed of off-site at a properly licensed/maintained facility located within the state of California. Per the requirements of the Department of Toxic Substances Control, vehicles, containers, and any attached equipment used for transporting hazardous waste must be in sound condition and containers must be designed or maintained to contain hazardous waste (see Draft EIR/EIS, pp. 3.10-4 to 3.10-5). Implementation of HMW-IAMF#4, HMW-IAMF#5, and HMW-IAMF#6 will establish plans for the safe handling of hazardous materials during construction, including those materials associated with contaminated soils or groundwater, construction chemicals, and demolition of structures to ensure hazardous materials are

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properly handled and there are no adverse environmental or safety impacts. In addition, implementation of HMW-IAMF#7 and HMW-IAMF#8 will require the contractor to comply with federal and state regulations to further reduce risks from handling and disposing hazardous materials during construction activities. For example, the Authority would comply with the Resource Conservation and Recovery Act, overseen by the U.S. Environmental Protection Agency (EPA), which includes Part 263 Standards Applicable to Transporters of Hazardous Wastes. EPA has adopted certain Department of Transportation regulations regarding the transportation of hazardous materials including, but not limited to, using proper containers and reporting discharges (see Draft EIR/EIS, p. 3.10-2). Prior to construction, the Contractor will provide the Authority with a hazardous materials and waste plan describing responsible parties and procedures for hazardous waste and hazardous materials transport. Please refer to Standard Responses PB-Response-HAZ-1: Materials Hauling and Transportation of Hazardous Materials and PB-Response-HAZ-3: Impacts of Spoils Hauling (Hazardous Materials and Waste), which also address this issue.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

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The commenter inquires about where the spoils from the station area footprint will be stockpiled, and how the contaminated dirt will be sorted so it does not float out into the community. The commenter also questions whether these spoils will be stockpiled on the Avion Burbank site. As shown on Drawing No. CV-I4003-E2 in Volume 3, Preliminary Engineering Project Design (PEPD) Record Set REV02 Construction Staging Plans of the Draft EIR/EIS, a 43.0-acre construction laydown area would be located within the Burbank Subsection. It is anticipated that the identified construction laydown area would be used for mobilizing personnel, stockpiling materials, and storing equipment for building HSR or related improvements. IAMFs, as discussed in Section 3.10, Hazardous Materials and Wastes (Section 3.10.4.2) of the Draft EIR/EIS, will require the contractor to implement a series of plans and procedures to minimize hazards associated with use, storage, transportation, and disposal of hazardous material and waste. They include HMW-IAMF#5, which requires the contractor to prepare demolition plans for the safe dismantling and removal of building components and debris, and HMW-IAMF#6, which requires that the contractor prepare a CMP including procedures that avoid or reduce the potential for releases and foreseeable upset conditions that would expose persons or the environment to substantial hazards. Mitigation Measures, specifically HMW-MM#1 which limits the handling of extremely hazardous materials near educational facilities, would reduce impacts associated with such materials. See Response to Comment #9717 for additional information regarding displacement of the Avion Burbank Development. Spoils resulting from excavation, if they are not classified as hazardous, may be re-used in construction of the Build Alternatives, deposited within the permanent Build Alternative footprint, or permanently disposed of at a designated site, as discussed in Chapter 2.0, Alternatives (see Section 2.9.3 of the Draft EIR/EIS). The Avion Burbank site, referenced in the comment, located adjacent to the Hollywood Burbank Airport and the North Burbank Metrolink Station, is included within the permanent Build Alternative footprints. The extent of potential re-use and the need for imported fill from borrow sites would depend on construction sequencing and the suitability of excavated materials for re-use. Nevertheless, the Draft EIR/EIS conservatively assumes the amount of the spoils created during excavations that would require off-hauling to disposal or re-use sites (see Impact HMW#1 and Appendix 2.0-I in the Draft EIR/EIS). Spoils that cannot be re-used as part of HSR construction or nearby projects would need to be hauled to a disposal site within or outside the Build Alternative footprint. There are several identified potential disposal

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sites within 25 miles of the Palmdale to Burbank Project Section, as described in Chapter 2.0 of the Draft EIR/EIS. As discussed in Section 3.10, contaminated materials would be removed from the tunnel construction areas and could be temporarily stockpiled onsite before being hauled to a suitable hazardous waste treatment site.

The Burbank Airport Station, which is located at the southern end of the Palmdale to Burbank Project Section, was evaluated as part of the Burbank to Los Angeles Project Section and is discussed in the EIR/EIS for this project for informational and reference purposes only. The Burbank to Los Angeles Project Section Final EIR/EIS was released on November 5, 2021. The Authority's Board approved the Burbank to Los Angeles Project Section Preferred Alternative, including the Burbank Airport Station on January 20, 2022. For the most updated information about the Burbank Airport Station approved by the Authority, please refer to the Burbank to Los Angeles Final EIR/EIS, available on the Authority's website.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9721

Refer to Standard Response PB-Response-AVQ-2: Visual Effects on Big Tujunga Wash, PB-Response-PR-2: Impacts on Big Tujunga Wash – Recreational Uses, Equestrian Use.

The commenter identifies construction schedules based on Appendix 2-I and expresses concern about the impacts on Tujunga Wash.

The commenter correctly characterizes construction durations based on Appendix 2-I. Upon receiving the required environmental approvals and securing needed funding, the Authority would begin implementing its construction plan. Given the size and complexity of the California HSR System, the design and construction work could be divided into a number of procurement packages. Table 2-36 shows the estimated durations of construction activities.

The Authority has considered alternatives that would avoid Tujunga Wash. The Refined SR14, SR14A, E1, and E2 Build Alternatives would avoid impacts on Tujunga Wash. The SR14A Build Alternative is the Preferred Alternative. For more information regarding the Preferred Alternative, please refer to Chapter 8 of the Draft EIR/EIS. For responses to comments on impacts to Tujunga Wash, refer to PB-Response-PR-2: Impacts on Big Tujunga Wash - Recreational Uses, Equestrian Use and PB-Response-AVQ-2: Visual Effects on Big Tujunga Wash.

4494-9722

The commenter is inquiring about the exact location of CalMat Mine. According to Figure 2-75 E2 Build Alternative included in Chapter 2, Alternatives, of the EIR, CalMat Mine is located at 11520 Sheldon St, Sun Valley, CA 91352. This site is also referred to as the Vulcan Landfill Sun Valley.

4494-9723

Refer to Standard Response PB-Response-HAZ-3: Impacts of Spoils Hauling (Hazardous Materials and Waste).
The commenter poses questions related to hazardous materials hauling. The commenter asks why the hazardous materials disposal site is classified. In this context, the word classified means permitted and not undisclosed.

A conservative analysis was conducted regarding the amount of potential hazardous spoils for each of the Build Alternatives; it is likely that each of the Build Alternatives would produce a smaller quantity of hazardous spoils than estimated. As described on page 3.10-22 of the Draft EIR/EIS, the six Build Alternatives would generate different quantities of potentially hazardous spoil materials: Refined SR14 and SR14A, 9.2 million cubic yards (mcy); E1 and E1A, 3.0 mcy; and E2 and E2A, 3.8 mcy of hazardous spoils. Hazardous materials would be handled in accordance with state and local implementation of CUPA regulations and disposed of off-site at a properly licensed/maintained facility located within the state of California. Many of the sites containing hazardous spoils and/or hazardous materials are associated with the PEC sites listed in Section 3.10.5.3. Please refer also to Standard Response PB-Response-HAZ-3: Impacts of Spoils Hauling (Hazardous Materials and Waste), which addresses this issue.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9724

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, PB-Response-TRA-1: Temporary Traffic Associated with Construction.

The commenter inquires if an adit is located at Little Tujunga Canyon Road for the Refined SR14 Build Alternative. The commenter inquires what Sand Canyon Road will be used for and if Sand Canyon Road would be closing.

These roads would not be closed by or for the project but would be utilized for construction access and in some cases utilities such as water and electrical service. During construction these roads would remain open to the public. Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process for more information about the selection of alternatives. Refer to Standard Response-TRA-1: Temporary Traffic Associated with Construction, for more information about road closures or detours during construction.

This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. As a result, no change has been made to the document in response to this comment.

4494-9725

Refer to Standard Response PB-Response-TRA-1: Temporary Traffic Associated with Construction.

The commenter inquires about the existing bike path along San Fernando Road, and states that the bike path will be demolished for construction of the project. As noted in Section 3.2, Transportation of the Final EIR/EIS, spoil hauling could affect the pedestrian and bicycle facilities provided along portions of affected roadways in San Fernando Valley. Class I and II bicycle facilities on San Fernando Road and Glenoaks Boulevard, respectively, near the Burbank Station could be affected during peak hours. The addition of spoils trucks during peak hours could cause congestion, such that bicycle and pedestrian movement would be blocked or slowed. The addition of large trucks to the roadway network could also create safety concerns for bicyclists on shared-lane and on-street bike lane facilities. Implementation of TR-IAMF#4 through TR-IAMF#7 will prevent hazardous conditions that would substantially interfere with pedestrian or bicycle movements or access during spoils hauling. Additionally, spoils hauling near non-motorized modes such as the Class I and II bicycle facilities on San Fernando Road and Glenoaks Boulevard, respectively, would be temporary and only occur for a maximum of 3.2 years. However, the bicycle path will not be demolished, nor will the HSR Palmdale to Burbank Project Section preclude future extensions of this bike path along the San Fernando Road corridor. See Volume 3, Alignment Plans, which consists of the Preliminary Engineering for Project Definition Plans, including drawings of the track, structures, grade separations, and other features. Please also refer to Standard Response PB-Response-TRA-1: Temporary Traffic Associated with Construction.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9726

The commenter requests clarification as to the proposed disposition of parcels depicted in the interactive map regarding proposed property acquisitions provided by the Authority at: https://geografika.maps.arcgis.com/apps/MapJourna/index.html?appid=ccac46af003e4a2da4528b2a7595141b, specifically the parcels shaded in orange in the map and identified for partial acquisition.

Information as to the specific proposed use for each parcel identified for parcel acquisition is not available at this stage of project development. A partial acquisition means that the original entity continues to exist, but that a new entity absorbs or takes over part of the rights and obligations of the original entity. Thus, some of the rights and obligations (and contracts) of the original entity are transferred to the new entity. As discussed in PB-Response-SOCIO-1: Parcel Acquisitions and Relocations in more detail, generally, if the area required for the project appears not to be critical to the property's primary function as a residence or business and/or the remaining portion of the property could be reconfigured to continue serving its purpose without significant disruption to occupants, a partial acquisition is considered. In some instances, aerial or subsurface rights for utility facilities or support structures are required but little to no impact to surface operations would persist in the after condition.

Also, in some circumstances, temporary rights may be required from property owners for material storage, construction activities, or access but these activities would not impact the primary function of the property or cause undue disruption to the occupants and the area may revert to its former use after construction activities have been completed. Additional information on the locations of full and partial parcel acquisitions for the project for the project can be found in Appendix A of the Relocation Impact Report prepared for this Final EIR/EIS. Electronic versions of the Technical Reports are available through submitting a written request on the Public Records Act portal (available at: https://hsr-ca.nextrequest.com/).

4494-9727

Refer to Standard Response PB-Response-AQ-1: Construction-Period Emissions, PB-Response-AQ-3: Construction Air Quality/Truck Impacts, PB-Response-N&V-4: Tunneling Impacts (Noise and Vibration) under Homes and Businesses, PB-Response-N&V-5: Impacts of Spoils Hauling (Noise), PB-Response-N&V-6: Construction Noise/Truck Impacts, PB-Response-TRA-1: Temporary Traffic Associated with Construction.

The commenter expresses concern regarding the effects to sensitive receivers from noise, vibration, road closures, and air quality effects. These topics are further discussed in Standard Responses PB-Response-N&V-4: Tunneling Impacts (Noise and Vibration) under Homes and Businesses, PB-Response-N&V-5: Impacts of Spoils Hauling (Noise), PB-Response-N&V-6: Construction Noise/Truck Impacts, PB-Response-TRA-1: Temporary Traffic Associated with Construction, PB-Response-AQ-1: Construction-Period Emissions, and PB-Response-AQ-3: Construction Air Quality/Truck Impacts. Each of these standard responses incudes discussion of the measures being implemented to reduce and or avoid impacts on the surrounding community including hospitals in the area.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

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The commenter requests additional information on ownership of parcels temporarily acquired for construction after the project construction period. This topic is discussed in Standard Response PB-Response-SOCIO-1. Land use displacements were determined by evaluating the extent to which the project would impact land uses within the footprint and identifying those properties where the current use would not be able to continue after construction. For this analysis, project design files showing the extent of the project were imported into a geographic information systems dataset along with parcel boundary data from the Los Angeles County Assessor to identify situations where the proposed project facilities would affect a building, driveway, parking lot, or other key feature of a property in a way that may affect that feature's viability after construction. Based on the nature of impacts, the Authority determined where a full acquisition, partial acquisition, permanent easement (surface, subterranean, or aerial), temporary easement, or some combination of these would be required. Generally, full acquisitions were designated where a significant portion of the structure or structures comprising the property's principal dwelling or business facility would be within the area to be acquired for the HSR right-of-way or for an extended period during construction. The Authority would acquire the land of property owners whose land is directly affected by the project in accordance with the Uniform Act. The Uniform Act establishes minimum standards for treatment and compensation of individuals whose property is acquired for a federally funded project. If the area required for the project appeared not to be critical to the property's primary function as a residence or business and/or the remaining portion of the property could be reconfigured to continue serving its purpose without significant disruption to occupants, a partial acquisition was determined. In some circumstances, temporary rights might be required from property owners for materials storage, construction activities, or access, but these activities would not impact the primary function of the property or cause undue disruption to the occupants, and the area could revert to its former use after construction activities were completed.

4494-9729

The commenter requested further information on project train emergency protocol in the case of wildfire events, and further information on wildfire mitigation during high wind events, referencing the IET study on electric spark discharge between pantograph and catenary in electrified railway. Application of SS-IAMF#1 and SS-IAMF#2 will require the development and incorporation of a fire and life safety program into the design and construction of the Palmdale to Burbank Project Section. The fire and life safety program is coordinated with local emergency response organizations to provide them with an understanding of the rail system, facilities, and operations, and to obtain their input for modifications to emergency response operations and facilities, such as emergency protocol and evacuation routes for operating trains during wildfire events. Please refer to Appendix 2.0-E, Impact Avoidance and Minimization Measures, of this Final EIR/EIS, for the full descriptions of IAMFs that will be implemented as part of the project design. Within the ANF, project infrastructure including overhead catenary lines, would be primarily underground. When it is underground, the project would not create fire risk in areas on the surface within the ANF. The Authority acknowledges that the Antelope Valley is an area subject to high winds, which would exacerbate fire risks. Fire risks from the project would be reduced by the Authority's formation of a statewide Fire and Life Safety and Security Committee (FLSSC) through implementation of SS-IAMF#2, which will be composed of representatives from fire, police, and local building code agencies. The purpose of the FLSSC will be to review issues that are critical to fire and life safety and security, to acquire input and concurrence from the state and local authorities having jurisdiction over the proposed designs to meet code requirements, and to comply with state and local fire code standards or fire and life safety hazard programs during the design phase of the project, including those pertaining to project catenary system. The fire and life safety program will include regional FLSSCs who will focus on the fire and life safety characteristics specific to the Palmdale to Burbank Project Section and provide input on local building codes or requirements that align with the emergency response characteristics and capabilities of the local agencies for the Palmdale to Burbank Project Section. Representation and operations of the statewide FLSSC and regional FLSSCs will be coordinated with local emergency response organizations to provide an understanding of the California HSR System and its facilities and operations, and to obtain their input for modifications to emergency response operations and facilities. These programs and coordination activities would allow for a rapid response by local emergency responders in the case of an accident, reducing the potential for

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uncontrolled wildfire events.

4494-9730

Refer to Standard Response PB-Response-PUE-1: Energy Use and Consumption.

The commenter asks about the source of electrical power for project operation and asks how the energy used to power the project can be considered clean energy. As explained on page 3.6-86 in Section 3.6, Public Utilities and Energy of the Draft EIR/EIS, the proposed California HSR System would obtain electricity from the statewide grid. Providers in Southern California include Southern California Edison, Los Angeles Department of Public Works, and Burbank Water and Power (see Table 3.6-7 in the Draft EIR/EIS). Please refer to Standard Response PB-Response-PUE-1: Energy Use and Consumption, which provides additional information about the Authority's commitment to use renewable energy for the California HSR System.

The commenter also asks if trains will be stopped during flex alerts so that residential customers receive the power they need. The California Independent System Operator (California ISO) identifies on its website that a flex alert is typically issued in the summer when extremely hot weather drives up electricity use, making the available power supply scarce. None of the recommendations made during a flex alert include stopping critical transportation infrastructure, such as the California High Speed Rail System. Therefore, the Authority does not anticipate stopping trains during flex alerts. The California ISO website describing flex alerts can be accessed here: https://www.flexalert.org/

4494-9731

Refer to Standard Response PB-Response-GEN-2: Project Costs and Funding.

The commenter states that all cars on California roads have been mandated to be electric by 2035, therefore diminishing the need for high-speed trains. As a matter of clarification, Governor Newsom's Executive Order would be to phase out gasoline-powered cars by requiring sale of new passenger vehicles to be zero-emission by 2035. While this Executive Order would help in increasing the number of zero-emission vehicles, it would not guarantee that all vehicles on the road would be zero-emission by 2035. In 2035, there would still be people using cars purchased before 2035 that are not zero-emission vehicles. As such, the California HSR System would be a beneficial tool in California to reduce GHG emissions. The purpose of the California HSR System is to provide the public with electric-powered HSR service that provides predictable and consistent travel times between major urban centers consistent with Proposition 1A, and connectivity to airports, mass transit systems, and the highway network in the Antelope Valley and the San Fernando Valley; and to connect the northern and southern portions of the statewide HSR system. For the comments related to cost, please refer to Standard Response PB-Response-GEN-2: Project Costs and Funding.

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4494-9732

Refer to Standard Response PB-Response-GSSP-2: Impacts on Paleontological Resources.

The commenter asks about the Authority's protocol if a discovery is made relating to paleontological resources (such as discovery of dinosaur bones, extinct mammals, ancient civilization artifacts), including halting or rerouting the project.

Regarding the comment about paleontological resources, please see Standard Response PB-Response-GSSP-2: Impacts on Paleontological Resources, which addresses the Authority's protocols in the event a paleontological resource is identified during construction. As described in Standard Response PB-Response-GSSP-2: Impacts on Paleontological Resources, the Authority's protocol includes halting construction if there is an unexpected discovery of paleontological resources.

Regarding the comment about ancient civilization artifacts, the Authority understands that the commenter is referring to archaeological resources and not paleontological resources. The following response provides an overview of the protocols to be used if there is a discovery of archaeological resources. As described in Impact CUL#2, in Section 3.17, Cultural Resources of the Draft EIR/EIS, ground disturbance associated with construction of the HSR Build Alternatives may result in impacts on unknown or previously undiscovered archaeological resources located within the Area of Potential Effect (APE). Implementation of CUL-IAMF#3 (refer to Section 3.17.5.3, in Section 3.17, Cultural Resources) would reduce impacts by ensuring the completion of pre-construction cultural resource surveys in previously inaccessible portions of the archaeological APE. As discussed in Section 3.17.7, CUL MM#1 and CUL-MM#3 would further reduce impacts on previously undiscovered archaeological resources from ground-disturbing activities during construction by consulting with MOA signatories, concurring parties, and tribal consulting parties to determine the preferred treatment and appropriate mitigation measures and by developing meaningful mitigation measures for effects on as-of-yet-unidentified Native American archaeological resources that cannot be avoided. In addition, the Authority will implement CUL-MM#2, which will halt construction activities and require compliance with 48 Fed. Reg. 44716-42 and 14 Cal. Code Regs. Chapter 3, Article 9, Sections 15120–15132, should there be an unanticipated archaeological discovery.

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The commenter requests more information about the archaeological survey effort and what will happen if PTE is not granted for survey locations. Per CUL-IAMF#3, pre-construction surveys of properties within the APE that were not previously surveyed will occur after the Authority obtains legal access to such sites. Stipulation VI.E of the PA provides for phased identification in situations where identification of historic properties cannot be completed—e.g., when private property owners deny permission to enter. In such cases, the development and implementation of a post-review identification and evaluation effort will be stipulated in a MOA to ensure that the historic properties identification effort is completed once the properties become accessible and prior to construction. Consistent with the Section 106 PA, detailed protocols associated with unanticipated discovery of archaeological resources are addressed by the ATP. Further, in the event of an unanticipated discovery of archaeological resources, CUL MM#1 and CUL-MM#3 would reduce impacts from ground-disturbing activities during construction by consulting with MOA signatories, concurring parties, and tribal consulting parties to determine the preferred treatment and appropriate mitigation measures and by developing meaningful mitigation measures for effects on as-of-yet-unidentified archaeological resources that cannot be avoided. In addition, the Authority will implement CUL-MM#2, which will halt construction activities and require compliance with 48 Fed. Reg. 44716-42 and 14 Cal. Code Regs. Chapter 3, Article 9, Sections 15120–15132, should there be an unanticipated archaeological discovery. As discussed in the Archeological Treatment Plan, there are identification, evaluation and mitigation measures agreed upon with SHPO, Native American tribes and other consulting parties to preserve and protect archaeological materials. These treatment plans describe detailed requirements for the treatment of resources affected by the project, site monitoring during construction, handling of unanticipated discoveries, data recovery, and curation of artifacts, among other things. Those procedures, along with the Mitigation Measures outlined above, would be followed. Regarding collection and curation of materials, refer to 36 CFR Part 79, Curation of Federally Owned or Administered Archaeological Collections. The CHSRA will follow those guidelines when curating materials recovered during and prior to construction.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9734

Refer to Standard Response PB-Response-GEN-1: Frequently Asked Questions, PB-Response-GEN-2: Project Costs and Funding.
The commenter refers to Chapter 3.17, Cultural Resources, specifically Section 3.17.7.4, No Project Alternative. The commenter states that the Authority's assertions regarding long-term plans for traffic improvements costing the state increased overtime and the need for Alternate Transportation Systems to address increased population, housing, retail, and schools are not supported in the Draft EIR/EIS. The commenter asks whether the Authority concludes that constructing the project will result in fewer regional impacts than the No Project Alternative. The Authority reviewed Section 3.17.7.4, No Project Alternative, and the entirety of Section 3.17 but could not identify where the assertions the commenter refers to are made. The Authority additionally reviewed the Summary, Chapter 2 Alternatives, Section 3.2, Transportation, and Chapter 8, Preferred Alternative and Station Sites, to determine whether the assertions the commenter references are made elsewhere in the Draft EIR/EIS but could not locate them.

The No Project Alternative assumes that the Palmdale to Burbank Project Section would not be constructed. In assessing future conditions, it was assumed that all currently known, programmed, and funded improvements to the intercity transportation system (highway, rail, and transit) and reasonably foreseeable local development projects with funding sources already identified as discussed in Draft EIR/EIS Section 2.5.1 No Project Alternative would be developed as planned by 2040. The potential impacts of the No Project Alternative are addressed in the following Draft EIR/EIS Chapter 3 sections: Transportation (Section 3.2.6.2), Air Quality and Global Climate Change (Section 3.3.6.2), Noise and Vibration (Section 3.4.6.2), Electromagnetic Interference and Electromagnetic Fields (Section 3.3.6.2), Public Utilities and Energy (Section 3.6.6.2), Biological and Aquatic Resources (Section 3.7.6.2), Hydrology and Water Resources (Section 3.8.6.2), Geology, Soils, Seismicity, and Paleontological Resources (Section 3.9.6.2), Hazardous Materials and Wastes (Section 3.10.6.2), Safety and Security (Section 3.11.6.2), Socioeconomics and Communities (Section 3.12.6.2), Station Planning, Land Use, and Development (Section 3.13.6.2), Agricultural Farmland and Forest Land (Section 3.14.6.2), Parks, Recreation, and Open Space (Section 3.15.6.2), Aesthetics and Visual Quality (Section 3.16.6.2), Cultural Resources (Section 3.17.7.4), and Regional Growth (Section 3.18.6.2). Section S.7 No Project Alternative Impacts in the Draft EIR/EIS Summary Chapter summarizes the impacts of the No Project

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Alternative.

Draft EIR/EIS Chapter 8, Preferred Alternative and Station Sites, includes a comparison of the environmental impacts of the Authority's Preferred Alternative, Built Alternative SR14, to those of the No Project Alternative. Section 8.5 Environmentally Superior Alternative discloses that the No Project Alternative is not the environmentally superior alternative under CEQA because the Build Alternatives would provide benefits, including reducing vehicle trips on freeways and reducing regional air pollutants, which would not be realized under the No Project Alternative. The Preferred Alternative for the Palmdale to Burbank Project Section is the environmentally superior alternative under CEQA. Implementing the HSR project between Palmdale and Burbank would have adverse environmental impacts regardless of which alternative is selected; overall, however, the Preferred Alternative provides the environmentally superior alternative by best meeting environmental regulatory requirements and best minimizing impacts on the natural environment, farmland, and communities.

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4494-9735

The commenter refers to Section 3.17, Cultural Resources in the Draft EIR/EIS, specifically Section 3.17.7 Environmental Consequences under the Impact CUL#1: Effects on Known Archaeological Resources Caused by Construction Activities and Impact CUL#3: Effects on Human Remains Discovered during Construction Activities discussions. The commenter summarizes aspects of the CEQA Conclusions related to Impact Avoidance and Minimization Features and Mitigation Measures, including development of a geospatial data layer and archaeological sensitivity map; the Palmdale to Burbank Project Section Archaeological Treatment Plan (ATP), which addresses unanticipated discoveries and the process by which a discovery is evaluated for National Register of Historic Places/California Register of Historical Resources (NRHP/CRHR) eligibility and how it will be treated; and the Palmdale to Burbank Project Section Memorandum of Agreement (MOA), which describes the review and reporting periods for the technical work and will also describe the timeframes required for consulting party review and comment. The commenter also refers to Impact CUL#4: Effects to Historic Built Resources Caused by Construction Activities, specifically related to East Branch of the California Aqueduct. The commenter refers to an "SR14" Alternative, which the Authority assumes the commenter to mean the SR14A Build Alternative, which is the Authority's preferred alternative. As discussed on page 3.17-90 in Section 3.17, Cultural Resources of the Draft EIR/EIS, the commenter correctly notes (assuming the commenter is referring to the SR14A Build Alternative) that although excavation will be needed to construct at-grade track alignment, neither temporary nor permanent damage to the East Branch of the California Aqueduct is anticipated because the resource is below grade at this location. The commenter asks about the timeline for implementing the mitigation measures related to archaeological discoveries. The ultimate duration of the process to address unanticipated archaeological discoveries is highly dependent on the nature of the discovery and whether the discovery triggers coordination with stakeholders and tribes; resolution could take as few as several days or as long as several months for larger, more complex deposits.

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Grubbing is the act of removing or clearing a site of trees, shrubs, stumps and rubbish. Grading involves raising or lowering ground levels, adding or removing a slope, or leveling the ground surface of a site. Chapter 13, Glossary, of the EIR/EIS has been revised to include these terms.

4494-9737

The commenter provides material that is almost taken directly from the Draft EIR/EIS. The commenter raises concerns regarding long-term population growth, employment growth and opportunities, and housing availability unrelated to HSR, but also makes some assertions as it relates to HSR. The commenter also asks about benefits to the local population if HSR jobs are filled by people outside the County as well as who is building new housing for people moving to the area to work on the project.

The commenter has replicated text from the Draft EIR/EIS around the definitions of regional growth, employment growth, population growth, and housing as resources. While the definitions are largely accurate, it should be noted that while the commenter states that population growth is the number of residents in the resource study area (RSA), population alone is the number of residents in the RSA. Additionally, the commenter's statement that "It must not be assumed that growth in any area is necessarily beneficial, detrimental or of little significance to the environment" is also included in Section 3.18, Regional Growth, and derives from CEQA Guidelines section 15126.2(e). This content appears to be background material unconnected to a comment on the environmental analysis in the Draft EIR/EIS.

The commenter presents an opinion that "HSR is a war on cars," which is noted and included in the record for consideration by decision-makers. The commenter also opines on what SCAG should do in terms of their Alternative Planning Strategy (APS). While Southern California Association of Governments (SCAG) activities are outside the scope of the Authority's jurisdiction, note that the EIR/EIS recognizes SCAG as a Metropolitan Planning Organization in Section 3.18.2.2, of the Draft EIR/EIS. SCAG has the responsibility for preparing and adopting a Sustainable Communities Strategy (SCS) or APS to reduce greenhouse gas emissions in the region. As such, SCAG has adopted a Regional Transportation Plan (RTP)/SCS, which is discussed in Section 3.18.2.3 of the Draft EIR/EIS. Since the commenter has not identified any issues with the EIR/EIS' discussion of the RTP/SCS, no additional response is warranted for this specific concern included in the comment.

The commenter expresses uncertainty about the timeline provided for construction of the Palmdale to Burbank Project Section which is estimated at 8 to 9 years. Construction timeline estimates are described in Table 2-35, in Chapter 2, Alternatives,

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of the Draft EIR/EIS. The project construction timeline was estimated by the project engineers based on experience for completing design, construction and testing of similar HSR projects built around the world. More specifically, the construction periods were calculated considering the production and advancement rates for each construction site, taking into account, for example, the length and cross section of tunnels; type of ground for tunnel excavation; complexity and number of utilities that require relocation or protection; volume of embankments and spoils from excavation; the size, complexity and length of viaducts; retaining walls and other structures to be built; and the length of track to be laid and systems to be deployed.

As mentioned above, one major schedule driver for the Palmdale to Burbank Project Section will be the length of time needed for excavation of the tunnels. It is assumed that tunnel boring machines will work 24 hours a day and 7 days a week. Based on tunnel construction estimates, the following average excavation rates for long tunnels have been assumed as part of the EIR/EIS analysis:

- 1,300 ft per month for tunnels of 28 ft of diameter excavated in rock with TBM
- 1,000 ft per month for tunnels with diameter larger than 28 ft excavated in rock with TBM
- 600 ft per month for tunnels in fault zones excavated with TBM
- 600 ft per month for excavation of tunnels in rock with conventional methods (400 ft per month in fault zones)

While the six Build Alternatives would increase projected population by 0.1 percent, the California HSR System would also result in environmental and local benefits as compared to the No Project Alternative. The diversion of intercity trips from road trips to the HSR system would result in reduced automobile travel on major freeways and reduced long-term air pollutant emissions. As described in Section 5.8.3, in Chapter 5, Environmental Justice, of the Draft EIR/EIS, induced growth associated with the Burbank Airport Station would accelerate the implementation of local development plans in Burbank, and provide an opportunity to achieve transit-oriented development (TOD) planning goals.

The project would also have both short-term and long-term employment benefits for the

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region. Construction of the Build Alternatives would generate approximately 80,000 to 85,000 direct, indirect, and induced construction job years, and operation of the Build Alternatives would create approximately 5,400 direct and indirect jobs in Los Angeles County. Furthermore, through establishing a Community Benefits Agreement, the Authority would require each prime contractor of an awarded construction package to commit 30 percent of all construction dollars to hiring small businesses, including separate goals for the hiring of disadvantaged and disabled veterans' businesses. Many construction workers residing in Los Angeles County may already have obtained HSR construction experience by working on one of the first several construction packages awarded by the Authority beginning in 2013, and it is anticipated that many local workers will receive these employment benefits.

As explained in greater detail in Final EIR/EIS Section 3.18.6.3, the project-induced population increase of approximately 11,700 people would require approximately 4,030 housing units. Accordingly, the six Build Alternatives would generate an additional 0.8 percent housing need beyond the No Project Alternative projections. While there are housing units needed beyond current projections, CEQA generally does not require a detailed discussion of indirect housing needs. In this instance, given the regional nature of the project and the long-term nature of the projections, it is not possible to indicate precisely where these additional housing units may be constructed. Additionally, as shown by the long-term housing projections, the project would not be the sole cause of growth in any area. While additional housing would need to be constructed elsewhere, sufficient detail cannot be known at this time to forecast the physical effects on the environment accurately or meaningfully. Relatedly, the question of who will build the additional housing and when cannot currently be known.

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4494-9738

The commenter asks about the effects of COVID-related population changes as it relates to baselines used in Section 3.12, Socioeconomics and Communities, and Section 3.13, Station Planning, Land Use, and Development of the EIR/EIS analysis. The baseline year for the analysis of project impacts was established after the Notice of Preparation was filed on July 24, 2014, just after the public scoping period for the project was completed and at the onset of environmental analysis (see Draft EIR/EIS, pp. S-7, 3.3-23 to 3.3-24). CEQA Guidelines section 15125(a)(1) explicitly supports establishing baseline physical conditions in this manner, therefore, the use of a 2015 baseline is appropriate.

According to the U.S. Census Bureau, the population of the City of Los Angeles was 3.983 million in 2019, before the pandemic while the population of the City was 3.898 million in 2020, which is a decrease of 1 percent after the pandemic. The analysis in Sections 3.12 and 3.13 evaluates the impacts of the project alternatives based on projected 2040 future conditions, which is the horizon year for analysis of California HSR System operations. Accordingly, the impact discussions in these sections are based on a projected population of 4.6 million in 2040. Population projections are always snapshots, reflecting the historical data available, and the analysis of trends, growth capacities, and growth constraints apparent at the times the projections are prepared. More important than the specific population projection is the recognition and examination of how the HSR system and its project sections would operate in the context of anticipated growth. Updating the document with 2020 data or with more recent population projections for 2040 would not change the impact determinations presented in Section 3.12 and Section 3.13 as the Palmdale to Burbank Project Section is not anticipated to induce substantial unplanned population growth beyond what is planned for the RSA.

4494-9739

The commenter expressed a preference for the No Build Alternative as it would eliminate impacts such as those associated with regional growth and GHG emissions. The commenter also questioned whether the future baseline for cumulative impacts is accounting for projects too early in development to make accurate predictions. As discussed in Section 3.18.5.2 of the Draft EIR/EIS, Employment and Unemployment, unemployment in Los Angeles County is at 7 percent (EDD 2016), or approximately 332,400 unemployed people (BLS 2016) as of 2016, which is higher than the state unemployment rate of 6 percent. While the exact timing and labor needs of other projects under the No Project Alternative are not known at this time, individual projects would require fewer workers than the Build Alternatives, and the timing of these projects would be spread out over many years. As such, the regional construction labor force is anticipated to be large enough that workers from outside Los Angeles County would not move to the area to meet the demand for construction-related jobs. Table 3.18 2 shows the total civilian labor force for Los Angeles County was 5,011,700 in 2015. As displayed in Table 3.18 4, approximately 126,000 jobs were in the construction sector for Los Angeles County in 2015 (EDD 2016), representing approximately just 2.5 percent of the total labor force in the county.

Table 3.3-44 in Section 3.3, Air Quality and Greenhouse Gas Emissions show that the total increase in construction GHG emissions listed for each Build Alternative would be offset in less than a year by the net GHG emissions reductions from Palmdale to Burbank Project Section operations. Emission reductions during operations from reduced auto and aircraft trips would offset the short-term construction-related contribution to increased GHG emissions. The Build Alternatives construction would generate GHG emissions during the 7 to 8-year construction period. However, these emissions would be almost fully offset after 4 to 6 months of operations (depending on the ridership scenario and Build Alternative). After a maximum of 6 months, the Build Alternatives would result in net annual emissions reductions and a GHG benefit (Draft EIR/EIS, p. 3.3-126), meaning that it would take between 4 to 6 months of operation of the Palmdale to Burbank Project Section to offset construction-related GHG emissions and begin contributing to an overall reduction in regional and statewide GHG emissions. As described in Section 3.19.3.5, Cumulative Projects and Growth Forecasts, for the purpose of this analysis, reasonably foreseeable future projects are defined as those likely to occur in the 2040 planning horizon for the Build Alternatives, and that would

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contribute to the cumulative impact on a particular resource. This analysis assumes these proposed projects would be constructed during the same time frame as the Build Alternatives, to provide a worst-case analysis of cumulative impacts. Appendix 3.19-A provides detailed information about cumulative projects and plans, including transportation projects, in the RSA. The methodology used for this analysis follows the guidelines of the Guidance for Preparers of Cumulative Impact Analysis, the CEQA Handbook, and the CEQA Guidelines. Refer to Section 3.19.3 for a more detailed discussion of the methodology used to evaluate cumulative impacts.

4494-9740

The commenter requests further detail regarding project-induced employment. The 500 direct, indirect, and induced employment figure for project operations derives from the RIMS II Modeling analysis conducted for the project section (please refer to Appendix 3.18-A).

The 0.1% growth figure comes from dividing the Total 2040 HSR Build Alternative Employment Projection (5,231,400) by the 2040 No Project Alternative Projection (5,226,000) (please refer to Table 3.18-14).

4494-9741

The commenter states that there will be no reduction in station-to-station travel time until the project is completed to Union Station. The commenter also indicates that the population growth and employment growth anticipated with the Build Alternatives would be consistent with regional planning and local demand.

As stated in the 2022 Business Plan, the Palmdale to Burbank Project Section will reduce travel time to 13 minutes. The Draft EIR/EIS reaches the same conclusions as the commenter. For more detail refer to Section 3.18, Socioeconomics and Communities, of the Draft EIR/EIS.

4494-9742

The commenter asks about housing needs associated with employment growth. The total number of jobs that would be induced by the California HSR System is estimated to be approximately 5,380 jobs, based on the RIMS II Model used to assess project employment effects (please refer to Appendix 3.18-A). As shown in Table 3.18-15, the six Build Alternatives would contribute a relatively small (0.1 percent) increase in the projected 2040 population for Los Angeles County relative to No Project Alternative projections.

The average number of people per housing unit in Los Angeles County is approximately 2.9 (California Department of Finance 2016). Using this ratio, it follows that the total project-induced population increase of approximately 11,700 people (Table 3.18-15) would require approximately 4,030 housing units. Accordingly, the six Build Alternatives would generate an additional 0.9 percent housing need beyond the No Project Alternative projections, the No Project Alternative anticipates approximately 463,500 new housing units by 2040 in the County. Therefore, while new housing units may be needed to accommodate project-induced population growth, this development would not substantially exceed the housing development and associated land use consumption already projected for the County.

4494-9743

The commenter requests the dates during which construction is anticipated to occur. At this time there is no specified date for the start of construction of this project section as additional funding is needed.

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4494-9744

The commenter requests additional information regarding the methodology for analyzing impacts associated with regional growth. To capture employment and population growth induced by the Palmdale to Burbank Project Section on both a regional and localized level, the RSA for regional growth is the entirety of Los Angeles County. Within the RSA, consideration is given to those cities and unincorporated areas that intersect with the Palmdale to Burbank Project Section corridor.

As discussed in Section 3.18.6.3, no adverse effect is anticipated to occur from employment growth during construction. Because construction jobs are anticipated to be filled by regional workers, the population within the RSA would not be expected to increase during construction beyond the forecasted regional growth. Therefore, effects on public services and utilities beyond those caused by forecasted growth in the region are not anticipated to occur.

4494-9745

The commenter requests further information regarding the advantages of the Build Alternatives as compared to the No Build Alternative. The Palmdale to Burbank Project Section is being proposed, despite significant impacts during construction, based on the benefits identified in Chapter 1, Project Purpose, Need, and Objectives and in Chapter 3, Affected Environment, Environmental Consequences, and Mitigation Measures, and listed in Section 1.2.5. The project would result in transportation and economic/employment benefits for the County and State, as well as the following environmental benefits:

•Supporting the State's transportation goals reflected in Senate Bill 743 by reducing vehicle miles traveled (VMT) and VMT per capita, promoting transit-oriented development, and promoting the reduction of GHG emissions. Projected population growth within Los Angeles County would otherwise cause regional VMT to increase.

• Supporting the State's GHG reduction goals as described in Assembly Bill 32, Senate Bill 32, and the CARB's Scoping Plan (CARB 2017). The HSR has become a key component of the State's strategy for reducing GHG emissions.

•Providing long-term improvements in regional air quality by reducing criteria pollutants and GHGs generated by automobiles, conventional rail, and aircraft. As of 2010, California's transportation sector has been responsible for 40 percent of its GHG emissions and 60 to 80 percent of its particulate emissions from mobile sources (CARB 2010).

•Providing long-term reduction in transportation-related energy requirements. The California HSR System would provide a more energy-efficient mode of travel, using one-third the energy of the equivalent trip by air, and one-fifth the energy of a trip by automobile (California Office of the Governor 2007).

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4494-9746

The commenter requests additional information regarding the affordability of HSR for commuters. Based on the information provided, it isn't possible to determine how the commenter derived their estimate of $15,800 a year for most workers using the train between Palmdale and Burbank.

The Metrolink Antelope Valley Line provides service from Los Angeles Union Station to Palmdale and Lancaster via Burbank and the Santa Clarita Valley. This service will continue once high-speed service is implemented, with Metrolink serving shorter, intra-regional commute trips and high-speed rail serving longer, interregional travel primarily between Southern, Central and Northern California. As described in Section 3.2, Transportation, and under Impact TRA#17: Project Operation Effects on Transit Services, implementation of the Palmdale to Burbank Project Section would add 64 peak hour transit riders to bus and rail services at the Palmdale Station by 2040 for the Refined SR14 and SR14A Build Alternatives. In contrast, the project section would add approximately 430 peak hour transit riders at the Burbank Airport Station. In total, these additional peak hour transit riders are relatively small compared with overall transit ridership in the area.

The pricing structure for HSR fares would be expected to be similar to typical airline fares, but fares would fluctuate based on a variable pricing strategy. As is the case with high-speed rail service around the world today, and is the case with airfares as well, California high-speed rail fares will vary by the following:

- Time of day: Peak vs. off-peak
- Class of service: First class vs. coach
- Travel time: Express/limited-stop vs. ""making all stops"" service
- Timing: How far in advance tickets are purchased Just as with flying today, high-speed rail travelers with more flexible schedules or limited budgets could save money by booking well in advance or traveling in the middle of the day when trains are less crowded. Travelers who have to make last- minute bookings and need to take express trains or travel during peak periods will typically pay a higher fare.

At this time, the Authority has not determined the method nor begun the procurement/acquisition of the reservation system for HSR. This will occur in adequate advance of the system beginning revenue service.

4494-9747

The commenter suggests further detail be supplied regarding effects from project-induced housing needs.

The total number of jobs that would be induced by the California HSR System is estimated to be approximately 5,380, based on the RIMS II Model used to assess project employment effects (please refer to Appendix 3.18-A). As shown in Table 3.18-15, the six Build Alternatives would contribute a relatively small (0.1 percent) increase in the projected 2040 population for Los Angeles County relative to No Project Alternative projections. The average number of people per housing unit in Los Angeles County is approximately 2.9 (California Department of Finance 2016). Using this ratio, it follows that the total project-induced population increase of approximately 11,700 people would require approximately 4,030 housing units (as shown in Table 3.18-15, the project would result in direct and indirect induced growth in Los Angeles County by approximately 1,100 people, and would result in increased accessibility growth by approximately 10,600 people). Accordingly, the six Build Alternatives would generate an additional 0.8 percent housing need beyond the No Project Alternative projections. The No Project Alternative anticipates approximately 495,900 new housing units by 2040 in the County (the discussion under Table 3.18-9, in Section 3.18, Regional Growth, of this Final EIR/EIS, has been revised to reflect the correct housing need projections presented in Table 3.18-9). Therefore, new housing units may be needed to accommodate project-induced population growth.

While the commenter suggests that effects of new housing needs have been ignored, the ability to analyze such impacts for the Palmdale to Burbank Project Section is limited. For example, as described in the Exurban Population Growth subsection under Section 3.18.6.3 of the Draft EIR/EIS, some individuals and their households may choose to relocate to exurban communities such as Palmdale to purchase more affordable housing, especially if the individuals can access convenient affordable HSR train commute services. However, the number, magnitude, and distribution of households that may make this decision are difficult to estimate and involve many economic factors and individual preferences. Such households would likely relocate to these exurban communities over time, starting during construction, just prior to operations, or after HSR operations have been proven to be fast, reliable, and affordable. Therefore, it is not possible to estimate the number of houses needed in

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each area with meaningful accuracy. The Impacts of Long-Term Land Use Consumption subsection under Section 3.18.6.3 of the Draft EIR/EIS also sates that "Operation of the Palmdale to Burbank Project Section would induce some population growth, which would increase the demand for housing, although it would be speculative to predict where such growth would occur." Local governments may take steps to accommodate population growth and the increased demand for housing by updating their general plan policies, transit plans, zoning, and building codes. No additional analysis can be conducted with the level of detail that can currently be known related to increases in housing demand and the need for new housing units emanating from the proposed project.

4494-9748

The commenter asks why the U.S. Department of Transportation should approve the HSR Palmdale to Burbank Project Section, given that there exist other alternatives that were eliminated from consideration. The U.S. Department of Transportation assigned its NEPA obligations to the Authority under 23 U.S.C. 327. Therefore, the Authority will decide among the alternatives.
For additional information about the Authority's process in selecting alternatives to evaluate in the Draft EIR/EIS, please refer to PB-Response-ALT-1: Alternatives Selection and Evaluation Process. As documented in the preliminary Section 4(f) evaluation, the project would not result in a use of any protected Section 4(f) property.

Therefore, an avoidance alternative and least harm analysis is not required under Section 4(f). If the Authority had chosen an alternative that would have resulted in a constructive use, it may have consulted with the Federal Railroad Administration in the U.S. Department of Transportation. Here, however, no alternatives will require any U.S. Department of Transportation consultation.

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4494-9749

The commenter asks what is considered a de minimis finding and questions the de minimis findings of 4(f) resources. Of course, the Authority uses federal guidelines in 23 C.F.R. §774.17 and not the Illinois Department of Transportation definitions.

As documented in the Section 4(f) evaluation in Chapter 4 of the Draft EIR/EIS, the project would not result in a use of any protected Section 4(f) properties. Therefore, an avoidance alternative and least harm analysis is not required under Section 4(f). Section 4(f) analysis examines the net change to a resource after avoidance, minimization, and mitigation measures are considered. As discussed in the preliminary Section 4(f) analysis, the changes to protected resources that would occur as a result of the project would not adversely affect the protected activities, features, or attributes of any 4(f) property. In many situations, the effect on the resource is very minor both in scale and in net change to the setting and purpose of the resource. Please refer to detailed discussions in Chapter 4 for a close examination of how the project would affect each resource and supporting information for de minimis conclusions.

4494-9750

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events.

The commenter asks how the Authority can conclude that there are no feasible or prudent alternatives to avoid the use of Section 4(f) properties when the Authority has considered and rejected numerous alternatives. The commenter also expressed concerns related to seismicity, costs of the project, and cumulative impacts. The commenter also questions why the EIR/EIS did not consider alternatives that would follow existing freeways.

As documented in Chapter 4 of the Final EIR/EIS, most uses of Section 4(f) parks, recreation facilities, and/or wildlife and waterfowl refuges would result in a de minimis impact, with two exceptions: Lang Station Open Space and Rim of the Valley Trail (Proposed Extension). As discussed in Section 4.6.1.1 of the Final EIR/EIS, if the Rim of the Valley Trail extension has not been constructed prior to implementation of the Refined SR14, SR14A, E2, and E2A Build Alternatives, no potential use would occur because the Build Alternatives would not preclude future extension of the trail.

The Refined SR14, SR14A, E2, and E2A Build Alternatives would result in temporary occupancy of land along the proposed Rim of the Valley Trail during construction. This determination is based on written concurrence from the official with jurisdiction (OWJ) (the NPS [U.S. Department of the Interior]) dated January 22, 2024.

The Authority has concluded that the Refined SR14 and SR14A Build Alternatives would result in a permanent use at the Lang Station Open Space. The Refined SR14 and SR14A Build Alternatives would require the permanent acquisition of 85.3 acres, including 56.0 acres of permanent footprint that would be fenced off from the public, as well as 29.3 acres that would be permanently inaccessible from the remainder of the property due to the permanent footprint dividing the property.

Regardless, the Authority has determined there is not enough evidence to support a determination that Lang Station Open Space is a Section 4(f) property, because there is not sufficient documentation to support a 4(f) multiple-use of the trails within Lang

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Station Open Space as they remain undocumented and unplanned by the City. Moreover, there is not enough evidence to establish Lang Station Open Space as a wildlife or waterfowl refuge because it is not officially designated as a wildlife or waterfowl refuge by the City nor has the City prepared planning documents declaring the site's purpose as a wildlife or waterfowl refuge. Nevertheless, Lang Station Open Space, inclusive of the trails and trailhead, has been evaluated as a Section 4(f) resource in Chapter 4 of the Final EIR/EIS.

In response to comments received on the Draft EIR/EIS, the Authority conducted an assessment of the feasibility of tunneling under Bee Canyon (including the Lang Station Open Space) to potentially reduce impacts to suitable habitat for special-status species and minimize the project footprint. The Authority examined a total of five options to underground the alignment or minimize the impact of the at-grade section in Bee Canyon. The five options are discussed in more detail in Appendix 4-B of this Final EIR/EIS.

As part of the feasibility analysis, the Authority considered two tunneling options, the first of which would be entirely within a tunnel under the Lang Station Open Space and the Santa Clara River (Option 1). The second option would tunnel under the northern portion of the Lang Station Open Space and emerge from the tunnel to cross over the Santa Clara River on viaduct (Option 3). The Authority concluded that both tunneling options conflict with engineering design requirements such that they are not feasible. Construction of Option 1 (a tunnel in the Bee Canyon area and under the Santa Clara River) is not feasible because it would require a vertical profile for the HSR alignment that exceeds the maximum allowable grade of 2.5 percent as defined in the Authority's Technical Memorandum (TM) 2.1.2, Section 3.3.1. Constructing Option 3 (the HSR alignment in a tunnel in the northern portion of the Lang Station Open Space and then emerging from the tunnel to cross over the Santa Clara River on viaduct) would also not be feasible because HSR alignment requirements and the topography of the area would not allow for maintaining the minimum vertical clearance of the HSR viaduct over Soledad Canyon Road. Additionally, Option 1 would increase project costs by $230 million while Option 3 would increase project costs by $165 million.

Given the physical constraints of the area, the conflict with engineering design

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requirements (i.e., a grade greater than 2.5 percent), the clearance requirements at Soledad Canyon Road, and the extraordinary magnitude of the costs of an underground alternative, it would not be prudent to avoid Lang Station Open Space under the Refined SR14 and SR14A Build Alternatives. Therefore, there are no reasonable and prudent alternatives to the Section 4(f) permanent use under the Refined SR14 and SR14A Build Alternatives. Consistent with 23 C.F.R. 774.17, the Authority has considered all reasonable design modifications to minimize harm in the Lang Station Open Space from the Refined SR14 and SR14A Build Alternatives.

Regarding the comment about the safety and engineering challenges to tunneling, in the Draft EIR/EIS the Authority includes the analyses and evaluation of the area's geology and geologic hazards (i.e., slope stability, volcanic, karst, expansive soil, subsidence, soil conditions, and paleontology), seismic hazards (i.e., fault rupture, ground motion, liquefaction, lateral spreading, ground lurching, tsunamis, seiches, and seismically induced landslides and dam failures) and effects on, or caused by, geologic resources (i.e., mineral resources, mines, oil and gas, and geothermal resources). The evaluations demonstrate that the project Build Alternatives described in the Draft EIR/EIS are feasible. However, additional investigations will be conducted during the project's design phase to further address recognized impacts and any required mitigation. The Authority has sufficiently studied the issues of crossing multiple faults and the risks of doing so and concludes the project to be feasible. Refer also to Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events. Please also refer to Responses to Comments #10528 and #10532, which address train derailment as well as the function of the EEDS to prevent derailment. Refer also to Response to Comment #10529, which addresses the EEDS function when trains are in a tunnel. Responses to Comments #10528 and #10532 address comparisons to seismicity and HSR operation in Japan. Response to Comment #10536 addresses tunneling feasibility.

For additional information about the Authority's process in selecting alternatives to evaluate in the Draft EIR/EIS, please refer to PB-Response-ALT-1: Alternatives Selection and Evaluation Process. Early alternatives developed focused on routes following the SR 14 freeway corridor from the Antelope Valley to Santa Clarita, and then the Metrolink and the Union Pacific railroad corridor through the San Fernando Valley to Burbank. During scoping in 2014, the Authority received comments regarding impacts

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on communities along the Metrolink corridor in the San Fernando Valley, along with requests for the Authority to consider alternatives to avoid or reduce these effects. The Authority also received requests to evaluate alignments that included tunnels through/near Acton and Santa Clarita. The use of tunnels in this area would avoid a recently approved job creation center, existing neighborhoods, and two elementary schools located close to the SR 14 alignment at that time. In order to avoid these community facilities, the Authority evaluated alternatives that would cross the San Gabriel Mountains. Given the topography of the area, the only feasible option would be the use of tunnels. Based on this analysis and input from associated communities through community meetings, briefings, and presentations for the Palmdale to Burbank Project Section, the Authority decided to proceed with alternatives that deviated from the SR 14 corridor to varying degrees. These alternatives involved the use of tunnels under the San Gabriel Mountains to reduce impacts on communities along the SR 14 freeway and in the northern portion of the San Fernando Valley, while still reaching the Burbank Airport Station.

4494-9751

The commenter asks what is a constructive use and then cites the regulation. It asks why certain 4(f) resources do not have constructive use determinations. As described in Chapter 4 of the Draft EIR/EIS, the Authority has not identified any potential constructive use of a 4(f) resource. It has identified several de minimis uses and it is seeking concurrence from local jurisdictions. Please refer to Table 4-1 and Section 4.6 (beginning on page 4-70) of the Draft EIR/EIS for detailed discussions of potential proximity impacts, where applicable, and evaluation of how these impacts would or would not affect the protected activities, features, or attributes of the resource.

4494-9752

The commenter asks which 4(f) resources would have constructive uses. As described in Chapter 4 of the Draft EIR/EIS, the Authority has not identified any potential constructive use of a 4(f) resource. Therefore, consultation with FRA to confirm a constructive use is not necessary or appropriate.

4494-9753

The commenter asks how the FRA could select any of the six Build Alternatives instead of the No Project Alternative, given that the No Project Alternative is the only alternative that will not harm Section 4(f) resources. A least harm analysis is required only when a use of a 4(f) resource has been identified. As discussed in Chapter 4, no use of a 4(f) property has been identified other than a de minimis use, which does not require a least harm analysis. The text on page 4-4 of the Draft EIR/EIS includes the following, which clarifies when a least harm analysis is required: "After making a Section 4(f) determination and identifying the reasonable measures to minimize harm, if there is more than one alternative that results in the use of a Section 4(f) resource, the FRA must also compare the alternatives to determine which alternative has the potential to cause the least overall harm in light of the preservationist purpose of the statute."

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4494-9754

The commenter inquires as to the Build Alternatives' effects on the portions of the ANF that are protected by Section 4(f). The Section 4(f) analysis in Chapter 4 of the Final EIR/EIS considers project elements that would have potential to adversely affect the protected activities, features, and attributes of Section 4(f) resources. The requirements of 23 CFR 774.11(d) for determining Section 4(f) applicability for the ANF and SGMNM states that Section 4(f) applies only to those portions of such lands which function for, or are designated in the plans of the administering agency as being for, significant park, recreation, or wildlife and waterfowl refuge purposes. As shown in Figure 4-7 in Chapter 4 of the Final EIR/EIS, the Build Alternatives would be entirely underground through the ANF in the areas noted by the commenter. Users of the ANF/SGMNM would not perceive the underground transportation corridor (rail alignment), which would be between 120 and 2,670 feet below the surface in a bored tunnel. Nor would these tunnels affect wildlife at the surface within the ANF. Project improvements at the surface within the ANF would be limited to ancillary and infrastructure facilities, such as power lines, and would not be located in areas of the ANF that are protected by Section 4(f). Through field surveys and coordination with the consulting parties, the Authority determined many of the land uses within the ANF permit a wide range of nonrecreational activities, including communication sites, major transportation corridors, major utility corridors, oil and gas exploration, and forestry. Where these types of uses are permitted, the Authority has determined the land use is not primarily for recreational purposes, and therefore areas within the ANF with this land use designation are not protected under Section 4(f).

The commenter also inquires whether the Build Alternatives could be permitted in the Back Country Non-Motorized and Back Country Motorized Use Restricted zones in the ANF. Section 3.13.10.2 United States Forest Service Resource Analysis, in the Draft EIR/EIS discusses the project's consistency with land use designations in the ANF and SGMNM. If the Authority approves the project and selects a build alternative, the Authority would apply to USFS for a special use authorization for project features in the ANF and the SGMNM. As part of the evaluation of the Authority's application for a Special Use Authorization, USFS would evaluate and determine the Palmdale to Burbank Project Section's consistency with ANF and the SGMNM Land Management Plans.

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The commenter asks about the validity of the temporary occupancy determination of Section 4(f) resources. The project was evaluated for potential to result in use from temporary occupancy at three resources, one of which is a planned resource that does not yet exist today. The three resources include the following: Rim of the Valley Trail (Proposed Extension), Blum Ranch, and Blum Ranch Farmhouse. A detailed evaluation of temporary occupancy for the Rim of the Valley Trail (Proposed Extension) is provided on pages 4-92 through 4-93 of the Draft EIR/EIS and addresses each of the criteria necessary for determining when a temporary occupancy does not rise to the level of a use under Section 4(f). All six Build Alternatives would require construction activities adjacent to and within small segments of the Rim of the Valley proposed trail extension. However, if the proposed trail extension is not constructed at the start of construction of the refined SR14, SR14A, E2, and E2A Build Alternative, the trail would not be physically affected (no use). Construction of the Build Alternatives would not prevent construction of the proposed Rim of the Valley Trail extension. However, if the Rim of the Valley (Proposed Extension) is constructed prior to the start of construction of the Refined SR14, SR14A, E2, and E2A Build Alternatives, a temporary use would result. A detailed evaluation of Blum Ranch is provided on pages 4-96 through 4-98 of the Draft EIR/EIS. Implementation of the E1, E1A, E2, and E2A Build Alternatives may require permanent acquisition of land from the Blum Ranch property boundary. In the event that temporary or permanent acquisitions are required, the Authority would ensure that acquisitions would not affect contributing features within the historic boundary which qualify the resources for protection under Section 4(f). None of the Build Alternatives would require temporary physical occupation of the Blum Ranch, so there would be no temporary occupancy. A detailed evaluation of Blum Ranch Farmhouse is provided on pages 4-101 through 4-102 of the Draft EIR/EIS. The E1, E1A, E2, and E2A Build Alternatives would not permanently acquire land from the Blum Ranch Farmhouse; therefore, none of the Build Alternatives would result in a permanent use of this historical property. Similarly, none of the Build Alternatives would require temporary physical occupation of the Blum Ranch Farmhouse, so there would be no temporary occupancy. The Authority has determined that the criteria found at 23 CFR 774.13(d) have been met for these three resources and, given the analyses discussed for Blum Ranch and Blum Ranch Farmhouse, and if the Rim of the Valley (Proposed Extension) is not constructed prior to Build Alternative construction initiation, no Section 4(f) use will occur because of the HSR Palmdale to Burbank Project Section.

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Refer to Standard Response PB-Response-PR-1: Impacts on the Pacific Crest Trail (Refined SR14 Build Alternative Only).

The commenter expresses concern about the Section 4(f) determination of the Pacific Crest Trail and asks how the introduction of major infrastructure crossing the Pacific Crest Trail is not considered an adverse effect. Section 4(f) requires evaluation of whether a project would use a protected resource. As explained in Section 4.6.1.1 of the Final EIR/EIS, the SR14A, E1, E1A, E2, and E2A Build Alternatives would cross the PCT in a bored tunnel several hundred feet below ground, with no surface impacts on the trail and no discernible effects to recreational users of the PCT, and realignment of the PCT would not be necessary. Construction and operation of these alternatives in a bored tunnel thus would not adversely affect the activities, features, or attributes qualifying the PCT for protection under Section 4(f). Consistent with the Federal Railroad Administration's Section 4(f) regulations (23 CFR Part 774) and guidance in the Federal Highway Administration's Section 4(f) Policy Paper, the Authority has determined that the SR14A, E1, E1A, E2, and E2A Build Alternatives would not result in a use of the PCT because these alternatives would cross in the PCT in a bored tunnel several hundred feet below ground. If, however, these alternatives were found to use land from the PCT, they would result in a de minimis impact on the PCT. Regarding the potential impacts from the Refined SR14 Build Alternative, approximately 3 miles of the trail are within the Refined SR14 Build Alternative RSA. The Refined SR14 Build Alternative alignment would pass over the PCT in two locations on a viaduct, potentially affecting about 0.7 mile of trail. This would require the realignment of the PCT prior to construction. This realignment would represent a permanent change to the trail and would constitute a permanent use of the PCT, through acquisition of right-of-way or a permanent utility easement where the Refined SR14 Build Alternative alignment would intersect the PCT. The Authority has consulted with the USFS regarding trail realignment options and has developed a preliminary realignment for the PCT that would be implemented if Refined SR14 Build Alternative were selected. The PCT would be realigned and cross under the HSR alignment in a perpendicular fashion to move trail users through this area as expeditiously as possible. This realignment has been designed to minimize air quality, visual, and noise impacts on PCT users, including such effects that currently exist associated with the PCT's present alignment in proximity to the SR 14 Freeway, by routing the trail farther away from both the SR 14 freewayand

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the Refined SR14 Build Alternative. The trail would be shifted as little as possible to achieve the required impact reduction. Realigning the trail away from the SR 14 freeway may result in an overall benefit to trail users because the existing trail runs parallel to the east side of the SR 14 freeway for roughly 0.75 mile before heading further east, which causes potential visual and noise effects from vehicles using this portion of the freeway. Additionally, the viaduct for the Refined SR14 Build Alternative that would pass over the PCT in two locations would be 50-60 feet above users of the trail and therefore would not severely restrict vertical clearance. Please refer to Section 4.6.1.1 of the Final EIR/EIS and Standard Response PB-Response-PR-1: Impacts on the Pacific Crest Trail (Refined SR14 Build Alternative Only) for additional discussion about the effects of the Refined SR14 Build Alternative on the PCT. As explained therein, the Refined SR14 Build Alternative would not adversely affect the protected activities, features, or attributes of the PCT. Therefore, the Refined SR14 Build Alternative would result in a de minimis impact on the PCT.

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The commenter inquires as to how the Authority could determine that the effects on the San Gabriel Mountains National Monument could qualify as *de minimis* under Section 4(f), and it speculates that the Authority could reach that conclusion only by comparing the acreage used for the project to the entire SGMNM or entire ANF instead of only the affected parts. The Section 4(f) determinations in the Final EIR/EIS are not solely based on the amount of acreage impacted by the project. The Section 4(f) analysis takes into careful consideration the impacts of the project on the portion of resources that may be immediately affected, including the small areas of larger resources where there would be surface improvements. The analysis then considers how those localized changes would or would not affect the larger resource, evaluating whether the project would adversely affect the protected activities, features, or attributes of the resource. As explained in Section 4.1.3, Section 4(f) Applicability, of the Final EIR/EIS, Section 4(f) applies only to those portions of multiple-use lands (including the Angeles National Forest and the San Gabriel Mountains National Monument) that function for, or are designated in the plans of the administering agency (in this case, the U.S. Forest Service) as being for, significant park, recreation, or wildlife and waterfowl refuge purposes. The Vulcan Mine site within the ANF and the SGMNM does not function for, and is not designated for, park, recreation, or wildlife and waterfowl purposes. Therefore, Section 4(f) does not apply to the Vulcan Mine site. Section 4(f) does apply to other areas of the ANF and the SGMNM, as detailed in Table 4-2 Parks and Recreation Resources Evaluated for Section 4(f) Use, in Section 4.5.1, Parks, Recreation Areas, and Wildlife and Waterfowl Refuges in Chapter 4 of the Final EIR/EIS. The Refined SR14 and SR14A Build Alternatives would be entirely in an underground bored tunnel where they pass through areas of the ANF and the SGMNM that are protected by Section 4(f). To evaluate whether the project's tunnels would be a use under Section 4(f), the Authority considered guidance in the 2012 Federal Highway Administration Section 4(f) Policy Paper, which is also used by the Federal Railroad Administration for projects under its jurisdiction (see 83 Fed. Reg. 54484 (Oct. 29, 2018)). The Policy Paper suggests that "Section 4(f) applies to tunneling only if the tunneling: (1) Disturbs archaeological sites that are on or eligible for the [National Register of Historic Places] which warrant preservation in place; (2) Causes disruption which would permanently harm the purposes for which the park, recreation, wildlife or waterfowl refuge was established; (3) Substantially impairs the historic values of a historic site; or (4) Otherwise does not meet the exception for temporary occupancy." As discussed further

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in Section 4.1.2.1, Public Park and Recreation Lands, and Wildlife and Waterfowl Refuges, of the Final EIR/EIS, the Authority has determined that these criteria are satisfied for the Refined SR14 and SR14A Build Alternatives with respect to the portions of the ANF and the SGMNM that are protected by Section 4(f).

As explained in Section 4.5.1.1, Central Subsection under the Angeles National Forest/including San Gabriel Mountains National Monument (Map ID 7) heading of the Final EIR/EIS, these Build Alternatives would require construction activities, grading, utility installation and roadway work within the ANF and the SGMNM in the Aliso Canyon area. Construction work would be mainly along existing road and utility corridors, meaning most existing physical features within the resource would remain unchanged, and most views from the resource into the surrounding area would remain unchanged. As shown in Table 4-6, Parks and Recreation: Summary of Preliminary Section 4(f) Use Determinations of the Final EIR/EIS, the Authority has concluded that the use would result in a *de minimis* impact because it would not adversely affect the recreational activities, features, and attributes of those areas of the ANF and the SGMNM that are protected by Section 4(f).

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The commenter asks if surface infrastructure related to tunneling proposed outside of 4(f)-protected areas is considered by Officials with Jurisdiction in making Section 4(f) use determinations.

As the commenter notes, the surface infrastructure proposed in the ANF has been located to avoid impacts to recreation resources. Project improvements would include tunneling under portions of the ANF that are protected under Section 4(f), but no surface changes would occur and the bored tunnels would not be perceptible to users of this recreation resource. Utility infrastructure and other surface improvements are largely proposed on in-holdings, which are privately owned parcels within a larger public recreation area. These parcels do not qualify for protection under 4(f), are not used for recreation, and the Officials with Jurisdiction over the ANF would not consider project improvements on private land as a potential 4(f) Use. The Authority has considered all related infrastructure when determining whether the Project's impacts qualify as de minimis.

4494-9759

The commenter asks about the validity of the Rim of the Valley Trail Extension Section 4(f) determination in relation to temporary occupancy.

The potential encroachments onto this proposed resource would include 1) two temporary construction impact areas of approximately 500 and 250 feet at adit options SR14-A1 and SR14-A2 under the Refined SR14 and SR14A Build Alternatives or 2) a temporary construction impact area of approximately 23 acres at adit option E2-A1 under the E2 and E2A Build Alternatives. There is no scenario in which both would occur. The existing topography, proposed layout of the trail, and vegetation would shield trail users from visual impacts during construction under all six Build Alternatives from most vantage points; trail users would generally only see and hear construction when immediately adjacent to construction areas. Unconstrained use of the trail would be maintained during construction by rerouting the trail around construction areas. In addition, AQ-IAMF#1 would be applied to reduce fugitive dust during project construction. This IAMF would require the contractor to prepare a fugitive dust control plan for each distinct construction segment during construction.

The FHWA 2012 Section 4(f) policy paper provides examples of temporary occupancy such as "right-of-entry, project construction, a temporary easement, or other short-term arrangement involving a Section 4(f) property". Project construction would occur adjacent to and overlapping a portion of the proposed Rim of the Valley Trail Extension. The second criteria for determining that temporary occupancy does not constitute a Section 4(f) use includes "[the] scope of the work must be minor, i.e., both the nature and the magnitude of the changes to the Section 4(f) property are minimal". The trail, if extant when project construction begins, would continue to operate during construction and after construction would be restored to its former condition. Therefore, the magnitude and change to this resource is minimal both during the temporary occupancy and after construction is complete.

Project construction also does not qualify as a constructive use causing noise on the trail because the construction-activity impacts are not permanent. Section 4(f) does not recognize a temporary, constructive use. As discussed in the Draft EIR/EIS on page 4-92, temporary impact areas for construction activities along the proposed Rim of the Valley Trail extension would meet the following five conditions. The duration of

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construction activities in the vicinity of the trail would not exceed the overall construction period for the Build Alternatives. The duration of construction of the adit and use of haul routes would be substantially less than the time needed to construct the entire project. For the Refined SR14 and SR14A the expected duration of the works in the vicinity of the Rim of the Valley Trail is 4 years and 4 months due to the construction of adit SR14-A2 and the associated staging area, and for the E2 and E2A 5 years and three months due to the construction of adit E2-A2 and the associated staging area. The alignment of the Build Alternatives E1 and E1A when crossing the Rim of the Valley Trail is underground and will not affect the trail.

Regarding the use of Rim of the Valley Trail (proposed extension), construction and operation of the project will not interfere with the qualities, activities or purposes of the resource, on either a temporary or permanent basis (see Section 4.6.1.1, Central Subsection of the Final EIR/EIS). The scope of work is minor and would be limited to temporary impact areas adjacent to permanent improvements.

4494-9760

Refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter asks about the validity of the Hansen Dam Open Space Section 4(f) use determination, considering the taking of 13 acres and impacts on equestrian use. I-210 runs along the northern border of the recreation area, resulting in the intrusion of traffic noise in some areas of the resource. This traffic noise is particularly intrusive to equestrian activities, which are noise sensitive. Therefore, this Hansen Dam Open Space Area provides a variety of recreational opportunities, some of which rely on quiet or natural visual setting and some that do not. The addition of noise from the HSR train would be in the context of the existing noise environment, which includes noise from I-210. Under existing conditions, equestrian activities take place within this resource and would continue to do so with implementation of the project. For additional information related to equestrian uses, please refer to Standard Response PB-N&V-3: Noise Impacts on Domestic Animals/Wildlife. As a matter of clarification, the Refined SR14, SR14A, E1, and E1A Build Alternatives would not result in a Section 4(f) use of the Hansen Dam Open Space Area due to their distance from the resource and that the alignments would be underground. The potential impacts on Hansen Dam Open Space Area raised by the commenter would be limited to the E2 and E2A Build Alternatives, which are not the Authority's preferred alternative. The E2 and E2A Build Alternative alignments would require the placement of approximately 30 support piers/footings within the Hansen Dam Open Space Area within Big Tujunga Wash. The placement of piers/footings would not require the relocation or removal of existing hiking or equestrian trails. The total permanent acquisition area would be approximately 13 acres. This would represent a permanent change to Hansen Dam Open Space Area through incorporation of a 13-acre portion of the 813-acre resource (approximately 1.6 percent). The 13-acre acquisition referenced in the Draft EIR/EIS refers to the easement (change in ownership) that would be required to ensure access to the viaduct structure for repair and maintenance; however, these 13 acres of the Hansen Dam Open Space Area would not be blocked from public use. 800 acres of the resource would remain open and available to the public during construction. After construction, the resource would remain accessible, and trail users would be able to pass under the viaduct to move from one area of the open space to another. In other words, after construction is complete, all 813 acres of the Hansen Dam Open Space Area would be accessible to the public. In

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addition, Mitigation Measure N&V-MM#8 will apply to the Refined SR14, E2, and E2A Build Alternatives as they both pass over Hansen Dam Open Space Area recreation areas that provide equestrian trails and/or equestrian facilities. The following signage would be posted along the Hansen Dam Recreation Area: •A passive warning sign at approximately 1,300 feet or further from the alignment warning of an upcoming train crossing •An active warning sign at 60+ feet of the alignment, warning users of an upcoming train crossing and the approximate time of the crossing (number of minutes) As such, based on this information, the Authority concluded that there would be a de minimis impact on the Hansen Dam Open Space Area associated with the Refined SR14, E2, and E2A Build Alternatives. The Authority's preferred alternative (the SR14A Build Alternative) would not result in a Section 4(f) use of the Hansen Dam Open Space Area.

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The commenter provided the definitions for minority populations and low-income populations used in the environmental justice analysis, consistent with Section 5.4.3.2, Data Collection and Analysis, in Chapter 5, Environmental Justice of the Draft EIR/EIS. The commenter describes the local and regional policy consistency analysis presented in Chapter 5 of the Draft EIR/EIS.

Section 5.3 in Chapter 5, Environmental Justice, of the Final EIR/EIS, has been revised to reflect the project's consistency with the most recent regional and local plans, including the Palmdale 2045 General Plan, consistent with updates to Appendix 2-H, Regional and Local Policy Consistency Analysis, and the Chapter 3 resource sections of the Final EIR/EIS. The commenter identifies Sylmar, Pacoima, and Sun Valley as communities with the highest minority populations and Lake View Terrace as a community with low-income populations, consistent with what is described in Section 5.4, Affected Environment of the Draft EIR/EIS. The commenter also notes that Census data from 2010-2014 were used for the environmental justice analysis. CEQA Guidelines section 15125(a)(1) specifies that the environmental baseline generally consists of the physical environmental conditions as they exist at the time the notice of preparation for the EIR was published. The baseline year for the analysis of project impacts was established after the Notice of Preparation (NOP) was filed on July 24, 2014, just after the public scoping period for the project was completed and at the onset of environmental analysis. Therefore, the use of a 2015 (or later, depending) baseline is appropriate under CEQA.

The Authority also reviewed existing conditions data during preparation of the Final EIR/EIS and concluded that the 2015 baseline data continues to be appropriate because it is not substantially different from the latest data available in a way that would change the analysis of environmental effects presented the Draft EIR/EIS. Please see Section 3.1.4.5 and Section 5.4.3.1 of the Final EIR/EIS for further explanation, including citations for the U.S. Census data used in the analysis (the 2010-2014 American Community Survey 5-year estimates) presented in the Final EIR/EIS, and the most recent U.S. Census data available (the 2017-2021 American Community Survey 5-year estimates available at https://data.census.gov/table), which the Authority reviewed. Please also refer to response to comment #9580, which also addresses the date of the Census data used in the EIR/EIS. Further, because conditions have not substantially

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changed, use of the most recent Census data would not yield results that would change the findings in the Draft EIR/EIS.

The commenter asserts that the Draft EIR/EIS analyzed "unknown projects" as part of the No Project Alternative. To clarify, Section 5.7.1, No Project Alternative, of the Draft EIR/EIS, takes into account the particular, reasonably foreseeable future projects identified by the Authority as listed in Appendix 3.19-A, Cumulative Projects List, and further evaluated in Section 3.19, Cumulative Impacts. These projects include those that are planned but not yet approved, approved but not yet constructed, approved but only partially constructed, or in any number of other known stages of planning and development. The commenter provides a summary interpretation of the effects determinations provided for each resource topic evaluated in Chapter 5, Environmental Justice of the Draft EIR/EIS. The effects determinations presented in Section 5.7, Environmental Consequences, in Chapter 5, Environmental Justice of the Draft EIR/EIS provides a thorough and evidenced analysis of the project's effects on environmental justice communities, and it concludes that, for most resource topics, there would not be disproportionately high and adverse effects on minority populations or low-income populations for a variety of reasons, including that some of these adverse effects would be borne comparably by environmental justice and non-environmental justice communities in the same region or that mitigation exists to address adverse effects. Nonetheless, the Final EIR/EIS identifies steps to address adverse impacts on environmental justice communities. Table 5-5 in the Final EIR/EIS summarizes the disproportionately high and adverse effects from each Build Alternative on minority populations and low-income populations.

Furthermore, Section 5.4.2 of this Final EIR/EIS describes project impact avoidance and minimization features (IAMFs) that would be incorporated into the project design for the purposes of the environmental impact analysis presented in this EIR/EIS. As noted, the full text of the IAMFs that are applicable to the Palmdale to Burbank Project Section are provided in Appendix 2-E, Impact Avoidance and Minimization Features, and the analysis presented in this Final EIR/EIS considers these IAMFs as part of the project design. Within Section 5.6, each narrative discussion describes how these project features are applicable and, where appropriate, effective at avoiding or minimizing impacts. The commenter states that most business displacements (70-80 percent)

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would take place in environmental justice communities. This effect is discussed in Section 5.7.2.8 of the Draft EIR/EIS. As described in Section 5.7.2.8 for each Build Alternative, most business displacements (70-80 percent) would indeed take place in environmental justice communities; furthermore, the E2 and E2A Build Alternatives would result in a loss of community cohesion due to residential displacements in Lake View Terrace, which is identified as an environmental justice community. As a result, the Authority has determined that all six Build Alternatives would result in disproportionately high and adverse effects on environmental justice populations related to business displacements (for all six Build Alternatives) and community cohesion (for the E2 and E2A Build Alternatives).

The commenter asserts that permanent adverse aesthetic and visual effects in environmental justice communities and non-environmental justice communities would occur under all Build Alternatives, varying from four for the Refined SR14 Build Alternative, to eight for the E2A Build Alternative. The commenter is correct that all Build Alternatives would have adverse effects related to aesthetics and visual quality, as evaluated in Section 5.7.2.10 of the Draft EIR/EIS. However, the SR14A Build Alternatives would result in permanent adverse effects on two key viewpoints, one of which is located within an environmental justice community. Even after the implementation of IAMFs and mitigation measures, there would be adverse visual effects from HSR-related structures; however, given that both environmental justice and non-environmental justice populations would comparably experience adverse visual effects, and the magnitude of such effects would be similar in both environmental justice and non-environmental justice communities, this effect would not be disproportionately high and adverse to environmental justice populations.

The commenter asserts there would be adverse cumulative transportation effects from spoils hauling for each Build Alternative. As discussed in Section 5.7.3 of the Draft EIR/EIS, the adverse transportation effects from spoils hauling during construction would represent contributions to adverse cumulative effects on environmental justice populations. The commenter summarizes measures to mitigate adverse effects or to provide benefits to offset adverse effects on environmental justice communities. Section 5.8.3 of the Draft EIR/EIS describes benefits that offset the adverse effects on environmental justice communities, including a Community Benefits Agreement, through

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which the Authority would require each prime contractor of an awarded construction package to commit 30 percent of all construction dollars to hiring small businesses, including separate goals for the hiring of disadvantaged and disabled veterans' businesses.

Effects on environmental justice populations would be reduced with implementation of the mitigation measures listed in Section 5.8.1 and discussed in Section 3.2, Transportation; Section 3.3, Air Quality and Global Climate Change; Section 3.4, Noise and Vibration; Section 3.5, Electromagnetic Interference and Electromagnetic Fields; Section 3.8, Hydrology and Water Resources; Section 3.10, Hazardous Materials and Wastes; Section 3.11, Safety and Security; Section 3.12, Socioeconomics and Communities; Section 3.15, Parks, Recreation, and Open Space; Section 3.16, Aesthetics and Visual Quality; and Section 3.17, Cultural Resources. It is assumed that the mitigation measures outlined will be applied to populations that are low-income, minority, or otherwise, based on the extent of the project effects.

More recently, during November 2023, December of 2023 and January 2024 the Authority conducted listening sessions with EJ communities in Pacoima and Sun Valley to seek feedback on potential additional measures that would avoid, minimize, and mitigate project impacts in EJ communities and would address concerns of EJ communities about the project's adverse effects. The Authority has developed additional measures to respond to concerns from environmental justice (EJ) communities, which are listed in Section 5.4.2 in Chapter 5, Environmental Justice, and described in Appendix 2-E, Impact Avoidance and Minimization Features of this Final EIR/EIS. The Authority has also developed offsetting mitigation measures (OMM) to offset disproportionately high and adverse effects (DHAE) on minority and low-income populations. See Section 5.8, in Chapter 5, Environmental Justice of this Final EIR/EIS, along with Appendix 5-B for additional information on IAMFs and OMM EJ Community Benefits (e.g., street safety improvements, workforce development programs, school communication and community connectivity). The new measures require the Authority to create an ombudsman position (liaison) to address the needs of adversely affected EJ communities prior to final design, including the communities of Pacoima and Sun Valley. The ombudsman shall be a bilingual single point-of-contact for the EJ communities adversely affected by the project. The scope of the EJ ombudsman's responsibilities and

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duties include those articulated in the other EJ-related IAMFs and OMMs. These responsibilities include implementing programs (e.g., Pacoima and Sun Valley Workforce Development Program, community air quality monitoring) and holding community roundtables to obtain ideas for business spotlighting (minimize any potential access disruptions or inconveniences to businesses), aesthetic treatments, as-applicable noise treatments, and intersection and/or safety improvements. The EJ ombudsman shall prepare a report (quarterly, at a minimum) of all concerns and complaints received from EJ communities and measures taken by the Authority to address those concerns and complaints.

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Refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS.

The commenter quoted page 5-14 of the Draft EIR/EIS and inquired about the process for making final environmental justice determinations and how more input can be provided. The Authority has now received comments on the Draft EIR/EIS, and the Authority has updated Section 5.4.3.2 of the Final EIR/EIS to better reflect the methodology used. Please refer to Standard Response PB-Response-GEN-3: Public Outreach on the Draft EIR/EIS, which outlines the public review and comment process on the Palmdale to Burbank Project Section Draft EIR/EIS. The Authority has considered all comments received on the Draft EIR/EIS and has revised the Final EIR/EIS as appropriate based on the comments received, in accordance with CEQA and NEPA requirements. The final environmental justice determinations will be made in the Record of Decision. Refer to Section S.14.1 in the Final EIR/EIS for further discussion of the Authority's future decision-making processes. Even after the Authority issues a Record of Decision, the Authority will continue engagement with environmental justice communities during final design and construction of the project. In November 2023, December 2023, and January 2024, the Authority conducted listening sessions with EJ communities in Pacoima and Sun Valley to seek feedback on potential additional measures that would avoid, minimize, and mitigate project impacts in EJ communities and would address concerns of EJ communities about the project's adverse effects. The Authority has developed additional measures to respond to concerns from environmental justice (EJ) communities, which are listed in Section 5.4.2 in Chapter 5, Environmental Justice, and described in Appendix 2-E, Impact Avoidance and Minimization Features of this Final EIR/EIS. The Authority has also developed offsetting mitigation measures (OMM) to offset disproportionately high and adverse effects (DHAE) on minority and low-income populations. See Section 5.8, in Chapter 5, Environmental Justice of this Final EIR/EIS, along with Appendix 5-B for additional information on IAMFs and OMMs. The new measures require the Authority to create an ombudsman position (liaison) to address the needs of adversely affected EJ communities, including the communities of Pacoima and Sun Valley. The ombudsman shall be a bilingual single point of contact for the EJ communities adversely affected by the project. The scope of the EJ ombudsman's responsibilities and duties will include those articulated in the EJ-related IAMFs and OMMs, such as implementing programs

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(e.g., Pacoima and Sun Valley Workforce Development Program, community air quality monitoring) and holding community roundtables to obtain ideas for business spotlighting, aesthetic treatments, as-applicable noise treatments, and intersection and/or safety improvements.

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The commenter requested further information on public meetings and environmental justice community outreach for the project.

The Authority held informal and formal public meetings to help inform the Draft EIR/EIS preparation process. The meetings consisted of open houses, formal presentations, and question and answer sessions in proximity to the project area. EJ-specific outreach for the Palmdale to Burbank Project Section is an ongoing effort that began in 2015. From 2015 to 2022, a total of 40 meetings or events aimed directly at environmental justice populations took place in the cities of Los Angeles, Lancaster, San Fernando, and Burbank; the communities of Pacoima, Sun Valley, Sylmar, and Sunland-Tujunga; and online virtually, attracting over 4,700 attendees.

These included Community Working Groups (CWGs) and Stakeholder Working Group sessions in environmental justice communities that drew more than 250 participants. Invitees and attendees at these meetings included but were not limited to, community members and local residents from the cities mentioned above and representatives or members of local community groups (i.e., faith-based organizations, environmental justice advocacy groups, community advocacy groups, social service groups, social justice advocacy groups, transit advocacy groups, neighborhood councils, town councils and community/homeowner associations, etc). Information and meeting announcements were posted on the Authority's website. In-person meetings have been combined with online webinars to increase participation and engagement. Specifically, the virtual meetings held between 2020 and 2022 drew more than 385 attendees. Virtual meetings were complemented with in-person outreach efforts to target EJ communities throughout the project alignment. A combination of both modalities has proven the best approach to give stakeholders multiple opportunities to stay engaged with the project throughout all phases.

Included in Chapter 9 of the Final EIR/EIS, Public and Agency Involvement, Table 9-5 lists the dates of public meetings that occurred during the development of the Draft EIR/EIS since summer of 2016. The Draft EIR/EIS was made available for a 90-day comment period and the Authority received over 400 submissions which it considered in developing the Final EIR/EIS. All of these EJ outreach activities involved engaging minority and/or low-income populations in the Resource Study Area (RSA) to

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communicate project information, listening to and responding to community thoughts and concerns, and identifying potential actions to mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and/or low-income populations. The purpose of these outreach activities is to inform local community members of the California HSR Project and its status and to provide opportunities by which minority and/or low-income communities can effectively take part in the planning process for the project.

In addition, during November 2023, December of 2023, and January 2024, the Authority conducted listening sessions with EJ communities in Pacoima and Sun Valley to seek feedback on potential additional measures that would avoid, minimize, and mitigate project impacts in EJ communities and would address concerns of EJ communities about the project's adverse effects. The Authority has developed additional measures (Offsetting Mitigation Measures [OMM] and Impact Avoidance and Minimization Features [IAMF]) to respond to concerns from EJ communities, which are listed in Section 5.4.2 in Chapter 5, Environmental Justice, and/or described in Appendix 2-E, Impact Avoidance and Minimization Features of this Final EIR/EIS. These include: EJ-OMM#1 (Construction Jobs and Opportunities, Training and Workforce Development), EJ-OMM#2 (Community Connectivity Workshop), EJ-OMM#3 (Montague Street Improvements), EJ-OMM#4 (Intermediate Window (SR14-W2), Conveyor belt usage requirements and school coordination), EJ-IAMF#1 (Authority EJ Ombudsman and Contractor's EJ Liaison), EJ-IAMF#2 (Business Spotlighting), EJ-IAMF#3 (EJ Community-Inclusive Development of Aesthetic Treatments and Community Cohesion Enhancements), EJ-IAMF#4 (EJ Business Relocation/Displacement Assistance), EJ-IAMF#5 (EJ Community Post-Construction Communication), EJ-IAMF#6 (Non-Regulatory Supplemental and Informational Monitoring).

The new EJ-related IAMFs require the Authority to create an ombudsman position (liaison) to address the needs of adversely affected EJ communities, including the communities in the San Fernando area. The ombudsman shall be a bilingual single point of contact for the EJ communities adversely affected by the project. The scope of the EJ ombudsman's responsibilities and duties include those articulated in the other EJ-related IAMFs. These responsibilities include implementing programs (e.g., Pacoima and Sun Valley Workforce Development Program, community air quality monitoring) and holding

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community roundtables to obtain ideas for business spotlighting, aesthetic treatments, as-applicable noise treatments, intersection and/or safety improvements, and community-specific feedback on the following plans not typically reviewed by the general public including the Construction Safety Transportation Management Plan (SS-IAMF#1) and Transportation Construction Management Plan (TR-MM#12). The latter will provide the opportunity for EJ communities including those residing in the Pacoima neighborhood to review and provide input on the proposed transportation management plans for the project, to ensure impacts to the roadway network during construction are minimized and/or avoided. The EJ ombudsman shall prepare a report (quarterly, at minimum) of all concerns and complaints received from EJ communities and measures taken by the Authority to address those concerns and complaints

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Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, PB-Response-N&V-5: Impacts of Spoils Hauling (Noise), PB-Response-N&V-6: Construction Noise/Truck Impacts.

The commenter questions the analytical basis for the No Project Alternative discussion in Chapter 5 Environmental Justice (EJ). The No Project Alternative analysis is based on existing projections, existing and approved land uses, and other developments rather than supposition. Table 2-2 on page 2-64 in Chapter 2 of the Draft EIR/EIS provides projected population of the project area including the cities of Palmdale, Los Angeles, Burbank, and unincorporated Los Angeles County and notes that population is expected to grow through 2040 (U.S. Census, 2015; SCAG, 2016; DOF, 2016). Table 2-3 on page 2-65 of the Draft EIR/EIS shows that employment is also expected to grow within the same jurisdictions through 2040 (SCAG, 2016). As discussed in Section 5.7.1, No Project Alternative, in Chapter 5, construction and operation of planned and programmed projects have the potential to result in environmental effects on EJ populations. As discussed in Section 5.7.1.3, continued growth and construction activity under the No Project Alternative would result in noise and vibration effects to EJ populations.

For more information regarding noise and vibration effects related to the Build Alternatives, please refer to Section 3.4 of the Draft EIR/EIS and PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors which provides more information regarding operational noise, PB-Response-N&V-5: Impacts of Spoils Hauling (Noise) which provides more information regarding IAMFs designed to reduce the noise impacts from truck traffic along spoils haul routes as well as mitigation measures, and PB-Response-N&V-6: Construction Noise/Truck Impacts which provides more information regarding the IAMFs set forth to reduce noise and vibration impacts from spoils hauling as well as mitigation measures. Please refer to PB-Response-ALT-1: Alternatives Selection and Evaluation Process which addresses why the Preferred Alternative was chosen over the No Project Alternative. The Project would provide an alternative mode to car and airline travel which would decrease transportation-related noise by rerouting and/or reducing traffic that is anticipated from the continued growth under the No Project Alternative, thereby reducing future transportation noise in the project area. Thus, noise levels are expected to increase over time in the RSA with the No Project Alternative.

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The commenter requested information on cumulative project impacts on EJ communities under the No Project Alternative.

Cumulative project effects to EJ populations are described in Section 5.7.3, in Chapter 5 of this Final EIR/EIS. Appendix 3.19-A includes a list of cumulative past, present, and foreseeable projects accounted for in this analysis. This appendix identifies and maps recent, present, and foreseeable future land development and transportation projects and plans in each jurisdiction within the Palmdale to Burbank study area. Tables 3.19-A-1 through Table 3.19-A-7 identify regional projects, County of Los Angeles projects, and projects within the cities of Lancaster, Palmdale, Santa Clarita, Los Angeles, and Burbank. These tables include the following information: A map identification number corresponding to the mapped project location, when applicable; the project name and/or identification number (for federal/state transportation improvement projects); a brief project description; project status or timing. Page 3.19-4 of the Draft EIR/EIS describes that for the purpose of this analysis, reasonably foreseeable future projects are defined as those that are likely to occur in the 2040 planning horizon for the Palmdale to Burbank Project Section and that would contribute to the cumulative impact on a particular resource. Projects were identified by reviewing regional transportation plans, regional transportation improvement programs, local long-range transportation plans, local land use, general, and specific plans; interviews with local and regional planning agencies; and reviewing recent environmental documents for other large-scale projects near the Build Alternatives."

The list of cumulative projects compiled for the EIR/EIS were based on plans and recent environmental documents, which would make these projects reasonably foreseeable. As such the projects included in the analysis are not speculative. Under the cumulative condition, ongoing urban development is expected to continue within the cumulative RSA. Such planned projects that are anticipated to be constructed by 2040 include residential, commercial, industrial, recreational, and transportation facilities. Construction of cumulative projects could result in temporary and permanent disruptions to minority and/or low-income populations during temporary construction activities. If the incremental effects of multiple projects were to combine to create disproportionate and adverse effects on low-income populations and minority populations in specific communities, this would be considered a cumulative effect on EJ populations under

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NEPA. However, these projects are distributed throughout Los Angeles County, which has 18.4 percent low-income populations and 72.8 percent minority populations (EJ populations). Further, a number of these projects would create additional, permanent jobs in the area and would set aside land for future industrial and commercial development, which could increase the economic opportunities available to the EJ populations.

Development of planned projects would likely include the implementation of various forms of mitigation to avoid or minimize temporary and permanent cumulative effects on the population as a whole in the cumulative RSA. Remaining effects would be distributed throughout the region and would occur based on the construction timelines of the planned projects under the cumulative condition.

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The commenter asked how traffic may be different in the future considering the state's electric vehicle goals from traffic predicted under build alternatives in the EIR/EIS. Future traffic volumes for 2028 and 2040 conditions were based on output from the 2016 SCAG travel demand model, which projects future traffic volumes based on anticipated growth in land uses and change in the transportation network that may shift travelers from automobiles to other modes (such as transit or active transportation). The traffic volume projections do not consider the vehicular fleet mix (they are based on the total number of vehicles, regardless of whether they are electric or gasoline-powered). In addition, the technical analysis, including both operations and vehicle-miles traveled (VMT), does not distinguish between electric and gasoline-powered vehicles as they would both have the same operational and trip-making characteristics. As such, the analysis remains valid.

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4494-9767

The commenter requests comparisons for water resources, drainage, erosion, and stormwater run-off between the No Project Alternative and the Build Alternatives. Section 3.8 Hydrology and Water Resources in the Draft EIR/EIS (see Section 3.8.6.2) evaluates the effects of the No Project and concludes that the population in the RSA would continue to grow and that changes and improvements to transportation infrastructure in and near the Palmdale to Burbank area would be implemented by agencies other than the Authority. Overall, development would be focused within the urbanized portions of the Antelope Valley and San Fernando Valley. Between these urban centers, vast areas of the San Gabriel Mountains would likely remain intact and undisturbed because of their protected status as part of the National Forest System. Construction projects could alter surface water drainage patterns, modify watercourse capacity and water-flow height, increase erosion and sedimentation, degrade surface water or groundwater quality, and increase flood risks by altering flood hazard areas. Long-term effects associated with these projects could increase stormwater runoff speed and rates, permanently alter watercourse hydraulic capacity, degrade surface water or groundwater quality, increase flood heights, or decrease groundwater recharge. These potential effects would be similar to effects caused by above ground elements of the Build Alternatives. However, much of each of the Build Alternatives would be underground within the project limits. Where underground the project would not result in direct effect on surface hydrology (altering surface water) or water resources.

4494-9768

The commenter queries about the types of hazardous materials could be used for development through 2024 under the No Project Alternative within the resource study area (RSA) for environmental justice. The commenter asks for a comparison between the hazardous materials for construction under the No Project Alternative and the Build Alternatives. The commenter also asks what "lands with environmental concerns" are present within the RSA.

As discussed in Section 3.10.6.2, No Project Alternative, in Section 3.10, Hazardous Materials and Wastes, of the Draft EIR/EIS, "No Project Alternative conditions would result in new urban/suburban development and transportation infrastructure throughout the hazardous materials and wastes RSAs to accommodate population growth. Because development activities would continue within the RSAs, there would be increases in the regional generation of hazardous materials commonly used for construction and operation of urban development, such as fuel, welding materials, petroleum products, lubricants, paints and solvents, and cement products containing strong acidic or basic chemicals. These increases under the No Project Alternative would incrementally contribute to the regional transportation, use, storage, and disposal of hazardous materials during construction and operations. ... Projects anticipated to proceed or continue under the No Project Alternative would encounter similar types of extant hazardous materials and wastes as those expected to be encountered by all six Build Alternatives, including PEC sites, hazardous building materials, residual pesticides, landfill sites, educational facilities, oil/gas infrastructure, and roadway/railway contamination." It is noted that the ultimate limit of the hazardous materials and wastes RSAs is 1 mile from the project alignment centerline on both sides of alignment, and generally encompasses the environmental justice RSA, which extends 0.5 mile beyond the project alignment footprint. For detailed information regarding the types of development that could occur under the No Project Alternative, please refer to Section 2.5.1, No Project Alternative - Planned Improvements, in Chapter 2, Alternatives, of the EIR/EIS. For a complete list of planned land development projects, see Appendix 3.19-A, Cumulative Projects List. The types of hazardous materials that would be used in the construction of development under the No Project Alternative would be similar to the hazardous materials used to construct any of the Build Alternatives. It would be too speculative to quantify the amount of hazardous materials that would be used to construct development in the environmental justice RSA, as it is unknown what

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development could occur and the timing of such construction. Therefore, a quantitative comparison between the amounts of hazardous materials used for construction under the No Project Alternatives and the Build Alternatives is not feasible.

Regarding the commenter's request for the "lands with existing environmental concerns," please refer to Section 3.10.5, Affected Environment, in Section 3.10, Hazardous Materials and Wastes, of the EIR/EIS, which includes a description of existing hazardous waste and concerns within the hazardous materials and wastes RSAs, including specific potential environmental concern sites.

4494-9769

The commenter asks whether a statement in the Draft EIR/EIS, which identifies that the No Project Alternative would be unlikely to generate a similar quantity of spoils as the Build Alternatives that would require tunneling, would be an argument in favor of the No Project Alternative. Arguments for or against any alternative, including the No Project Alternative, require considering the full breadth of consequences for implementing or not implementing an alternative. For example, while the No Project Alternative would not generate the hazardous spoils associated with tunneling, the hazardous materials found in soils would remain in the ground where they could continue to affect the environment. In contrast, the Build Alternatives requiring tunneling would remediate (to excavate and remove) and properly dispose of these hazardous spoils. Furthermore, the No Project Alternative would not meet the HSR purpose, need, or objectives outlined in Chapter 1, Project Purpose, Need, and Objectives of the EIR/EIS. When selecting the preferred alternative, the Authority balanced functional, technical, economic, and constructability factors, as well as minimized impacts on natural resources and human communities. Refer to Chapter 8, Preferred Alternative for more information regarding the selection of the preferred alternative.

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The commenter requested further information on emergency response times under the No Project Alternative. Further information on emergency response times under the No Project Alternative can be found in Section 3.11.6.2, in Section 3.11, Safety and Security, of this Final EIR/EIS. Under the No Project Alternative, the demand for law enforcement, fire, and emergency services would change and coincide with the anticipated population growth and needs of planned industrial, residential, and commercial developments. existing emergency response plans and procedures would not be negatively affected, and safety conditions related to motor vehicles, pedestrians, and bicyclists would not change. Conditions related to airports, critical facilities, and high-risk facilities in the study area would not change as a result of planned future projects. Emergency responders would continue to experience delays throughout the study area at numerous at-grade crossings of the UPRR, BNSF Railway, and San Joaquin Valley Railroad when trains block crossings.

4494-9771

The commenter requests additional information on the occurrence of community division under the No Project Alternative. Under the No Project Alternative, cumulative impacts from past, present, and reasonably foreseeable future projects in the study area would still occur and are discussed further in Section 3.19, Cumulative Impacts, of this Final EIR/EIS. Appendix 3.19-A, Cumulative Project List, includes projects considered for the cumulative impact analysis. Section 3.19.5.2 of this Final EIR/EIS includes discussion of effects from other transportation projects on socioeconomic and communities, which could result in loss of community cohesion and divide established communities.

4494-9772

The commenter requests examples of "proposed projects" for the No Project Alternative. As described in Chapter 2, Alternatives, the No Project Alternative assumes that the Palmdale to Burbank Project Section would not be constructed. In assessing future conditions, it was assumed that all currently known, programmed, and funded improvements to the intercity transportation system (highway, rail, and transit) and reasonably foreseeable local development projects (with funding sources already identified) would be developed as planned by 2040.The No Project Alternative is based on a review of all city and county general plans, regional transportation plans for all modes of travel, and agency-provided lists of pending and approved projects within Los Angeles County. For the environmental analysis, the No Project Alternative considers the effects of growth planned for the region, as well as existing and planned improvements to the highway, aviation, conventional passenger rail, and freight rail systems in the Palmdale to Burbank Project Section area through 2040. The scenario is based on future development projects and improvements to the intercity transportation system that are programmed and funded for construction. Projects that could occur with the No Project Alternative can be found in Appendix 3.19-A of the Final EIR/EIS.

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The commenter asks about the effect of extra lanes and added truck traffic (presumably from construction trucks) on the roads themselves and what kinds of repairs would be needed as a result of weighted truck traffic. Extra lanes would be installed to improve traffic conditions during operation of the project, pursuant to Mitigation Measure TR-MM#1. Mitigation Measures TR-MM#6 and TR-MM#7 would also widen intersection approaches and add exclusive turn lanes to improve intersection operations. Introducing a new travel lane is unlikely to cause physical deterioration of existing lanes since the increased lane capacity would result in more dispersed traffic flow. (and the commensurate dispersal of any increase in traffic weight) This reduced congestion and load distribution across the lanes would alleviate any project-related wear and tear on the road surface.

During construction, added truck traffic from spoils hauling could damage existing roadways; however, TR-IAMF#2 requires the preparation of a Construction Transportation Plan (CTP), and TR-IAMF#7 requires the construction contractor to deliver equipment and materials on appropriate truck routes and avoid impacts on streets that cannot accommodate truck traffic. This would serve to minimize damage caused by truck traffic. In addition, TR-IAMF#1 would require the Authority to be responsible for the repair of structural damage to public roadways caused by HSR construction, including the addition of new roadways, and returning damaged sections to the equivalent of their original pre-HSR construction structural condition or better. After heavy construction use, necessary repairs to the roadway might involve addressing surface wear, pavement deterioration, subgrade damage, drainage issues, and potential structural damage caused by heavy trucks.

4494-9774

The commenter requested further information on transportation, including spoils hauling effects on environmental justice populations from the project as well as the length of time these effects would occur.

As depicted in Tables 5-6 through Table 5-11, project construction associated with each Build Alternative would affect a wide range of roadways throughout the project area. As such construction traffic would occur on roadways in both EJ and non-EJ census block groups (Figure 5-1 through 5-18 depict the EJ and non-EJ communities along each of the Build Alternatives study areas). For example, many areas along the project corridors in the San Fernando Valley are EJ communities. However, there are non-EJ block groups and communities interspersed. Other areas to the north such as areas around Santa Clarita, Acton and south of Palmdale would also experience construction period spoils hauling truck traffic and are not EJ communities. Construction spoils hauling would not necessarily change traffic circulation patterns but could result in additional congestion during certain hours of the day. Implementation of TR-IAMF#2, TR-IAMF#6, TR-IAMF#7 and TRA-MM#12 will require a Construction Transportation Plan and a Construction Management Plan that will limit spoils hauling hours, and establish spoils hauling routes to minimize impacts on the local communities along each route (both EJ and non-EJ communities). The duration of spoils related traffic effects will vary depending on location and type of construction activity. Appendix 2-I provides the construction assumptions for spoils hauling including information about the duration of construction at each construction site. These durations vary, with many being 1 year or less. Several locations will experience construction spoils hauling for multiple years. For example, for the SR14A Build Alternative, the longer period construction spoils hauling will occur north of the San Fernando Valley in areas that do not comprise EJ communities. In the San Fernando Valley area, most construction durations are around 1 year and much of the spoils generated in the San Fernando Valley area can be conveyed to disposal sites (Boulevard Mine) via conveyor belt, which would reduce the amount of truck traffic through EJ communities in the area.

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The purchase of offsets would have minimal effect on the local air quality impacts of the project. However, as noted in Section 3.3.2.3 of the Draft EIR/EIS, the project would adhere to all applicable CARB, AVAQMD, and SCAQMD rules and regulations which would reduce localized emissions. Implementation of AQ-IAMF#1 through AQ-IAMF#6 listed in Section 3.3.4.2 of the Draft EIR/EIS and AQ-MM#1 through AQ-MM#3 listed in Section 3.3.7 of the Draft EIR/EIS will also reduce localized emissions to the extent feasible.

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Water use for reducing fugitive dust emissions is a common construction practice and would not substantially deplete California's water resources. Often times recycled water is used for dust suppression. AQ-MM#3 describes how the Authority and all project construction contractors shall require that a minimum of 25 percent, with a goal of 100 percent, of all light-duty on-road vehicles (e.g., passenger cars, light-duty trucks) associated with the project (e.g., on-site vehicles, contractor vehicles) use ZE or NZE technology.

The Authority and all project construction contractors shall have the goal that a minimum of 25 percent of all heavy-duty on-road vehicles (e.g., for hauling, material delivery, and soil import/export) associated with the project use ZE or NZE technology.

The Authority and all project construction contractors shall have the goal that a minimum of 10 percent of off-road construction equipment use ZE or NZE vehicles.

If local or state regulations mandate a faster transition to using ZE and/or NZE vehicles at the time of construction, the more stringent regulations will be applied. For example, EO N-79-20, issued by California Governor Newsom September 23, 2020, currently states the following:

- Light duty and passenger car sales be 100 percent ZEV by 2035
- Full transition to ZEV short haul/drayage trucks by 2035
- Full transition to ZEV heavy-duty long-haul trucks, where feasible, by 2045
- Full transition to ZE off-road equipment by 2035, where feasible

The project will have a goal of surpassing the requirements of these or other future regulations as a mitigation measure.

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4494-9777

Specific to the analysis of environmental justice and noise and vibration effects, the commenter asked how traffic would be rerouted from residential streets and requested five specific examples for specific locations on how truck traffic will be routed away from residential locations. The commenter also questioned the overall effectiveness of noise and vibration mitigation measures for the project, and asked for specific details about construction impacts and what would be done if the project cannot meet federal and state regulations.

Impact avoidance and minimization feature (IAMF) NV-IAMF#1 requires that the contractor shall prepare and submit to the Authority a noise and vibration technical memorandum documenting how the FTA and FRA guidelines for minimizing construction noise and vibration impacts will be employed when work is being conducted within 1,000 feet of sensitive receivers. As described in the environmental justice noise analysis in Section 5.7.2.3 of the Draft EIR/EIS, "N&V-IAMF#1 would avoid and minimize construction-related noise and vibration effects on sensitive receivers by requiring temporary noise barriers, routing of truck traffic away from residential streets, avoiding pile driving where possible, and other typical construction practices contained in the FTA and FRA guidelines for minimizing construction noise and vibration." Construction management plans, including the Construction Management Plan (CMP) (SOCIO-IAMF#1) and Construction Transportation Plan (CTP) (TR IAMF#2), have not yet been prepared for the Palmdale to Burbank Project Section, and will be prepared by the Contractor once funds for the project are secured, prior to the commencement of construction. At that time, enough detail would be known for the contractor to prepare the technical memorandum with specific strategies for noise reduction. Strategies can include setting haul routes that avoid residential streets. However, this memorandum is not currently drafted and therefore no specific examples of truck traffic being rerouted away from residential streets can be provided at this time.

Regarding the duration of noise from project construction, Table 3.4-24 in Section 3.4, Noise and Vibration of the Draft EIR/EIS, provides the total time duration and residential noise screening distances for proposed project construction activities. As discussed in Section 3.16, Aesthetics and Visual Quality of the Draft EIR/EIS, however, construction activities would occur for only 1 to 2 years at a given location. During peak construction periods, work is envisioned to be under way at several locations along the route, with

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overlapping construction of various elements of the Build Alternatives.

Worksite safety in California, including construction worksite safety, is regulated by provisions of Title 8 of the Cal. Code Regs. and is overseen by the California Occupational Safety and Health Administration (Cal-OSHA) as noted in section 3.11.2.2 of the Draft EIR/EIS. Title 8 Section 1502 requires compliance with standard procedures to prevent construction worksite accidents and requires a written workplace injury and illness prevention program to be in place. In addition to legal requirements, the contractor will manage potential exposure to workplace hazards through implementation of Construction Safety and Health Plans for each phase of project construction (SS-IAMF#2). Each of these plans will establish the minimum safety and health standards for contractors of, and visitors to, project construction sites. Each of these plans will require the contractor to develop and implement site-specific measures that address regulatory requirements protective of human health and property at each construction site.

Regarding the question about additional analysis under N&V-MM#6, N&V-MM#6 states that "Prior to construction, the contractor will provide the Authority with an HSR operational noise technical report for review and approval. If final design or final vehicle specifications result in changes to the assumptions underlying the existing noise technical report, the Authority will prepare necessary environmental documentation, as required by NEPA and CEQA, to reassess noise impacts and mitigation." As stated in the mitigation measure, this further analysis will evaluate if final design or final vehicle specifications result in changes to the assumptions underlying the existing noise technical report.

Regarding the question of how the contractor will know effectiveness of mitigation, NV-IAMF#1 requires that the contractor shall prepare and submit to the Authority a noise and vibration technical memorandum documenting how the FTA and FRA guidelines for minimizing construction noise and vibration impacts will be employed when work is being conducted within 1,000 feet of sensitive receivers. This would be based on anticipated noise generation. Additionally, Mitigation Measure N&V-MM#1 requires the contractor to prepare a noise-monitoring program describing how the contractor will monitor construction noise including noise from truck traffic to verify compliance with the noise limits, including compliance with all applicable state and federal rules and

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regulations. Therefore, there is a measure in place to verify effectiveness of noise reduction measures. Please refer to Appendix 2-E, Impact Avoidance and Minimization Features, and Appendix 3.1-C, Standardized Mitigation Measures in the Draft EIR/EIS, for the further text describing proposed IAMFs and mitigation measures for the project.

4494-9778

The commenter requested further information on safety screening during project operations, including for passengers with medical implants and equipment. As described in Section 3.11.1, in Section 3.11, Safety and Security of this Final EIR/EIS, HSR System operations would follow systemwide safety and security plans developed by the Authority in cooperation with the Federal Railroad Administration (FRA) and the Transportation Security Administration (TSA). The project could include passenger screening akin to airline passenger screening based on the Security Program Plan that will be developed for the project in coordination with FRA and TSA. Impact EMI/EMF#5, in Section 3.5, Electromagnetic Interference and Electromagnetic Fields (EMI/EMF) of this Final EIR/EIS, describes and evaluates effects on people with implanted medical devices and exposure to EMF from the project. For passengers and members of the public, the EMI and EMF exposure levels during operations of the project will remain below the maximum permissible exposure (MPE) threshold determined by the Institute of Electrical and Electronics Engineers (IEEE) (Standard C95.6, Standard for Safety Levels with Respect to Human Exposure to Electromagnetic Fields), and would not interfere with an implanted medical device.

4494-9779

The commenter asks the following questions and cites page 5-65 of the Draft EIR/EIS: where groundwater basins will be constructed, whether floodplains have been identified, how many groundwater recharge areas will be provided, and how much water will be used for tunnel construction? Regarding the question about where groundwater basins will be constructed, no "groundwater basins" would be constructed as part of Palmdale to Burbank Project Section. It is unclear what impacts the commenter is asserting should be further addressed. The HSR Palmdale to Burbank Section will be constructed over the four groundwater basins (i.e., Antelope Valley basin, Santa Clara River Valley East Sub-basin, Acton Valley basin, and San Fernando Valley basin) listed in Table 3.8-5 (Groundwater Basins) of Section 3.8.5.5. There are no new groundwater basins being constructed. Section 5.7.2.5 of the Final EIR/EIS has been revised to clarify that the HSR Palmdale to Burbank Section would require HSR development within areas overlying the four groundwater basins. Regarding the question about floodplains, floodplains are discussed and identified in Section 3.8.5.3 of the Draft EIR/EIS. Regarding the question about how many groundwater recharge areas would be constructed, Mitigation Measure HWR-MM#3 indicates that the Authority would provide replacement groundwater recharge areas in the Hansen Spreading Grounds in the vicinity of the existing recharge ponds to allow for no net loss in recharge area or capacity. For more information, please refer to Mitigation Measure HWR-MM#3 in the Draft EIR/EIS. Regarding the comment about water needs for tunnel construction, the amount of water necessary for tunnel construction has been estimated based on the tunnel diameter and method of construction. For cut and cover tunnels, 40,000 gallons per day have been estimated. For tunnel built by a tunnel boring machine (TBM), the water needs vary from 55,000 gallons per day/ (28-foot Internal Diameter TBM) to 105,000 gallons per day (36-foot Internal Diameter TBM).

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4494-9780

The commenter asks where hazardous materials will be stored; at what point during construction will hazardous waste be identified; what the State thresholds for hazardous substances are in relation to the Health and Safety Code; and what kinds of hazardous substances could arise during operation.

Regarding the question about storing hazardous materials: hazardous materials will be stored at varying locations throughout the HSR Palmdale to Burbank Project Section alignment, in accordance with HMW-IAMF#10: Hazardous Material Plans (see Section 3.10.4.2 of the Draft EIR/EIS). In general, this IAMF will describe the Authority's commitment to prepare hazardous material monitoring plans prior to operations and maintenance activities.

Regarding the question about the timing of identifying hazardous materials: hazardous wastes will be identified prior to construction in accordance with HMW-IAMF#1: Property Acquisition Phase I and Phase II Environmental Site Assessments and HMW-IAMF#4: Undocumented Contamination (see Section 3.10.4.2 of the Draft EIR/EIS).

Regarding the question about State thresholds: the State includes various regulations related to hazardous materials, which are summarized in Section 3.10.2.2 of the Draft EIR/EIS. The thresholds used to determine the HSR Palmdale to Burbank Project Section's impacts are in Sections 3.10.4.4 and 3.10.4.5 of the Draft EIR/EIS.

Regarding the question about the kind of hazardous substances that could arise during operation: based on historical usage of properties within the Palmdale to Burbank Project Section alignment and available relevant documentation, there is potential for the following, among other substances to be present at hazardous concentrations:

a. Petroleum hydrocarbons
b. Volatile organic compounds (VOCs)
c. Semi-VOCs (SVOCs)
d. Metals
e. Pesticides
f. Asbestos
g. Poly-Chlorinated Biphenyl's (PCBs)

4494-9781

The commenter requested further information on construction worker safety. Within the project scope evaluated in this EIR/EIS, currently, the Authority does not have funding for construction of the project section, and construction has not yet begun. Future funding is being sought for continued progress. Impact S&S#6, in Section 3.11, Safety and Security, of this Final EIR/EIS, evaluates construction site hazards from the project. Construction would increase the risk of exposure to construction equipment and activity hazards that could result in workplace accidents, potentially resulting in accidental injuries and deaths to construction workers and also potentially to the public in the event of a workplace accident, such as a fire or explosion, that resulted in off-site consequences. For example in November 2017, five construction workers working on the project in Fresno were injured, two of which sustained moderated injuries and were hospitalized, due to a tower made of steel rebar falling at the construction site. No construction-related deaths have occurred since commencement of construction of the California HSR system. The Authority will develop and implement an SSMP (SS-IAMF#2), which includes construction worker safety standards, worker safety and health plans, fire and life safety programs, construction on-site security plans, and emergency response and evacuation procedures to maintain the safety of construction workers and the public during HSR construction of the Palmdale to Burbank Project Section. Through the implementation of SS-IAMF#2, which includes safety programs and safety standards, impacts from construction site hazards and accident risks that could compromise the safety or health of workers or nearby community members would be minimized.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9782

The commenter requested further information on protocol to prevent the potential for exposure to Valley Fever, and the Authority's coordination with local and regional emergency responders during localized natural disasters (wildfire, earthquakes, flooding, and landslides). Valley Fever (coccidioidomycosis or "cocci") is a non-contagious fungal infection caused by inhalation of fungal spores in airborne dust after soil disturbance, such as construction excavation and grading activities, which may be carried by the wind for several miles. The fungus that causes Valley Fever resides in the soil and thrives in the dry dirt and desert-like weather conditions of Los Angeles County and the southern counties of the Central Valley. The project will implement SS-IAMF#2, requiring a project Valley Fever action plan prepared by the construction contractor. The Valley Fever action plan shall address the following components: (1) Information on causes, preventative measures, symptoms, and treatments for Valley Fever to individuals who could potentially be exposed through construction activities (i.e., construction workers, monitors, managers, and support personnel). (2) Continued outreach and coordination with California Department of Public Health. (3) Coordination with county departments of public health to ensure that the above referenced information concerning Valley Fever is readily available to nearby residents, schools, and businesses and to obtain area information about Valley Fever outbreaks and hotspots. (4) Provide a qualified person dedicated to overseeing implementation of the Valley Fever prevention measures to encourage a culture of safety of the contractors and subcontractors. The Valley Fever Health and Safety (VFHS) designee is responsible for ensuring the implementation of measures in coordination with the county Public Health Officer. The VFHS in coordination with the county Public Health Officer will determine what measures will be added to the requirements for the Safety and Security Management Plan regarding preventive measures to avoid Valley Fever exposure. Measures shall include, but are not limited to the following: (1) Train workers and supervisors on how to recognize symptoms of illness and ways to minimize exposure, such as washing hands at the end of shifts; (2) Provide washing facilities nearby for washing at the end of shifts; (3) Provide vehicles with enclosed, air conditioned cabs and make sure workers keep the windows closed; (4) Equip heavy equipment cabs with high efficiency particulate air (HEPA) filters; (5) Make NIOSH approved respiratory protection with particulate filters as recommended by the CDPH available to workers who request them. The Authority will coordinate with local emergency service providers in developing and implementing the project System Safety Program Plan (SSPP) and

4494-9782

Safety and Security Management Plan (SSMP) under SS-IAMF#2, to establish an efficient and coordinated response protocol, systems, and procedures across the multiple agencies that may be involved in responding to an emergency incident, including establishing coordinated procedures for emergency responder access to the HSR access-controlled right-of-way, aerial track, trenches, and tunnels.

4494-9783

The commenter requested further information on compensation procedures for displaced business in environmental justice communities. This topic is discussed in PB-Response-SOCIO-1.

The Authority's acquisition and relocation assistance and advisory services would include, but not be limited to, measures, facilities, or services that may be necessary or appropriate to determine the needs and preferences of each household, business, and nonprofit organization to be displaced. The Authority would provide current information on the availability, purchase prices, and rental costs of comparable replacement residential units. Other benefits and compensation may include payment of residential moving expenses and replacement housing payments, nonresidential moving expenses, and reestablishment expenses. The Authority's acquisition and relocation assistance documents in Appendix 3.12-A of this Final EIR/EIS describe compensation and acquisition procedures in detail. For any properties acquired for the project, the Authority would comply with appropriate provisions of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act (42 U.S. Code 4601 et seq.) (Uniform Act) and implementing regulations (49 C.F.R. Part 24). Property owners whose entire or partial property would be acquired by the Authority would receive compensation for their land and improvements.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9784

The commenter requested further information on the Authority's Community Benefits Agreement and other programs to help displaced workers in environmental justice communities. As discussed in Section 3.18.6.3, in Section 3.18, Regional Growth of the Draft EIR/EIS, the Authority's use of a Community Benefits Agreement is to establish a cooperative partnership and commitment between the Authority, its contractors, and unions. See California High-Speed Rail Authority, Community Benefits Agreement website at: https://hsr.ca.gov/business-opportunities/general-info/community-benefits-agreement/. The purpose of a Community Benefits Agreement is to facilitate efficient and timely execution of this project while promoting employment opportunities and careers in the construction industry during the construction of the project, and to remove potential barriers small businesses may encounter in participating in the project.

The Community Benefits Agreement will be implemented in accordance with Federal Railroad Administration guidance and in compliance with federal and state laws and governing regulations, including Title 49 Code of Federal Regulations (CFR) Part 26 "US Department of Transportation DBE Program" and Title VI of the Civil Rights Act of 1964 and related statutes. The Community Benefits Agreement is designed to assist small businesses and employment seekers in finding or obtaining construction contracts, jobs, and training opportunities for residents who reside in economically disadvantaged areas or extremely economically disadvantaged areas, which includes those designated as National Targeted Workers and Disadvantaged Workers (as defined in Article 1 of the Agreement). National Targeted Worker is defined as an individual whose primary place of residence is within an Economically Disadvantaged Area or an Extremely Economically Disadvantaged Area in the United States; or (b) a Disadvantaged Worker. A Disadvantaged Worker is defined as an individual who, prior to commencing work on the Project, resides in an Economically Disadvantaged Area Extremely Economically Disadvantaged Area and faces at least one of the following barriers to employment: (1) being a veteran; (2) being homeless; (3) being a custodial single parent; (4) receiving public assistance; (5) lacking a GED or high school diploma; (6) having a criminal record or other involvement with the criminal justice system; (7) suffering from chronic unemployment; (8) emancipated from the foster care system; or (9) being an apprentice with less than 15% of the apprenticeship hours required to graduate to journey level in an approved apprenticeship program. Article 1 of the Agreement defines “economically disadvantaged area" as "a zip code that includes a census tract or portion thereof in which the median annual household income is between $32,000 and $40,000 per year," and "extremely economically disadvantaged areas" as “zip codes that include a census tract or portion thereof in which the median annual household income is less than $32,000 per year.” Thus, the Community Benefits Agreement extends to low-income populations.

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As described in Article 7 of the Community Benefits Agreement, local unions with geographic jurisdiction over the work to be performed for the project will make every effort to recruit National Targeted Workers and to refer and utilize National Targeted Workers on the project. In recognition of the Authority's policy to utilize National Targeted Workers, the Unions and Contractor/Subcontractor/Employers (C/S/E) agree that as long as they possess the requisite skills and qualifications, National Targeted Workers shall be first referred for project work, including journey persons and apprentices, and are responsible for ensuring the following Targeted Hiring Requirements are met: (1) a minimum of 30% of all hours of project work shall be performed by National Targeted Workers; and (2) a minimum of 10% of all National Targeted Worker hours shall be performed by Disadvantaged Workers. The C/S/E(s) shall submit written documentation to the Authority on a quarterly basis, or as required by Authority, which sets forth the steps taken by the C/S/E(s) to recruit, refer and utilize qualified National Targeted Workers recruited by the Unions and referred to or utilized on the project. In addition, during November 2023, December 2023 and January 2024 the Authority conducted listening sessions with EJ communities in Pacoima and Sun Valley to seek feedback on potential additional measures that would avoid, minimize, and mitigate project impacts in EJ communities and would address concerns of EJ communities about the project's adverse effects. The Authority has developed additional measures to respond to concerns from environmental justice (EJ) communities, which are listed in Section 5.4.2 in Chapter 5, Environmental Justice, and described in Appendix 2-E, Impact Avoidance and Minimization Features of this Final EIR/EIS. EJ-IAMF#4 will require the Palmdale to Burbank Project Section Relocation Mitigation Plan (pursuant to SOCIO-IAMF#3) to include a subsection dedicated to addressing adverse effects to businesses in the EJ communities of Pacoima and Sun Valley (as identified in Section 5.5 of the Draft EIR/EIS). This subsection shall include a description of measures taken or proposed to offset the adverse effects of business displacements and relocations in the Pacoima, and Sun Valley, and Lake View Terrace EJ communities

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(depending on the alternative selected), including a description of measures to relocate displaced businesses in close proximity to their same community.

The Authority shall hold community roundtable meetings to seek and consider input from affected EJ communities prior to finalizing the Authority's Relocation Mitigation Plan. EJ-Offsetting Mitigation Measure#1 (EJ-OMM#1) will require the Authority's Regional Workforce Development Board, and EJ community liaison (ombudsman) to develop a Construction Pre-Apprentice training program to provide pre-apprenticeship classes and hands-on construction training to primarily to individuals whose job has been directly impacted by a business displacement within the Pacoima, Sun Valley, and Lake View Terrace EJ communities (again, depending on the alternative selected). The program shall also include special recruitment and job set-aside programs for jobs created by the project to offset any impacts to jobs associated with business displacements within those EJ communities. The program(s) shall be developed with feedback, input and suggestions made by those EJ communities during community roundtables held by the EJ ombudsman.

The Authority shall involve Pacoima Beautiful as part of this program to consider support of its Workforce Development and Economic Opportunities Plan, administered through Los Angeles City College (LACC), in cooperation with the Building Trades Council, Plumbers, Cement Masons, Iron Workers, Teamsters, Sheet Metals Workers, Pipefitters, Electricians and Operating Engineers Building Trades Unions. Further, the Authority shall periodically distribute an updated Jobs Fact Sheet and provide press releases that report achieved construction job creation milestones resulting from dispatching workers to build the high-speed rail system. This Jobs Fact Sheet will include the most recent information regarding the National Targeted Hiring Initiative and the total number of disadvantaged workers.

4494-9785

The commenter requests additional information on housing for population growth associated with employment growth from the project. As described in Section 3.18.6.3, in Section 3.18, Regional growth, of this Final EIR/EIS, long-term employment gains caused by the Palmdale to Burbank Project Section would result in some degree of population increase due to employment growth.The aggregate total of direct/indirect project-induced O&M employment and employment growth due to increased accessibility from the California HSR System would be approximately 5,380 jobs above the No Project Alternative projections (Table 3.18-14 of this Final EIR/EIS). Accordingly, with implementation of the Palmdale to Burbank Project Section, Los Angeles County would have approximately 5,231,400 jobs in 2040, which is a 0.1 percent increase above the No Project Alternative in 2040. The project-induced additional 0.1 percent contribution to employment growth is not substantially more than the projection for the region in the absence of the California HSR System.Operation of the Palmdale to Burbank Project Section would induce some population growth, which would increase the demand for housing, although it would be speculative to predict where such growth would occur. Population growth would generally not occur within the ANF where land use restrictions generally preclude development.As discussed in Section 3.18.6.3, the Southern California Association of Governments (SCAG) has determined the projected housing need for Los Angeles County and allocated this housing need to each jurisdiction by income category. The Regional Housing Needs Allocation (RHNA) represents the minimum number of housing units each community must provide through land use planning and zoning in order to accommodate projected growth. These allocations are subject to periodic upgrades. RHNA allocations for jurisdictions in the RSA during the most recent planning period are summarized in Table 3.18-11 of this Final EIR/EIS. Jurisdictions within the project study area have adopted housing elements that plan for housing and the associated land use consumption required by their RHNA and would continue to update such plans as RHNA allocations are updated based on SCAG projections.

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4494-9786

The commenter requested clarification regarding the trail facilities plan. The Authority will require the design-build contractor to develop a trail facilities plan to address short-term project impacts on existing trails within the construction limits of the project. Among other objectives, that plan would identify trails that would be closed temporarily and detoured during construction, require effective detours to maintain connectivity, require a public awareness and notification, and signs. For more information about the trail facilities plan, see PR-MM#4 in Section 3.15, Parks, Recreation, and Open Space. The commenter questioned if the proposed mitigation measures would be adequate in addressing impacts. As noted in Section 3.15, with the inclusion of applicable impact avoidance and minimization features (IAMF) and implementation of the mitigation measures identified in Section 3.15.7, all six Build Alternatives would avoid, minimize, reduce, or compensate for impacts on these resources. Additionally, the commenter questioned the compensation for land for new parks, if mitigation measures will not fully minimize impacts. Mitigation measures addressing permanent impacts are included in PR-MM#7 through PR-MM#9. These measures will require compensation for land permanently acquired for the Build Alternatives. Compensation typically would be financial based on the value of the affected property; however, compensation could include new park property or enhancements. With incorporation of mitigation measures, impacts on parks, recreation, and open space areas would be reduced to less than significant levels for all Build Alternatives.

4494-9787

The commenter provided questions regarding the methodology for determining the degree of physical changes and viewer sensitivities.

As noted in Section 3.16.4.3 of this Final EIR/EIS, viewers are described as neighbors or travelers who can see or would use the proposed project. Viewer sensitivity is an assessment of the concern viewer groups may have regarding changes in the visual character based on two factors: viewer exposure and viewer awareness. For example, viewer sensitivity in established downtown areas can be high due to their exposure (close proximity for a longer duration) and their awareness of a cultural order associated with an identifiable urban core. In these areas viewers would have a greater sensitivity to the cultural order if the project does not fit in scale or mass with existing development. Workers in the workplace are generally considered to have moderate or low sensitivity, because visual quality is not typically a focus or expectation associated with their activity; however, their exposure to the view is high.

The movement of the viewer affects exposure and, therefore, viewer sensitivity. Movement creates dynamic views affecting the sensitivity of travelers, including viewer awareness and exposure, especially of drivers who concentrate on watching the road ahead. The faster a person moves, the smaller the area on which they can focus their attention. At 25 miles per hour (mph), a driver can see a view approximately 100 degrees wide; at 45 mph, the view drops to 65 degrees; and at 65 mph, it drops to a narrow 40 degrees, substantially reducing what is seen.

The degree of visual quality impact is a combination of the change in visual character from the proposed project and how that would change the existing visual quality category (ranging from high to low) and viewer sensitivity to that change. The overall impact conclusion for a landscape unit may differ from impact conclusions at specific key viewpoints (KVPs). A particular KVP may experience an adverse change to visual quality while the Palmdale to Burbank Project Section, taken as a whole throughout the landscape unit, may have a neutral change or even a beneficial change.

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4494-9788

Blum Ranch was found eligible for listing in the NRHP and CRHR under Criteria A/1 for its association with the early settlement and development of agriculture in northern Los Angeles County specifically between 1891 and 1924. Within this period of significance, it was established that there were two distinct phases of agricultural development, both of which are associated with the significance of the ranch property: the dry farming of wheat between 1891 and 1908 and the fruit orchard period that began in 1908 with the introduction of the advanced irrigation system. The ranch property (within the established historic property boundary) is important for its association with agricultural development but not specific to the type of produce grown in the orchards. Construction and operations noise and vibration impacts would not impede produce grown on the site.

4494-9789

The commenter expresses concern regarding the cumulative impact analysis, suggesting that displacement, visual effects, and loss of community cohesion are localized and not seen in "foreseeable projects," and therefore their importance and severity is discounted.

The commenter has misinterpreted the discussion on page 5-88, which discusses cumulative effects related to Environmental Justice. A "cumulative effect" is one in which a project's effects are considered in conjunction with the effects of other past, present, and reasonably foreseeable projects causing related effects. It is recognized that the project, along with other planned projects, could permanently divide established communities, permanently displace residences and business, and result in permanent changes to visual quality. These are adverse effects regardless of being localized, and such localized impacts are not discounted in the Draft EIR/EIS. Rather, the analysis on page 5-88 is stating that these effects do not combine to contribute to adverse cumulative effects, because the effects are specific to a local area.

4494-9790

The commenter asks why disproportionately high and adverse effects to EJ communities could not be addressed further in the published Draft EIR/EIS and whether additional mitigation measures for adverse impacts to EJ communities are possible.

In the Draft EIR/EIS, the Authority analyzed the disproportionately high and adverse effects on environmental justice communities, incorporated impact avoidance and minimization features, and identified mitigation measures. Beginning in 2019, to identify those impacts and to identify those features and measures, the Authority gathered information from the affected communities by reaching out to the community in a broad variety of ways.

EJ outreach involves engaging minority and/or low-income populations in the RSA to communicate project information; listening to and responding to community thoughts and concerns; identifying potential actions to ameliorate and mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and/or low-income populations; and to provide opportunities by which minority and/or low-income communities can effectively take part in the planning process for the project.

Table 5-4 in Chapter 5, Environmental Justice of the EIR/EIS, summarizes those outreach events by which the Authority sought more information and feedback. In the Draft EIR/EIS, the Authority used the information that it had available at that time to complete that analysis. EJ-specific outreach for the Palmdale to Burbank Project Section is an ongoing effort. The Authority committed to using any additional information it learned between the Draft EIR/EIS and the Final EIR/EIS to further refine the project to further reduce impacts on EJ communities. While the Authority received many comments related to effects on environmental justice communities, these comments have not identified any specific impacts that were not addressed in the Draft EIR/EIS nor has the Authority received any specific recommendations relative to additional mitigation.

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4494-9791

The commenter asks how the Authority can predict future transportation needs without knowing and taking into consideration the current Los Angeles City light rail and Metrolink plans for the northeast San Fernando Valley. In developing its ridership forecasting projects, the Authority reviews the metropolitan transportation plans prepared by several agencies provide transit service in the project area, such as LA Metro, Antelope Valley Transit Authority, BurbankBus, Metrolink, Greyhound, and Amtrak. Appendix 3.2-A: Vehicle Miles Traveled Methodology of the Draft EIR/EIS, explains how the developed ridership, revenue, and VMT forecasts were developed based on the 2016 Business Plan. The Authority's forecasts had to be aligned with the required application in business plan and environmental analysis.

As discussed in the 2016 Business Plan, the Authority worked with the Los Angeles County Metropolitan Transportation Authority, the City of Los Angeles, Amtrak and others to integrate high-speed rail at Los Angeles Union Station while strengthening first/last-mile connections to and from downtown LA and surrounding communities (Authority, 2016). Central Valley Rail service, including travel times, frequency of service, and stations served, were also updated in the 2016 Business Plan to reflect the latest conditions and forecasts from the 2013 California State Rail Plan (CSRP), 11 Metropolitan Planning Organization (MPO) forecasts, and the California Statewide Transportation Demand Model (CSTDM). In addition, the Burbank and Palmdale stations are within multiple plan areas, including the City of Burbank General Plan, City of Palmdale General Plan, LA Metro Short Range and Long-Range Transportation Plan, Antelope Valley Transit Authority Long Range Plan, and SCAG's Regional Transportation Plan, (see Table 3.13-1 in Section 3.13.2.3 of the Draft EIR/EIS).

Each of these documents provides goals and policies for maintaining transit operations and planning for new services to meet the needs of its users. The Authority would work with these transit operators and agencies to modify routes and services to provide transit connections to HSR riders. This includes Mitigation Measure TR-MM#9 (Section 3.2.7 of the Draft EIR/EIS), which requires the preparation of a transit coordination plan with the affected transit providers to ensure revisions to services are made to account for the HSR operations. As described in Section 3.2.4.3, the 2012 SCAG RTP was used as a review for regional goals and policies and to identify planned and programmed projects that should be included as part of the future 2028 and 2040 scenarios.

4494-9791

Background growth in intersection and roadway volumes was developed for the Palmdale to Burbank Transportation Technical Report using outputs from the 2012 SCAG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) regional travel demand model. Overall, an average growth rate of about 0.4% per year was estimated for the study intersections within the Burbank area and 0.9% per year within the Palmdale area. Applied to the 2014/2015 counts that were used to establish existing conditions, this would equate to a projected increase in traffic volumes of about 3 to 4 percent in Burbank and 7 to 8 percent in Palmdale by 2023. However, based on the recently published Caltrans Traffic Count Baseline Guidance Due to the Coronavirus Disease 2019 (COVID-19) Pandemic (Caltrans 2023b) and LADOT Resumes Normal Traffic Signal Patterns (LADOT 2021), volumes on local roadways and regional freeways substantially decreased in 2020 due to the COVID-19 pandemic and continued to be lower during the following years . However, FHWA has compiled information from across the country and reported that traffic volumes have returned to pre-pandemic levels on local streets during the peak commute periods (FWHA 2019, 2023). Because 2023 actual traffic volumes are likely consistent to those before the COVID-19 pandemic, whereas the SCAG model projected an increase of 3 percent to 8 percent, it can be inferred that current conditions are consistent with the technical analysis conducted for the project and presented in the Transportation Technical Report (Section 3.2.4.3 of the Final EIR/EIS).

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9792

The commenter has an interest in learning about the intercity trips that would be reduced by the Project. In general, the Project would allow people to use transit between cities along the alignment with substantially quicker service than the currently available options. For example, the travel time on the Project between Palmdale and Burbank would be significantly shorter than Metrolink service. Currently, the travel time between Palmdale and the Burbank Airport - North Metrolink stations is approximately 1 hour and 35 minutes [see Train Schedules | Metrolink (metrolinktrains.com)], whereas it is projected that HSR service would take about 13 minutes between the Palmdale and Burbank stations (https://hsr.ca.gov/wp-content/uploads/2022/05/2022-Business-Plan-FINAL-A11Y.pdf). Similar time savings would also be realized at future HSR stations to the south, such as LA Union Station and ARTIC in Anaheim. Similar travel time savings could be found compared to driving, as driving from Palmdale to downtown Los Angeles typically takes between 1 hour and 2 hours, depending on the time of day (https://www.google.com/maps). These travel times savings would also benefit travelers who are not going to locations immediately adjacent to a stop. For example, the travel time between Palmdale and UCLA Medical Center is about 60 to 90 minutes by driving (https://www.google.com/map), and about 45 to 60 minutes by HSR. Additionally, as shown in Table 6-33, Table 6-34, Table 6-55, and Table 6-56 of the Transportation Technical Report, operation of the project would not result in any freeway segments operating at an inadequate LOS (LOS F) during peak periods. Operation of the project would not result in an increased volume to capacity ratio of 0.02 or more over the baseline condition.

4494-9793

The commenter inquired about the accuracy of ridership estimates for HSR. The data used to estimate ridership is based on data from the Authority's 2018 Business Plan ridership analysis completed for the HSR forecasting model using information from regional transportation planning agencies, Caltrans, and current air and conventional rail schedules. Estimates of ridership using these methods are widely accepted for planning and environmental review purposes for major transportation projects in the United States. Updated ridership forecasts are also in the Authority's updated 2022 Business Plan, available at: https://hsr.ca.gov/about/high-speed-rail-business-plans/2022-business-plan/.

Methodology regarding how the ridership forecast data was obtained can be found in the California High-Speed Rail 2020 Business Plan Ridership and Revenue Forecasting technical supporting document, available at: https://hsr.ca.gov/wp-content/uploads/docs/about/business_plans/2020_Business_Plan_Ridership_and_Revenue_Forecasting.pdf.

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4494-9794

The commenter requested further information on how environmental justice communities in Sun Valley, especially those being displaced, would benefit from the Burbank Airport Station. The Burbank Airport Station was evaluated as part of both the Palmdale to Burbank Project Section and the Burbank to Los Angeles Project Section. The Final EIR/EIS for the Burbank to Los Angeles Project Section was released on November 5, 2021, and the Authority's Board of Directors approved the Burbank to Los Angeles Project Section Preferred Alternative, including the Burbank Airport Station, on January 20, 2022. For context, as described under Impact SOCIO#4, in Section 3.12, Socioeconomics and Communities of this Draft EIR/EIS, each of the Build Alternatives would result in 5 residential displacements in Sun Valley.

As described in Section 5.7.2.8, in Chapter 5, Environmental Justice of the Draft EIR/EIS, the Refined SR14, SR14A, E1, and E1A Build Alternatives would result in 72 business displacements in Sun Valley, 57 of which would occur in environmental justice communities (census block groups 60371222002, 60371212101, 60371212221, and 60371221223). The E2 and E2A Build Alternatives would result in 54 business displacements in Sun Valley, 52 of which would occur in environmental justice communities (census block groups 60371211023 and 60371222002). Given the number of businesses in Sun Valley that would have to relocate outside of their current communities—and potentially cities—this effect would be adverse. Sun Valley businesses could be relocated within 6 miles to North Hollywood or Burbank. Section 5.8.3 in Chapter 5, Environmental Justice, of the Draft EIR/EIS discusses offsetting benefits of the project to environmental justice communities, and Table 5-25 summarizes the beneficial effects that would be experienced for each environmental topic area.

On a local level, the Burbank Airport Station would revitalize and bring economic benefits to the Burbank subsection, which includes both environmental justice and non-environmental justice communities. Displaced business and residents in Sun Valley relocating to North Hollywood or Burbank in proximity to the Burbank Airport Station would experience these benefits, which are described further below. Induced growth associated with the Burbank Airport Station would accelerate the implementation of local development plans in Burbank and provide an opportunity to achieve transit-oriented development planning goals. Environmental justice census block groups directly to the

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north and west of the Burbank Airport Station would be likely to experience this economic benefit. These include the Sun Valley census block groups 60371222002, 60371021051, and 60371021052, as indicated in Table 5-24.

Table 5-24 and the discussion above note that census block group 60371222002 would also experience residential and business displacements under all Build Alternatives. The project would have both short-term and long-term employment benefits for the region. As evaluated in Section 3.18.6.3, in Section 3.18, Regional Growth of the Draft EIR/EIS, construction of the Build Alternatives would generate approximately 80,000 to 85,000 direct, indirect, and induced job-years. During operations, the aggregate total of direct/indirect project-induced O&M employment and employment growth due to increased accessibility from the California HSR System would be approximately 5,380 jobs above the No Project Alternative projections. It is thus anticipated that construction, operation, and maintenance of the Burbank Airport Station would provide employment opportunities for local residents including those residing in Sun Valley. Furthermore, the Authority will enter into a Community Benefits Agreement, which would provide cooperative partnerships and commitments between the Authority, contractors, and unions, to assist businesses and employment-seekers in finding or obtaining construction contracts, jobs, and training opportunities for residents who reside in disadvantaged areas and those designated as disadvantaged workers.

Through the Community Benefits Agreement, the Authority would require each prime contractor of an awarded construction package to commit 30 percent of all construction dollars to hiring small businesses (please refer to the Authority's Small Business Program webpage at: https://hsr.ca.gov/business-opportunities/small-business-program/ which includes further information on the Authority's commitments to hiring small, disadvantaged, and diverse businesses for the project). The Community Benefits Agreement includes separate goals for the hiring of disadvantaged workers (including workers who are lower-income, veterans, single parents, have no high school or General Educational Development diploma, or suffer from chronic unemployment). Please refer to response to comment 9784 for additional information about the Community Benefits Agreement. Thus, the Community Benefits Agreement will extend to low-income workers including those who reside in the Sun Valley neighborhood.

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4494-9794

Other non-employment-based benefits would also result from the project. As described in Section 5.8.3, in Chapter 5, Environmental Justice of the Draft EIR/EIS, the Build Alternatives would provide benefits to the regional transportation system by reducing vehicle trips on local freeways through the diversion of intercity trips from road trips to the HSR system. This reduction would be a net benefit to transportation and traffic operations because a reduction in VMT would help maintain or potentially improve the operating conditions of regional roadways. This reduction in future vehicle trips would improve the LOS of the regional roadway system and reduce the overall VMT compared with existing conditions and compared to the No Project Alternative. Reductions in VMT would have the added benefit of reducing emissions and improving air quality. The reduction in traffic congestion as a result of the California HSR System would in turn decrease the occurrence of vehicular, pedestrian, and cycling accidents. Design of the system also would prevent conflicts with other vehicles, pedestrians, and bicyclists. Overall, California HSR System operations would provide VMT, air quality, and safety benefits for travelers in the study area, including residents in Sun Valley as residents of the region.

Most recently, during November 2023, December 2023, and January 2024, the Authority conducted listening sessions with EJ communities in Pacoima and Sun Valley to seek feedback on potential additional measures that would avoid, minimize, and mitigate project impacts in EJ communities and would address concerns of EJ communities about the project's adverse effects. The Authority has developed additional measures to respond to concerns from environmental justice (EJ) communities, which are listed in Section 5.4.2 in Chapter 5, Environmental Justice, and described in Appendix 2-E, Impact Avoidance and Minimization Features of this Final EIR/EIS. EJ-IAMF#4 will require the Palmdale to Burbank Project Section Relocation Mitigation Plan (pursuant to SOCIO-IAMF#3) to include a subsection dedicated to addressing adverse effects to businesses in the EJ communities of Pacoima and Sun Valley (as identified in Section 5.5 of the Draft EIR/EIS). This Relocation Mitigation Plan subsection shall include a description of measures taken or proposed to offset the adverse effects of business displacements and relocations in the Pacoima and Sun Valley EJ communities, including a description of measures to relocate displaced businesses in close proximity to their same community. The Authority shall hold community roundtable meetings to seek and consider input from affected EJ communities prior to finalizing the Authority's

4494-9794

Relocation Mitigation Plan.

In addition, EJ Offsetting Mitigation Measure #1 (EJ-OMM#1) will require the Authority's Regional Workforce Development Board, and EJ community liaison (ombudsman) to develop a Construction Pre-Apprentice training program to provide pre-apprenticeship classes and hands-on construction training to primarily to individuals whose job has been directly impacted by a business displacement within the Pacoima and Sun Valley EJ communities. The program shall also include special recruitment and job set-aside programs for jobs created by the project to offset any impacts to jobs associated with business displacements within those EJ communities. The program(s) shall be developed with feedback, input and suggestions made by the Pacoima and Sun Valley EJ communities during community roundtables held by the EJ ombudsman. The Authority shall involve Pacoima Beautiful as part of this program to consider support of its Workforce Development and Economic Opportunities Plan, administered through Los Angeles City College (LACC), in cooperation with the Building Trades Council, Plumbers, Cement Masons, Iron Workers, Teamsters, Sheet Metals Workers, Pipefitters, Electricians and Operating Engineers Building Trades Unions. Further, the Authority shall periodically distribute an updated Jobs Fact Sheet and provide press releases that report achieved construction job creation milestones resulting from dispatching workers to build the high-speed rail system. This Jobs Fact Sheet will include the most recent information regarding the National Targeted Hiring Initiative and the total number of disadvantaged workers.

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4494-9795

The commenter requested further information on the nature of construction employment during project construction. As discussed in Section 5.8.3, in Chapter 5, Environmental Justice, of this Final EIR/EIS, through the Authority's Community Benefits Agreement, the Authority has implemented a variety of programs to increase both the number and ability of local workers and firms to compete for available HSR construction jobs. Through this cooperative partnership with skilled craft unions, the Authority is promoting and helping to develop education, pre-apprenticeship, and apprenticeship training programs. These activities in economically disadvantaged communities focus on helping lower-income persons, persons receiving public assistance, single parents, persons with no high school or a General Education Development diploma, and/or those who suffer from chronic unemployment to compete for available jobs. Community organizations have implemented similar programs to get workers trained, retrained, and certified for upcoming construction work. Through the Community Benefits Agreement, the Authority would require each prime contractor of an awarded construction package to commit 30 percent of all construction dollars to hiring small businesses, including separate goals for the hiring of disadvantaged and disabled veterans' businesses. At this time the location for training of workers has not been identified but would be made available to the general public in the future. The duration of each job would vary depending on the type of job.

4494-9796

The commenter requested further information on construction packages awarded by the Authority in 2013 and the composition of the workforce. The Authority awarded one construction package (Construction Package 1) in August 2013. Under this construction package, approximately 3,800 jobs have been created (as of January 31, 2023). Information regarding the total construction jobs (e.g., the number of jobs, number of national targeted hiring initiative workers, and number of disadvantaged workers) is available on the Authority's website: https://hsr.ca.gov/jobs/. As of January 31, 2023, nearly 11,300 jobs have been generated by Construction Packages 1 through 4. Of these jobs, approximately 6,000 jobs were filled by national targeted hiring initiative workers, 480 were considered disadvantaged workers, and more than 1,400 were apprentice workers. Definitions of each of these terms are also provided on the Authority's website.

4494-9797

The commenter asks how long traffic associated with spoils hauling would last during construction of the project. As stated in Section 3.2.6.3, spoils hauling is anticipated to take up to 6.4 years in total, depending on location and the Build Alternative.

No further response is needed, as the comment does not raise any CEQA/NEPA issues or address the adequacy of the EIR/EIS analysis.

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4494-9798

The commenter states that "new locations for EJ displaced businesses can't be mitigated."

The Authority interprets this to ask whether the Authority would provide new locations for businesses in EJ communities. The Authority would assist any displaced business in relocating. The commenter also states that "workers from the area are to be trained for jobs." The Authority interprets this comment to ask whether the Authority has committed to train workers from EJ communities.

It is the policy of the Authority to ensure that all reasonable steps should be taken, within the constraints of state and federal laws, to ensure that California communities, small businesses and residents benefit as fully as possible during the construction of the high-speed rail project. In implementing this policy, the Authority and its contractors are directed to adopt and implement programs designed to promote and advance construction employment and training opportunities for all individuals, especially those residing in extremely economically disadvantaged areas and veterans returning from military service. The commenter asks where "former businesses . . . [can] be found." The Authority does not track businesses that it relocates after it completes the process under the Uniform Relocation Act.

Finally, the commenter asks about the location of training for HSR-related jobs. This information can be found in the Authority established Community Benefits Agreement (please refer to https://hsr.ca.gov/business-opportunities/general-info/community-benefits-agreement/). Construction of the California HSR System would result in direct, indirect, and induced employment as well as an increase in sales tax revenue, which would be beneficial to the regional economy. The Authority established a Community Benefits Agreement designed to assist small businesses and job seekers in finding or obtaining construction contracts, jobs, and training opportunities for residents who live in economically disadvantaged areas along the HSR alignment (Authority 2013).

4494-9799

The commenter requested further information on the implementation of SO-MM#2: Implement Measures to Reduce Impacts Associated with the Division of Communities, including how the Authority would solicit input from residents in Lake View Terrace. The commenter also asks how the mitigation measure would be implemented if communities are divided. In response, the Authority would implement the mitigation measure prior to construction and prior to impacts occcurring. As described in Section 3.12, Socioeconomic and Communities, of the Draft EIR/EIS, under SO-MM#2, prior to construction, the Authority will implement an outreach program in communities subject to cohesion impacts by the Preferred Alternative, thereby obtaining input from homeowners, residents, land owners, business owners, community organizations and local officials via workshops held the affected neighborhoods. The workshops are intended to identify design and use options for areas beneath rail guideways that could strengthen community cohesion and provide compatibility with existing community character. To maximize attendance and generate awareness of the workshops, the Authority will work with community organizations or community leaders within the neighborhoods to organize and convene the meetings.

Based on the public feedback provided at these workshops, the Authority will document its work and identify recommendations for reducing impacts through project design and other measures to maintain community cohesion and avoid physical deterioration, such as determining the effectiveness of overpasses and underpasses to encourage pedestrian and bicycle connectivity to community facilities. Please refer to Appendix 3.1-C, Standardized Mitigation Measures, of the Draft EIR/EIS, for full descriptions of project mitigation measures.

Furthermore, as a matter of clarification, the Refined SR14, SR14A (Preferred Alternative), E1, and E1A Build Alternative alignments would avoid Lake View Terrace, thus avoiding community cohesion impacts to this community; only the E2 and E2A Build Alternatives would traverse at-grade and above grade through the Lake View Terrace community, resulting in physical and visual community cohesion impacts at the neighborhood between Jimenez Street and Wheatland Avenue. Access between properties and the local road network would be maintained because the project would provide roadway overcrossings and undercrossings to facilitate pedestrian, bicycle, and vehicular circulation. For example, connectivity between the divided neighborhood

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4494-9799

above would be maintained via Arnwood Road and Foothill Boulevard, both of which would pass underneath the elevated HSR right-of-way for the E2 and E2A Build Alternatives. Please refer to Impact SOCIO#2 in Section 3.12, Socioeconomics and Communities of the Draft EIR/EIS, for further information on project design features and mitigation measures that will be implemented into the project to minimize the potential for community cohesion impacts.

4494-9800

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, PB-Response-N&V-2: Noise Mitigation and selection of Proposed Sounds Barriers, PB-Response-N&V-5: Impacts of Spoils Hauling (Noise), PB-Response-N&V-6: Construction Noise/Truck Impacts.

The commenter is requesting additional information regarding mitigation for aesthetic impairments (e.g., plants, screening stations, and towers). The commenter specifically wants to know: 1) who will be responsible for preservation and upkeep of plants, 2) what materials would be provided for screening stations and towers, 3) How would the screens be protected from graffiti, and 4) what noise, in particular, would need minimizing.

As discussed in Section 3.16, Aesthetics and Visual Quality, of the Draft EIR/EIS, as part of mitigation measures AVQ-MM#1 and AVQ-MM#5, the Authority will both revegetate areas disturbed by construction, and also replant unused portions of land acquired for project purposes and provide for continuous landscape maintenance with appropriate irrigation systems. The contractor will install the irrigation system within the planting areas. No species listed on the Invasive Species Council of California's list of invasive species would be planted. In addition, and also discussed in Section 3.16 as part of mitigation measure AVQ-MM#6, any graffiti or visual defacement or damage of fencing and walls will be painted over or repaired within a reasonable period as agreed between the Authority and local jurisdiction.

The Authority would be responsible for the maintenance of all project infrastructure, including the maintenance of noise barriers. As discussed in AVQ-MM#1: Minimize Visual Disruption from Construction Activities and AVQ-MM#4: Provide Vegetation Screening Along At-Grade and Elevated Guideways Adjacent to Residential Areas, vegetation, trees, and fencing would be used to screen stations and towers.

To address the comment inquiring about noise from operation and construction-related activities, please refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, PB-Response-N&V-2: Noise Mitigation and Selection of Proposed Sound Barriers, PB-Response-N&V-5: Impacts of Spoils Hauling (Noise), and PB-Response-N&V-6: Construction Noise/Truck Impacts, which address

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4494-9800

noise impacts.

4494-9801

The commenter requested further information on whether adverse, unmitigable effects on both EJ and non-EJ communities suggests that those effects are less adverse. By definition, an adverse effect does not somehow become less adverse by impacting more communities. But determining the adverse effects on different communities can illuminate the proportionate effect on those different communities. If an adverse effect falls on both EJ and non-EJ communities, then it is possible that the effect does not fall disproportionately on the EJ communities. Table 5-24 in Chapter 5 of this EIR/EIS includes a summary of adverse effects and mitigation measures from the project. Under USDOT Order 5610.2C, the purpose of Chapter 5 is to assess each of these adverse effects, and to determine those that would result in disproportionately high and adverse effects on EJ populations relative to non-EJ populations. Mitigation measures and IAMFs will be implemented to minimize both adverse effects affecting both EJ and non-EJ populations, as well as disproportionately high and adverse effects on EJ populations.

4494-9802

The commenter asks whether the Draft EIR/EIS should be subject to change due to population changes between the dates used in the Draft EIR/EIS and actual construction.

The baseline year for the analysis of project impacts was established after the Notice of Preparation was filed on July 24, 2014, just after the public scoping period for the project was completed and at the onset of environmental analysis (see Draft EIR/EIS, pp. S-7, 3.3-23 to 3.3-24). CEQA Guidelines section 15125(a)(1) explicitly supports establishing baseline physical conditions in this manner, and therefore the use of a 2015 baseline is appropriate.

In reviewing more recent census data, the Authority acknowledges that there have been some changes in population. According to the U.S. Census Bureau, the population of the City of Los Angeles was 3.983 million in 2019, before the pandemic while the population of the City was 3.898 million in 2020, which is a decrease of 1 percent after the pandemic.

The analysis in Sections 3.12 and 3.13 evaluates the impacts of the project alternatives based on projected 2040 future conditions, which is the horizon year for analysis of California HSR System operations. Accordingly, the impact discussions in these sections are based on a projected population of 4.6 million in 2040. Population projections are always snapshots, reflecting the historical data available, and the analysis of trends, growth capacities, and growth constraints apparent at the times the projections are prepared. However, more significant than the specific population projection is the recognition and examination of how the HSR system and its project sections would operate in the context of anticipated growth. Updating the document with 2020 data or with more recent population projections for 2040 would not change the impact determinations presented in Section 3.12 and Section 3.13 as the Palmdale to Burbank Project Section is not anticipated to induce substantial unplanned population growth beyond what is planned for in the Resource Study Area.

In addition, the commenter seems to ask whether the Draft EIR/EIS should be subject to change because of "climate changes." Section 3.3, Air Quality and Global Climate Change in the Draft EIR/EIS addresses impacts related to Climate Change, while

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4494-9802

Section 3.3.5.4 identifies an emissions inventory. Overall, within the context of evaluating this project and specifically the topic of climate change, the project would reduce air quality emissions because many travelers will rely on HSR instead of continuing to travel by single-occupancy vehicles and long-distance aircraft travel, as explained in Impact AQ#13. This climate change analysis does not substantively change with a later construction date.

4494-9803

The commenter asks about the amount of congestion is caused by traffic between Palmdale and Burbank. In general, the Draft EIR/EIS did not evaluate the amount of congestion caused by traffic in this area, as it is not a CEQA analysis requirement. Instead, the methods for evaluating impacts, as documented in Section 3.2.4 for the Draft EIR/EIS, included modeling changes in traffic volumes and operating conditions at specific locations that could potentially be affected by project construction and operations.

I-5 and SR 14 are the primary freeways that connect Palmdale and Burbank. As stated in Section 3.2.5.1, under existing conditions, I-5 carries about 207,000 vehicles per day and SR 14 carries between 71,000 and 84,000 vehicles per day in the study area. Table 3.2-15 presents existing freeway operating conditions in the area between Palmdale and Burbank, including three locations on SR 14 (Map ID AA, BB and CC) and two on I-5 (Map ID FF and II). As shown in the table, these five study locations were determined to operate at LOS D or better during the weekday AM and PM peak hours, indicating that there is not considered to be a high level of congestion in this area.

As this question is related to current conditions and does not raise any CEQA/NEPA issues or address the adequacy of the EIR/EIS analysis, no further response is required.

4494-9804

The commenter quoted the President's Executive Order 12898. The commenter also quoted the Authority's commitment to implement the requirements outlined in Title VI of the Civil Rights Act of 1964, Executive Order 12898, and Executive Order 13166. It also references tables, that provide census figures on various characteristics, and a list of organizations that serve Environmental Justice communities. It references the Authority's Outreach Team the Authority created to coordinate community events, to take notes, and to share feedback. No response is required.

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4494-9805

The commenter requested detailed information on EJ community outreach meetings for the project held between 2016 and 2022. From 2015 to 2022, a total of 40 meetings or events aimed directly at low-income and environmental justice populations took place in the cities of Los Angeles, Lancaster, San Fernando, and Burbank; in the communities of Pacoima, Sun Valley, Sylmar, and Sunland-Tujunga; and online virtually, attracting over 4,700 attendees. These included Community Working Groups (CWGs) and Stakeholder Working Group sessions in environmental justice communities that drew more than 250 participants. Invitees and attendees at these meetings included, but were not limited to, community members and local residents from the cities mentioned above and representatives or members of local community groups (i.e., faith-based organizations, environmental justice advocacy groups, community advocacy groups, social service groups, social justice advocacy groups, transit advocacy groups, neighborhood councils, town councils and community/homeowner associations, etc.).

In addition, the Authority participated in neighborhood council meetings, hosted meetings fully in Spanish and attended events such as back-to-school pop-ups, summer reading celebrations and food pantry giveaways. The Authority also collaborated with Pacoima Beautiful to host six community meetings and briefings (with select language opportunities) between 2015 and 2022 that reached more than 75 participants.

The Authority has hosted open houses, information sessions, and virtual updates in these communities at key project milestones in 2015, 2016, 2018, 2020, and 2022. Meetings were publicized via email, social media, media coverage and direct outreach to organizations. In preparation for the release of Draft EIR/EIS, advertisements were placed in 14 newspapers to publicize the in-person information session, open house, and public hearing that were targeted to these communities. These advertisements were also available in Spanish, Armenian, and Arabic. New contacts in attendance at outreach activities were also added to the master Project Section database and became part of the distribution list for project section updates and notifications for future meetings and events. Outreach activities occur during various stages of the project, including before developing and releasing the Draft EIR/EIS. All outreach meetings are conducted by the Authority. Various documents are prepared in support of the project including informative project materials and meeting notification materials.

4494-9806

The commenter requested further information on EJ community participants' role in the projects' decision-making process, and further information on tools, training, and resources that the Authority will provide for people with limited English proficiency. As noted in the prior response, the Authority hosted more than 40 events and meetings between 2015 and 2022 that drew more than 4,700 participants. These public meetings allowed stakeholders to stay informed and to offer comments and suggestions throughout each project phase, up to and including the Draft EIR/EIS public comment period on any topic, including air quality. This engagement helped the Authority gather important information for decision-making, and it considered the comments, concerns, and suggestions as it moved forward. For the decision-making process under CEQA, ultimately, after considering the information in the Final EIR/EIS and other information obtained and provided by Authority staff, the Authority Board of Directors will decide which alternative to pursue. Under NEPA, the Board will provide directions to the Authority CEO to make a decision in the Record of Decision.

The Authority announces project information via social media posts, emails, mailers, and newspaper ads to promote project updates, comment periods, and upcoming public meetings. Details on the multiple methods to connect with the Authority are included in all project information. This engagement helps the Authority gather important information for decision-making. Meetings held entirely in Spanish have also been conducted. For training, resources, and if an organization wants to schedule a meeting with the Authority to discuss project-related concerns, they can do so by calling the project information line at (800) 630-1039 or sending an email to palmdale_burbank@hsr.ca.gov. Resources such as translated project materials and the Draft EIR/EIS are available and have been available in Spanish, Armenian and Arabic, while translations in additional languages can be requested. Live Spanish interpretation is provided during in-person and virtual meetings and additional languages upon request.

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4494-9807

The commenter asked why the Draft EIR/EIS uses census figures from 2010 to 2014, when census data from 2020 is available.

The baseline year for the analysis of project impacts was established after the Notice of Preparation was filed on July 24, 2014, just after the public scoping period for the project was completed and at the onset of environmental analysis (see Draft EIR/EIS, pp. S-7, 3.3-23 to 3.3-24). CEQA Guidelines section 15125(a)(1) explicitly supports establishing baseline physical conditions in this manner, and therefore the use of a 2015 baseline is appropriate.

In reviewing more recent census data, the Authority acknowledges that there have been some changes in population. For example, according to the U.S. Census Bureau, the population of the City of Los Angeles was 3.983 million in 2019, before the pandemic while the population of the City was 3.898 million in 2020, which is a decrease of 1 percent after the pandemic.

The analysis in Sections 3.12 and 3.13 evaluates the impacts of the project alternatives based on projected 2040 future conditions, which is the horizon year for analysis of California HSR System operations. Accordingly, the impact discussions in these sections are based on a projected population of 4.6 million in 2040. Population projections are always snapshots, reflecting the historical data available, and the analysis of trends, growth capacities, and growth constraints apparent at the times the projections are prepared. However, more significant than the specific population projection is the recognition and examination of how the HSR system and its project sections would operate in the context of anticipated growth. Updating the document with 2020 data or with more recent population projections for 2040 would not change the impact determinations presented in Section 3.12 and Section 3.13 as the Palmdale to Burbank Project Section is not anticipated to induce substantial unplanned population growth beyond what is planned for in the Resource Study Area.

4494-9808

The commenter requested further information on the limited English proficiency demographics tables for the City of Los Angeles EJ project study areas. For purposes of this analysis, LEP communities are considered to be those communities where five percent or more of the population have limited ability to read, write, speak, or understand English. Statistics related to LEP households are shown for both Los Angeles County, in general, as well as the six cities in the study area listed in Table 5-A-3, in Appendix 5-A, Environmental Justice Outreach Plan, of this Final EIR/EIS. The environmental justice communities in the project study area (near the Build Alternatives) that are within the City of Los Angeles also include the neighborhoods of Pacoima, Sun Valley, Sylmar, and Sunland-Tujunga.

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4494-9809

The commenter requested further information on the Authority's protocol for contacting EJ organizations. Organizations included in the master Project Section database are automatically added to the project's notification list, which allows them to receive project updates and invitations to community meetings and events.

If an organization wants to schedule a meeting with the Authority to discuss project-related concerns, they can do so by calling the project information line at (800) 630-1039 or by sending an email to palmdale_burbank@hsr.ca.gov. Currently, the Authority does not have funding for construction of this project section. Therefore, more detailed planning efforts at a higher level of design have not begun for this specific stage of the project. Future funding is being sought for continued progress. As funds become available, the Authority will proceed with advanced design and prepare for other pre-construction work. Consistent with other HSR project sections currently in the construction phase, such as the Central Valley, outreach plans, including outreach to EJ organizations, will include a variety of meetings and events to engage communities, residents, and stakeholders in and along the project area. Communities, residents, and stakeholders will receive notification of community meetings and events via various channels, including social media, and email. In addition, to identify additional efforts to help communicate project updates, the Authority will continue to coordinate with key community organizations and neighborhood councils throughout the corridor who have been engaged during project processes.

4494-9810

The commenter requested further information on the expectations for future participation and the efficacy of listed EJ advocacy, community, and social justice groups in advocating for EJ communities. Table 5-A-1 lists Regional Household Income Corridor Environmental Justice Advocacy and Community Groups that are targeted for inclusion in the master Project Section database. Once added, these organizations will be part of the project's notification list and receive updates and notifications for future meetings and events. The Authority does not expect, but would appreciate their feedback, questions, comments, suggestions, and other information they would like to provide.

Based on the feedback received throughout the project outreach and the comments during the Draft EIR/EIS period, the Authority understands that environmental justice communities have requested services related to, or have otherwise focused on, noise, air quality, traffic, property acquisition/displacement, community cohesion, and access to jobs and economic development. The Authority also intends to provide EJ communities with services to facilitate communication and engagement with the Authority. The Authority is therefore preparing project information available in multiple languages, including Spanish, Armenian and Arabic, and sharing Statewide program information with the public on Private Property (i.e., Right-of-Way Process, Your Property –Your High-Speed Rail, ROW Permit to Enter Process, Relocation Assistance Program, and Property Acquisition). Additionally, any other language needs can be provided upon request.

Participation from various organizations (including EJ organizations) is essential to effectively engage residents and stakeholders with varying needs/concerns/issues in and along the cities in the study area, and the Authority is committed to engaging with those organizations.

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4494-9811

The commenter requested further information on the logistics of EJ community outreach concerning public meetings. Currently, the Authority does not have funding for construction of this project section. Therefore, planning efforts have not begun for this specific stage of the project. Future funding is being sought for continued progress. As funds become available, the Authority will proceed with advanced design and prepare for other pre-construction work. As required by the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), the Authority will publish information for all community meetings and events in the Authority's project website and directly notify the community, residents, and stakeholders in and along the project area via various channels that may include mailers, social media posts and newspaper ads. Emails will be sent to contacts in the master Project Section database. Meetings will be scheduled to take place in-person and virtually. In-person meetings will be held in community centers or venues easily accessible to residents/community members and stakeholders.

Community meeting attendees and stakeholders, including EJ advocacy groups can participate in the project by staying informed, by offering suggestions, and by submitting comments on the topics outlined for the respective meetings or other events. The Authority will consider that feedback during advanced design and construction phases.

The commenter asks how activities can "be included in the [Draft EIR/EIS] with its current deadline of 12/1/22." The Authority published that document, and it formally accepted comments on it through December 1, 2022. The response to Comment 9805 described some of the Authority's outreach efforts from 2015 to 2022

The outreach is guided by and in compliance with federal and state requirements, including Title VI of the Civil Rights Act of 1964 Executive Order 12898 (February 16, 1994) Executive Order 13166 (August 11, 2000) U.S. Department of Transportation Order 5610.2

Please refer to Section 5.2.1, Federal Laws, Regulations, and Order, in Chapter 5.0 of this Final EIR/EIS for further description of federal policies concerning EJ communities, including EJ programs and outreach.

4494-9812

The commenter requested further information on the logistics of EJ outreach meetings for the project as described in the Environmental Justice Outreach Plan in Appendix 5-A of the Draft EIR/EIS.

While Directors would not document attendance at gatherings, the Authority tracks attendance via meeting sign-in sheets. Attendees at meetings who provide their contact information are added to the master Project Section database for subsequent meetings and event notifications via email and other means (see Section 3.36 of Appendix 5-A in the Draft EIR/EIS).

The Authority has not designated a particular percentage of the populace that it considers to be a healthy attendance level but strives to maximize public meeting attendees and involvement. As described in Section 3.3 of Appendix 5-A in the Draft EIR/EIS, part of the outreach will also include ongoing review and development of outreach strategies: "Throughout the duration of the project, the Outreach Team will maintain ongoing review of targeted EJ populations, calendared events, outreach objectives and strategies by EJ population and events, and outreach tracking and metrics. Specific strategies and tactics for EJ outreach are outlined in Attachment A of Appendix 5-A. The ongoing development and implementation of the described tactics will be further informed by higher resolution demographics data as well as insights from EJ advocacy and community groups." Section 3.3 of Appendix 5-A in the Draft EIR/EIS also describes the key strategic objectives of the EJ Outreach Plan, which includes the facilitation of constructive dialogue between key EJ stakeholders and the Authority, and communication with minority and low-income populations regarding how project feedback has been reflected in the process. A list of previous and upcoming community engagement events for the High-Speed Rail Project in California can be found at the following link: https://hsr.ca.gov/communications-outreach/info-center/events/.

To-date, community engagement events for the project include EJ organization working groups and meetings, community open houses, neighborhood council briefings, and public hearings, many of which have taken place in EJ communities in the San Fernando Area. The Authority has hosted more than 40 events and meetings between 2015 and 2022 that drew more than 4,700 participants. These public meetings allowed stakeholders to stay informed and to offer comments and suggestions throughout each

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4494-9812

project phase, up to and including the Draft EIR/EIS public comment period on any topic, including air quality.

The number of meetings that occur depends on each community and the needs of the community. Meetings are expected to take place before and during construction to keep the communities informed throughout each milestone. As described in Section 3.3 of Appendix 5-A in the Draft EIR/EIS, throughout the duration of the project, the Authority Outreach Team will maintain ongoing review of targeted EJ populations, calendared events, outreach objectives and strategies by EJ population and events, and outreach tracking and metrics. Specific strategies and tactics are outlined in Attachment A of Appendix 5-A. The ongoing development and implementation of the described tactics will be further informed by higher resolution demographics data, as well as insights from EJ advocacy and community groups. Exact types of locations where meetings may be held are not currently known but could include schools. Community meetings are typically offered as in-person or virtual participation with a call-in option for virtual meetings. Typically, in-person meetings take place in communities within the project area, at facilities that are accessible and centrally located in the community.

As described in Section 3.3 of Appendix 5-A in the Draft EIR/EIS, the Authority has and will continue to evaluate Limited English Proficiency (LEP) needs at a finer population scale for local and regional events to adhere to or exceed LEP guidelines as is sufficient to meet local language needs. Spanish interpretation is provided during meetings as a standard practice, with at least two Spanish interpreters available at each meeting, while interpretation in other languages can be available upon request.

Regarding notice of meetings, stakeholders located near the project section alignments are informed of updates and upcoming meetings and events via a variety of channels, including social media, eblasts and media coverage. In general, two to three weeks advance notice have and will be provided to before each meeting. The Authority strives to share project information with community members, residents, and stakeholders.

As described in Section 1.1 of Appendix 5-A in the Draft EIR/EIS, the Authority collects all comments, concerns, and inquiries to consider during the different stages of the project. Inquiries or comments are generally responded to individually. All project

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sections follow the Authority's protocol for communications and engagement. Regarding small group meetings, organizations can contact the Authority to request a meeting, and this will allow residents to meet with the Authority in small groups to express opinions.

Generally, the Authority, as needed, will bring appropriate contractors to meetings to address community issues and concerns. Section 3.3.1 of Appendix 5-A also specifies that "At the conclusion of each public meeting, meeting notes summarizing public comments and feedback will be prepared and distributed internally within the Authority for use in further refining project details."

Regarding milestones, the Authority's Staged Project Delivery process creates the framework designating key project milestones. This includes project section milestones such as the approval of project section design, completion of necessary right-of-way acquisition, the completion of necessary utility relocations, and the completion of built structures (for further information on project milestones, please refer to the Authority's Project Update Report, available at: https://hsr.ca.gov/about/project-update-reports/2023-project-update-report/).

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

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The commenter requested further information on the efficacy of online webinars for EJ outreach for the project.

The implementation of webinars combined with in-person meetings and events has increased opportunities for all stakeholders to attend outreach meetings and events, resulting in higher participation rates. From 2015 to 2022, a total of 40 in-person and virtual meetings or events aimed directly at low-income and environmental justice populations, attended by over 4,000 attendees, took place in the cities of Los Angeles, San Fernando, and Burbank; the communities of Pacoima, Sun Valley, Sylmar, and Sunland-Tujunga; and online virtually.

In-person meetings have been combined with online webinars to increase participation and engagement. Specifically, the eight separate virtual meetings held between 2020 and 2022 drew more than 385 attendees. The Authority considers this volume of attendance as making the meetings well-attended and successful. Virtual meetings were complemented with in-person outreach efforts to target EJ communities throughout the project alignment. A combination of both modalities has proven the best approach to give stakeholders multiple opportunities to stay engaged with the project throughout all phases.

4494-9814

The commenter asks about the Authority's awareness of locations of importance for Native American, in particular near Little Tujunga Road. The Authority obtained a Native American Heritage Commission (NAHC) Sacred Lands File search for the entire archaeological Area of Potential Effects (APE), which is the area of all Project Section Alternatives, which indicated that Native American cultural sites are present in the APE. As stated on page 3.17-20 of the Draft EIR/EIS, the NAHC Sacred Lands File search identified Native American cultural resources within 0.5 mile of the APE. However, no sacred lands have been identified in the archaeological APE. No sites of Native American importance have been identified along or near Little Tujunga Canyon Road. Consultation with the tribes identified by the NAHC has not resulted in the identification of additional resources. FRA and the Authority have consulted extensively with Native American consulting parties and will continue to do so through project construction. Consultation has occurred in tandem with other efforts to identify archaeological resources. As described in Section 3.17.5.2 of the Draft EIR/EIS, FRA and the Authority have searched cultural resources records, have searched NAHC sacred lands files, and have completed archaeological surveys of accessible portions of the Palmdale to Burbank Project Section APE. Additionally, an archaeological sensitivity analysis was conducted for the Palmdale to Burbank Project Section APE. The Authority will continue tribal consultation throughout project planning and development of the Section 106 Memorandum of Agreement (MOA) and associated treatment plans. Specifically, the Archaeological Treatment Plan (ATP) is being prepared in consultation with the tribes to focus on the treatment of known and unknown archaeological resources, and it will require the phased identification, evaluation, and mitigation of impacts to archaeological resources that may be on parcels for which legal access has yet to be granted. The ATP includes provisions that all inaccessible areas would be surveyed prior to the commencement of any ground-disturbing activities. It identifies archaeological monitoring (CUL-IAMF#5) and Native American monitoring as general treatment measures. It also provides requirements for procedures and protocols to be followed in the event of unanticipated discoveries during construction. CUL-MM#5 addresses efforts to develop meaningful mitigation measures for effects on as-of-yet-unidentified Native American archaeological resources that cannot be avoided, which would be negotiated with the tribal consulting parties. Measures that are negotiated among the MOA signatories and tribal consulting parties will be the responsibility of the Authority to implement.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9815

As discussed in Section 3.17.5.3, the Authority will conduct a Worker Environmental Awareness Program. This pre-construction training would be mandatory for all on-site construction personnel to limit the possibility of irreparable damage to important undocumented resources. Training would address archaeological deposit and feature identification, as well as the mandatory procedures to follow should potential cultural resources be exposed during construction activities. Additional details regarding the approach and process for cultural resources worker awareness training are available in Volume 2, Appendix 2-E, Project Impact Avoidance and Minimization Features, of the Draft EIR/EIS. No revision to the Draft EIR/EIS required.

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Refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations.

The commenter inquires about the frequency of the Titleholder Working Group Meetings. As described in Section 9.6, Log of Public and Agency Meetings, 107 community and stakeholder working group meetings were held between 2015 and 2021. The Authority is committed to continuing engagement with the agencies and communities in the project area after publication of the Final EIR/EIS; however specific meeting schedules and frequency remain to be determined.

Please also refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations, for additional information about the property acquisition process. The comment does not address technical analysis in the Draft EIR/EIS or suggest edits to the document. No change has been made to the document in response to this comment.

4494-9817

The commenter inquired about other examples of how EJ communities were engaged for other portions of the HSR system, such as the Central Valley. For additional information regarding how the EJ engagement was conducted and how impacts to EJ communities were addressed for other project sections of the CAHSR system, please refer to the Environmental Justice and Public and Agency Involvement chapters in the environmental documents for each project section, which are available on the Authority's website: https://hsr.ca.gov/programs/environmental-planning/project-section-environmental-documents-tier-2/. The comment does not raise any concerns about the contents of this Draft EIR/EIS. No change has been made to the document in response to this comment.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

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The commenter expressed concerns regarding the inconsistent use of estimating methods for capital cost estimates and the most recent 2022 Business Plan Data not being included in the calculation of capital cost estimate. The commenter also expressed concern about the most recent 2022 Business Plan data not being used for calculating the operational and maintenance cost. Additionally, the commenter expressed concern about whether inflation is factored into the cost analysis.

The capital cost estimate presented in Chapter 6 of the Draft EIR/EIS was prepared based on detailed alignment features and preliminary engineering by study alternative described in the EIR/EIS; from recent bid data from large transportation projects in the western United States; and by developing specific, bottom-up unit pricing to reflect common HSR elements and construction methods with an adjustment for regional labor and material costs.

The analysis presented in both the Draft and Final EIR/EIS was initiated using the 2016 Business Plan. Given that there are minimal differences between the Authority's 2016 Business Plan, 2018 Business Plan, and 2020 Business Plan, the costs included in this document rely on the 2016 Business Plan. Following publication of the draft document in February, 2022 and public review, the Authority adopted the 2022 Business Plan in April and submitted it to the Legislature in May, 2022.

As described in the 2022 Business Plan, the document only includes updated estimates for project sections that were environmentally cleared as of publication, which does not include the Palmdale to Burbank Section. As shown in Table 5.0 of the 2022 Business Plan, the Palmdale to Burbank costs are presented expressing capital cost estimates as a range, since the estimates are primarily parametric in nature. The ranges are shown in a Low, Base, and High-cost estimates.

The O&M cost estimate methodology is also consistent with the 2016 Business Plan. Please note that the O&M costs and capital costs provided in Chapter 6, Project Costs and Operations, of the Draft EIR/EIS, are presented in 2015$ and does not include cost estimates in YOE$.

For information about cost estimates, refer to Chapter 6 of this Final EIR/EIS and to the

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Authority's Business Plans, which can be found at the Authority's website, www.hsr.ca.gov.

As for concerns regarding whether inflation is factored into the calculation, both current year dollars and year of expenditure dollars are shown in the 2022 Business Plan. Year of expenditure dollars illustrates the effect of projected inflation on cost estimates over the duration of a project delivery schedule. For more information about the methodology used to calculate capital cost estimates, please refer to the Capital Cost Basis of Estimate Report. An updated Capital Cost Basis of Estimate Report has been prepared for the 2022 Business Plan. These cost changes are an interim update and were not incorporated into the O&M, Life Cycle, or Breakeven analyses at this time. All other technical methodologies, assumptions, and results remain unchanged. Future legislative reports will continue to progressively update cost estimates as the remaining environmental Records of Decision are approved. These cost updates will then be incorporated into future forecast and estimate analyses.

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4494-9819

The commenter inquires why finance charges, equipment yards, shops, and administration buildings are excluded from the cost estimate, and questions if the project cost in the 2022 Business Plan is understated. Additionally, the commenter inquires about what costs are excluded from project sections and included in other budgets, and if any other items were excluded.

As stated in footnote 3 of Table 6-1 in Chapter 6 of the EIR/EIS, the Palmdale to Burbank Project Section cost information does not include support facilities, such as rail yards, shops, and administrative buildings associated with the project, because of the limited level of design information available for these project features. However, as the Authority moves forward with advanced design work, the Authority will continue to refine the estimates and evaluate ways to deliver the project as efficiently as possible. Additionally, to address the topic of future finance charges, Table 6-1 of the EIR/EIS, specifies that an estimate will be developed prior to project construction. For further discussion on what the operation and maintenance costs estimates include, see Section 6.3.3, Development of Operations and Maintenance Costs. The methodology used for generating capital cost estimates has been consistent with FRA guidelines for estimating capital costs.

As described in Section 2.3 in Appendix 6.0-B, PEPD Set Capital Cost Estimate Report, in Volume II of this Final EIR/EIS, the heart of the FRA capital cost estimating guidance is the Standard Cost Category (SCC), which enables FRA-funded projects to develop budget baselines that summarize the SCC. This cost structure is used for capital cost detail and summary sheets. Where the level of design does not support quantity measurements, parametric estimating techniques were utilized.

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The commenter expressed concern regarding the most recent data from the 2022 Business Plan not being included in the analysis. Additionally, the commenter expressed concern about consistency in the use of base years.

The capital cost estimate presented in Chapter 6 of the Draft EIR/EIS was prepared based on detailed alignment features and preliminary engineering by study alternative described in the EIR/EIS; from recent bid data from large transportation projects in the western United States; and by developing specific, bottom-up unit pricing to reflect common HSR elements and construction methods with an adjustment for regional labor and material costs.

The analysis presented in both the Draft and Final EIR/EIS was initiated using the 2016 Business Plan. Given that there are minimal differences between the Authority's 2016 Business Plan, 2018 Business Plan, and 2020 Business Plan, the costs included in this document rely on the 2016 Business Plan. Following publication of the draft document in February, 2022 and public review, the Authority adopted the 2022 Business Plan in April and submitted it to the Legislature in May, 2022.

As described in the 2022 Business Plan, the document only includes updated estimates for project sections that were environmentally cleared as of publication, which does not include the Palmdale to Burbank Section. As shown in Table 5.0 of the 2022 Business Plan, the Palmdale to Burbank costs are presented expressing capital cost estimates as a range, since the estimates are primarily parametric in nature. The ranges are shown in a Low, Base, and High-cost estimates.

The O&M cost estimate methodology is also consistent with the 2016 Business Plan. Please note that the O&M costs provided in Chapter 6, Project Costs and Operations, of the Draft EIR/EIS, are presented in 2015$ and does not include cost estimates in YOE$.

For information about cost estimates, refer to Chapter 6 of this Final EIR/EIS and to the Authority's Business Plans, which can be found at the Authority's website, www.hsr.ca.gov.

As for the commenter's consistency question regarding use of operational base years,

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the Authority periodically updates its service plan assumptions as part of its Business Plan updates. Refer to the 2020 Business Plan Service Planning Methodology (available: https://hsr.ca.gov/wp-content/uploads/docs/about/business_plans/2020_Business_Plan_Service_Planning_Methodology.pdf) for additional information regarding the development of the HSR service plans and the latest information regarding projected opening years for various service lines.

4494-9821

The commenter inquires about the accuracy of data in Appendix 6-A of the Draft EIR/EIS and expresses concern regarding the use of older from the Authority's 2016 Business Plan.

As noted in Chapter 6, Project Costs and Operations, of the Draft EIR/EIS, the analysis presented in the Draft EIR/EIS was initiated using the 2016 Business Plan. Although the Authority updates its Business Plan every two years, the Revised 2020 and 2022 Business Plan forecasts were developed using the same travel forecasting model but using updated population and employment data.

The Authority's 2018 Business Plan, adopted in June 2018, includes updated O&M costs. It states that "operations and maintenance costs in all scenarios are minimally impacted by the changes made since the 2016 Business Plan."

As shown in Table 5.0 of the 2022 Business Plan, the full Phase 1 program cost estimate remains the same as described in the 2020 document. Also note that O&M costs cited in Section 6.3.3 of the Draft EIR/EIS are described in 2015 dollars, the same as shown in Appendix 6-A, High-Speed Rail Operating and Maintenance Costs for Use in EIR/EIS Project-Level Analysis. The Authority intends for the HSR system to be financially self supporting, achieving a balance between O&M costs and projected farebox revenue required by Proposition 1A, passed by California voters in November 2008.

4494-9822

Please see the response to Comment #9821.

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4494-9823

The commenter inquired why maintenance and operations costs are analyzed together, and inquired about the use of 2015 data in the Draft EIR/EIS. For further discussion on the operation and maintenance costs estimates, see Section 6.3.3, Development of Operations and Maintenance Costs.

The methodology used for generating capital cost estimates has been consistent with FRA guidelines for estimating capital costs (Authority and FRA, 2017). The heart of the FRA guidance is the Standard Cost Categories (SCC), which enables FRA-funded projects to develop budget baselines that summarize the SCC. This cost structure is used for capital cost detail and summary sheets and is described below. Where the level of design does not support quantity measurements, parametric estimating techniques were utilized. As noted in Chapter 6, Project Costs and Operations of the Final EIR/EIS, the analysis presented in the draft EIR/EIS was initiated using the 2016 Business Plan. Given that there are minimal differences between the Authority's 2016 Business Plan, 2018 Business Plan, and 2020 Business Plan, the costs included in this document rely on the 2016 Business Plan. The Revised 2020 Business Plan forecasts were developed using the same travel forecasting model as the 2016 and 2018 Business Plans, updated for population and employment forecasts. The Authority's 2018 Business Plan, adopted in June 2018, includes updated O&M costs. It states that "operations and maintenance costs in all scenarios are minimally impacted by the changes made since the 2016 Business Plan". As described in the 2022 Business Plan, the 2022 Business Plan only includes updated estimates for project sections that were environmentally cleared, which does not include the Palmdale to Burbank Project Section. As shown in Table 5.0 of the 2022 Business Plan, the full phase 1 program cost estimate remains the same.

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The commenter inquired why the Authority included cost estimates for operations, dispatching, maintenance of equipment, station and train cleaning, and inquired if the costs would be the train operator's responsibility as operating costs. Additionally, the commenter inquired if the project would be similar to the Amtrak business model and inquired about other business methods.

The Authority may choose to operate the service directly through the use of its own employees or, alternatively, hire an operator who would still incur operation and maintenance costs. The Authority has the obligation to include information on project costs, including operation costs, in the EIR/EIS, for the purposes of disclosure under NEPA. As a result, information on project costs, including operation costs, is included within Chapter 6 of the Draft EIR/EIS. In addition, under Proposition 1A, adopted by California voters in November 2008, the operation and maintenance of the California HSR System is to be self supporting and is not to include a public subsidy.

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4494-9825

Refer to Standard Response PB-Response-AQ-1: Construction-Period Emissions, PB-Response-AQ-3: Construction Air Quality/Truck Impacts, PB-Response-GSSP-2: Impacts on Paleontological Resources, PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors.

The commenter summarizes information from Chapter 7, Other CEQA/NEPA Considerations of the Draft EIR/EIS, including unavoidable adverse environmental effects (nitric oxide, carbon monoxide, particulate matter, excessive operational train noise, paleontological destruction, visual aesthetics, and historic built resources) and project benefits (decreased air pollutants from train operation, job creation, and improvements to local transit). The commenter also notes the short-term uses of the environment (investment of materials, consumption of fossil fuels, and conversion of land necessary for construction) and long-term productivity (greenhouse gas reductions and more construction for workers to provide new services and housing). The commenter also identifies irreversible environmental changes (procurement of land, materials, and fossil fuels both above and below ground). The commenter asks how the same environmental factors can be both adverse and beneficial. The commenter correctly notes that the Authority identifies that certain environmental factors (i.e., air quality and greenhouse gas emissions) were found to be both adverse and beneficial, which reflects short-term construction-related effects versus long-term benefits of project operation. In the short-term, construction of the HSR Palmdale to Burbank Project Section would generate air quality and greenhouse gas emissions that would adversely affect localized air quality during construction; however, in the long-term, operation of the HSR Palmdale to Burbank Project Section would reduce air quality and greenhouse gas emissions because it is anticipated that people would shift from using on-road vehicles and planes to the California HSR system, which is less emissions intensive than other transportation modes. Similarly, construction of the HSR system would require the permanent acquisition and conversion of existing land uses; however, the operation of the HSR system would result in long-term improvements in connectivity and accessibility and the HSR stations would provide an opportunity for transit-oriented development and infill development near station areas, both of which have the potential to result in new housing development. This comment does not require any revisions to the EIR/EIS.

4494-9826

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process.

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process. The commenter notes that Chapter 7 of the Draft EIR/EIS identifies land encroachments, destruction of natural resources, and damage to people's quality of life. The commenter also asks whether travel convenience is superior to environmental destruction. Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process which discusses the development of both the statewide HSR system as well as the alternatives studied for the Palmdale to Burbank Project Section. This standard response also discusses factors considered by the Authority in evaluating various alternatives which have included balancing effects on natural resources and communities.

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Refer to Standard Response PB-Response-AQ-4: Greenhouse Gas Emissions, PB-Response-GEN-4: General Opinions, Opposition or Support.

The commenter raises general concerns and opposition to the project based on the project achieving the ridership projected in the Business Plan and its activity during construction, and thus achieve its greenhouse gas emission projections. Please see standard response PB-Response-GEN-4: General Opposition or Support, and Standard Response PB-AQ-4: Greenhouse Gas Emissions.

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Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, PB-Response-GEN-4: General Opinions, Opposition or Support.

In general, the commenter raises concerns regarding high-speed rail usage based on the cost compared to other modes of transportation, and the ability to reduce greenhouse gases. More specifically, the commenter asserts that the "high-speed train is an expensive and therefore infeasible choice for commuters." In response, the Authority believes that rail riders will make trade-offs between trip time, frequency of service, the need to transfer, convenience of travel, and trip cost.

As discussed in Section 1.1.2, Decision to Develop a Statewide High-Speed Rail System, in the Draft EIR/EIS, the Authority Final Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Proposed California High-Speed Train System (Statewide Program EIR/EIS) (Authority and FRA 2005) provided a programmatic analysis of implementing the California HSR System across the state and compared it to the impacts of a No Project Alternative and a modal alternative that involved expanding airports, freeways, and conventional rail to meet the state's future transportation needs. It also evaluated an HSR alternative, which included consideration of different train technologies and vehicle types, as well as potential corridor and station locations. Following the Statewide Program EIR/EIS, the Authority selected the HSR Alternative over the Modal Alternative (expanded airports and freeways) and the No Project Alternative (no action) to serve California's growing transportation needs. Refer to Chapter 1, Purpose and Need, in the Draft EIR/EIS and Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, for further discussion of the Authority's tiered environmental review and decision-making process.

Although more employers have been offering broader telecommuting arrangements in certain employment sectors, the persistence of this trend is uncertain. Recent reporting suggests that many private sector companies and government agencies anticipate a return to in-office work for their employees in whole or in part. It would be speculative to assume changes in ridership at this time based on remote work trends. Therefore, the ridership projections used by the Authority remain valid for the Purpose and Need of the project and the analysis of the project's anticipated impacts and benefits, and it would be speculative to revise the projections used for purposes of the Draft EIR/EIS analysis

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based on recent near-term employment trends.

This is supported by the increases in ridership reported by transit operators in Southern California. According to data compiled by SCAG in its July 6, 2023 Transit Ridership Update state report (see: https://scag.ca.gov/sites/main/files/file-attachments/printout-3735_transit_ridership_update_7.6.23.pdf?1690420883), all Southern California transit operators have experienced gains in transit ridership over the last year (between 7% and 30% increases). Although ridership levels are lower than pre-pandemic, the trends are better than the previous years. For example, LA Metro bus ridership was up by almost 13% in April 2023 compared to April 2022.

When comparing travel time savings, it is important to understand that non-auto modes allow the user to utilize in-vehicle trip time for other purposes instead of having to operate a personal vehicle. If travelers focus their decisions primarily on the cost of their travel, it is expected that there should be relatively few commuters utilizing the service, as the trip time is slightly longer between Palmdale and Burbank and more expensive if only considering the cost of fuel for travel as described in the commenter's travel example. Additionally, as described in Section 1.1 of the Draft EIR/EIS, commuter rail is not the purpose of the project. The purpose of Phase 1 of the California HSR project is to provide intercity passenger rail service from the San Francisco Bay Area and Central Valley to Southern California. The Palmdale to Burbank Project Section would provide access to a new transportation mode and contribute to increased mobility throughout California. The Palmdale to Burbank Project Section would connect to both the Bakersfield to Palmdale and Burbank to Los Angeles Project Sections.

Because the California HSR System would also replace air trips, trends in air travel are also relevant. Recent trends in air travel indicate that passenger totals have steadily increased since the Covid-19 pandemic, with significant year-over-year increases between 2020 and 2022 reported by both LAX and the Hollywood Burbank Airport. These values also indicate the recovery of the travel industry and the continued trends in higher usage of long-distance travel modes (see: https://www.lawa.org/lawa-investor-relations/statistics-for-lax/10-year-summary/passengers and https://www.hollywoodburbankairport.com/about-us/airport-statistics/).

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In addition, despite the reduction in transit and intercity train travel since March 2020 due to the COVID-19 pandemic, the Authority is confident that the ridership forecasts discussed in the Draft EIR/EIS remain reasonable for environmental analysis purposes due to population growth and the consequent continued increase in traffic congestion and the anticipated recovery of transit and intercity train travel. For example, Amtrak services in California experienced a substantial drop in ridership at the start of the pandemic. Between 2014 and 2019, Amtrak ridership in California increased from about 10.5 million to 11.5 million passengers per year (Rail Passengers Association 2020). This increase included the four national network long-distance trains (California Zephyr, Coast Starlight, Southwest Chief, and Sunset Limited) and the three state-supported routes (Capitol Corridor, Pacific Surfliner, and San Joaquins). However, after the California Covid-19 stay-at-home order was issued, both the long-distance routes through the state and the state-supported routes experienced declines. Overall, the long-distance routes declined by 39 percent and the state-supported routes declined by 49 percent when comparing fiscal year (FY) 2019 and FY 2020 ridership (Railway Age 2020). In 2022, however, Amtrak demand is close to returning to pre-pandemic levels, and showed an 88 percent increase in ridership compared to 2021, and as of July 2022, ridership has already shown 26 percent year-over-year growth, compared to 2022 (see: https://media.amtrak.com/wp-content/uploads/2022/11/FY22-Year-End-Revenue-and-Ridership.pdf and https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/monthlyperformancereports/2023/Amtrak-Monthly-Performance-Report-July-2023.pdf).

According to the Authority's 2022 Business Plan, once operations are expanded beyond the Central Valley, ticket prices will ultimately be set by the train operator contracted to provide that service. For current planning purposes, the Authority has assumed that pricing would be competitive with other modes of travel, including car and airline travel. Generally, future ticket prices are assumed to be roughly 80 percent of the cost of a typical plane ticket. Section 6.3.3 in Chapter 6, Project Costs and Operations of this Final EIR/EIS has been revised to include a footnote to reflect the ticket price assumptions described in the 2022 Business Plan.

Additionally, based on the U.S. Department of Transportation's July 2014 memo entitled

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"Revised Departmental Guidance on the Valuation of Travel Time in Economic Analysis" and using data supplied by the commenter when comparing it with high-speed rail, the Authority estimates the following value of time savings per roundtrip per hour saved:

- $18 for a gasoline powered automobile,
- $21.93 for using a hybrid auto,
- $18.93 for Metrolink, and
- $17.06 for high-speed rail.

As a result, the high-speed rail option provides significant time savings on a roundtrip basis. As shown below in the table, the guidance for intercity travel for other modes of personal purposes is $17.20 and for air and high-speed rail modes is $32.60 in 2012 dollars.

USDOT Guidance for Value of Time

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Recommended Hourly Values of Travel Time Savings (2012 U.S. $ per person-hour)		
Category	**Surface Modes* (except High-Speed Rail)**	**Air and High-Speed Rail Travel**
Local Travel-		
Personal	$12.30	
Business	$24.10	
All Purposes **	$12.80	
Intercity Travel -		
Personal	$17.20	$32.60
Business	$24.10	$60.00
All Purposes **	$18.70	$43.70
Truck Drivers	$25.40	
Bus Drivers	$26.40	
Transit Rail Operators	$45.20	
Locomotive engineers	$37.70	
Airline Pilots and Engineers	$82.30	

Source: "Revised Departmental Guidance on the Valuation of Travel Time in Economic Analysis"

More recent guidance from the Federal Railroad Administration entitled "Benefit-Cost Analysis Guidance for Discretionary Grant Programs," (https://www.transportation.gov/sites/dot.gov/files/2023-01/Benefit%20Cost%20Analysis%20Guidance%202023%20Update.pdf), January 2023, indicates that for intercity travel for other modes for personal purposes is $17.00. As shown below in the table, travel for high-speed rail service that would be competitive with air travel should be valued at $45.30 per hour for personal travel and $79.30 for business travel.

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As a result, the Authority's analysis demonstrates that the large time savings associated with using high-speed rail when compared to existing commuter rail service or travel by auto is indeed cost-effective for travelers, with the resultant value of time around the recommended threshold for conventional surface modes.

Table A-3: Value of Travel Time Savings

Recommended Monetized Value(s)	References and Notes
Recommended Hourly Values of Travel Time Savings (2021 $ per person-hour)	*Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis (2016)* https://www.transportation.gov/office-policy/transportation-policy/revised-departmental-guidance-valuation-travel-time-economic

Category	Hourly Value
General Travel Time	
Personal[1]	$17.00
Business[2]	$31.90
All Purposes[3]	$18.80
Walking, Cycling, Waiting, Standing, and Transfer Time[4]	$34.00
Commercial Vehicle Operators[5]	
Truck Drivers	$32.40
Bus Drivers	$35.00
Transit Rail Operators	$58.40
Locomotive Engineers	$57.40

1) Values for personal travel based on local travel values as described in USDOT's Value of Travel Time guidance. Where applicants also have specific information on the mix of local versus long-distance intercity travel (i.e., trips over 50 miles in length) on a facility, then the local travel values of time may be blended with the long-distance intercity personal travel value of $23.80 per hour.

2) Weighted average based on a typical distribution of local travel by surface modes (88.2% personal, 11.8% business). Applicants should apply their own distribution of business versus personal travel where such information is available.

3) Note that business travel does not include commuting travel, which should be valued at the personal travel rate. Travel on high-speed rail service that would be competitive with air travel should be valued at $45.30 per hour for personal travel and $79.30 for business travel.

4) Should be applied only when actions affect those elements of travel time.

5) Includes only the value of time for the operator, not passengers or freight.

On a separate topic, the commenter states that "The high-speed train can ONLY reduce greenhouse gas IF it REPLACES a normally scheduled vehicle trip, AND the train is full or nearly full." In response, the ridership estimates are based on the diversion of trips from auto, air, intercity bus and conventional rail to high-speed rail service. The high-speed rail mode split shares between the different regions (e.g., Northern, Central and Southern California) are in the Authority's ridership model documentation (please see

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material, for example, posted on the Authority's website at: https://hsr.ca.gov/about/ridership-revenue-forecasting/). The greenhouse gas analysis reflects both the diversion from air for longer distance trips as well as the diversion from auto to 100 percent zero-emission high-speed rail trips.

As described in Section 3.6, Public Utilities and Energy, in the EIR/EIS, the Authority will be operating the rail service on renewable energy irrespective of the connections to the established local power companies and their respective energy generation mix. As the system moves forward in completing Phase 1 service between San Francisco and Los Angeles/Anaheim, the Authority will work towards securing renewable energy sources through internal and external sources. As a result, the occupancy of high-speed rail trains does not affect the greenhouse gas benefits of the Phase 1 system.

The Authority's greenhouse analysis was performed based on the following guidance:

- Transit and Intercity Rail Capital Projects guidance by CalSTA (developed with CARB) that reflects the increasing share of electric and hybrid vehicles over time and the increase in share of renewable energy sources that subsequently reduce the GHG benefits as these technologies are being expanded over time.
  More information can be found here: https://ww2.arb.ca.gov/resources/documents/cci-quantification-benefits-and-reporting-materials; please see section: California State Transportation Agency, Transit and Intercity Rail Capital Projects, New/Expanded Transit Service, System and Efficiency Improvements, Cleaner Vehicles/Tech/Fuels, Fuel Reduction
- CHSRA has also worked with CARB to define the quantification method for GHG benefits for the HSR system.
  More information can be found here: https://ww2.arb.ca.gov/resources/documents/cci-quantification-benefits-and-reporting-materials; please see section: California High-Speed Rail Authority, High-Speed Rail (HSR) Methodology document: https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/chsra_hsr_finalqm.pdf

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Refer to Standard Response PB-Response-GEN-4: General Opinions, Opposition or Support.

In general, the commenter inquired that if high-speed rail is not a feasible replacement for commuting, pleasure, or business travel, what is the purpose of the project. As noted in Section 1.2.2 of the Final EIR/EIS, Purpose of the Palmdale to Burbank Project Section, the purpose of the proposed project is to implement the Palmdale to Burbank Project Section of the California HSR System: to provide the public with electric-powered HSR service that provides predictable and consistent travel times between major urban centers, and connectivity to airports, mass transit systems, and the highway network in the Antelope Valley and the San Fernando Valley; and to connect the northern and southern portions of the statewide HSR system. The Authority, in accordance with Section 15124 of the CEQA guidelines, has adopted objectives and policies that include various policies such as meeting future intercity travel demand that would be unmet by current transportation systems, increasing capacity for intercity mobility, and maximizing intermodal transportation opportunities by locating stations to connect with local transit, airports, and highways. Please refer to PB-Response-GEN-4: General Opinions, Opposition or Support for additional details. The project would also result in some environmental benefits, such as an eventual net reduction in greenhouse gas emissions.

More specifically, the commenter states the following: ". . . The Palmdale to Burbank Project Section is completely irrelevant to reducing air travel. In fact, an air passenger may decide to utilize the high-speed train from Palmdale for the sole purpose of catching a flight from Burbank Airport." The trip time comparison provided in the comment referring to a trip from Palmdale to San Francisco via Burbank Airport does not reflect the egress time at San Francisco Airport and the 26- to 45-minute trip time on BART or taxi from the airport to downtown San Francisco (i.e., Embarcadero Station). Under this scenario, and based on Table 1 below, using high-speed rail would save a traveler boarding in Palmdale between 74 and 136 minutes if they are using auto or rail access to the Burbank Airport. In addition, the cost savings of a direct high-speed rail trip by either auto or rail access would be $45 to $99 per person.

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Table 1: Comparison of Trip Times and Cost for a Palmdale to San Francisco (Embarcadero) Trip

Mode	Summary	End-to-End Trip Time	End-to-End Trip Cost for 1 Person	Frequency per Day	HSR Trip Time Savings	HSR Cost Savings per Trip
Air	HSR - Burbank Airport - SFO - BART	232 min	$157.00	6	4 min	$68.00
	HSR - Burbank Airport - SFO - Taxi/TNC	236 min	$192.00	6	8 min	$103.00
	Auto - Burbank Airport - SFO - BART	302 min	$153.60	6	74 min	$64.60
	Auto - Burbank Airport - SFO - Taxi/TNC	305 min	$188.60	6	77 min	$99.60
	Metrolink - Burbank Airport - SFO - BART	330 min	$134.00	6	102 min	$45.00
	Metrolink - Burbank Airport - SFO - Taxi/TNC	364 min	$182.00	6	136 min	$93.00
HSR	HSR - Palmdale - STC	228 min	$89.00	16		
Auto	Auto - Palmdale - STC	395 min	$96.20	as needed	167 min	$7.20

Note: Air fare, auto operating cost and HSR fare based on 2016 ridership and revenue data.
Parking cost for Burbank airport is 2023 data.
Taxi/TNC cost based on 2023 Uber fare. Metrolink and BART fares are 2023 data.

Source: Authority, Air Travel Trip Comparison between Palmdale and San Francisco, July 2023.

If the air traveler chose high-speed rail as the access mode to the Burbank Airport, the direct high-speed rail trip from Palmdale to San Francisco is still 4 to 8 minutes faster. In addition, the cost of the air trip with high-speed rail access would be $68 to $103 more expensive as compared to the direct high-speed rail trip.

The commenter also indicates that ". . . the above chart (see actual comment) assumes 8 hours as headway for an airplane going from Burbank to San Francisco. Four air

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8 hours as headway for an airplane going from Burbank to San Francisco. Four air carriers provide 23 flights per day, or roughly 1.4 flights every hour. This is counter to what this chart provides. The Palmdale to Burbank Section is completely irrelevant to reducing air travel. In fact, an air passenger may decide to utilize the high-speed train from Palmdale for the sole purpose of catching a flight from Burbank Airport." The frequency mentioned above likely reflects the airline's reaction to the diversion of air trips to high-speed rail and the subsequent reduction of frequency to maintain average utilization ratios and cost efficiencies for the airlines.

The data and analysis is based on a study that was prepared in 2012 by Aviation System Consulting, LLC, to define parameters in the aviation market that are applicable to the Authority's ridership and revenue modeling efforts. The data is included in the Authority's ridership and revenue forecasting work prepared for the 2012 Business Plan by Cambridge Systematics and is shown starting on page 2-1 and in Appendix B. As shown below in Table 2, based on that reaction of airlines reducing frequency, the modified frequency used for the ridership analysis reflects 2 daily roundtrips.

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Table 2: Airline Reaction to HSR Diversion

Market		Airfares (2005 $)	Avg Daily Frequency (each way)	Estimated O&D Pax (both ways) (2009)	Assumed Growth (2030)	Connect & Thru Ratio	Avg Aircraft Size (seats) (current)	Avg Aircraft Size (seats) (2030)	Avg Load Factor	Assumed Diversion to HSR
OAK	BUR	94.00	12.4	766,718	106%	0.11	137	140	75%	50.8%
	LAX	90.00	21.7	644,502	194%	0.37	137	140	75%	49.4%
	LGB	69.00	3.6	231,190	86%	0.08	150	153	75%	38.2%
	ONT	90.00	9.6	465,069	104%	0.20	137	140	75%	42.7%
	PSP	No Direct Service								
	SNA	98.00	12.1	508,620	150%	0.11	137	140	75%	38.1%
	SAN	90.00	20.7	647,300	150%	0.23	137	140	75%	24.8%
SFO	BUR	93.00	2.0	71,420	373%	0.12	137	140	75%	67.7%
	LAX	81.00	42.1	1,877,739	91%	0.59	142	145	75%	65.8%
	LGB	66.00	2.3	168,780	111%	0.06	150	153	75%	50.9%
	ONT	86.00	1.6	38,800	400%	0.21	137	140	75%	57.0%
	PSP	115.00	5.3	143,810	136%	0.52	90	140	75%	31.4%
	SNA	77.00	13.1	650,727	117%	0.22	120	140	75%	50.8%
	SAN	78.00	33.9	1,119,464	121%	0.38	137	140	75%	33.1%
SJC	BUR	92.00	5.9	410,556	143%	0.13	137	140	75%	67.7%
	LAX	93.00	17.8	529,173	173%	0.60	100	140	75%	65.8%
	LGB	65.00	2.3	147,740	109%	0.08	109	140	75%	50.9%
	ONT	87.00	5.3	273,450	130%	0.21	137	140	75%	57.0%
	PSP	104.00	0.9	10,800	272%	0.23	70	71	75%	31.4%
	SNA	93.00	10.1	524,100	146%	0.11	137	140	75%	50.8%
	SAN	93.00	17.7	603,983	158%	0.20	137	140	75%	33.1%

Source: Authority, Final Technical Memorandum, California High-Speed Rail 2012 Business Plan Ridership and Revenue Forecasting, Appendix B, Table B-1.

The revised frequency due to the airline reaction to diversion of two-thirds of the market reduced the current 6 direct flights to 2 direct flights per day to maintain the same average utilization assuming the same airplane fleet. The 2 roundtrips equate to an 8-hour headway (or 480 minutes, rounded) assuming a 16- or 18-hour operating day.

Please note that the HSR service plan between San Jose and San Francisco is limited to 4 HSR trains per hour and direction per the Project Management and Funding

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Agreement for the Peninsula Corridor Electrification Project (PFMA, Section 6.1.1) between The Peninsula Joint Powers Board and CHSRA that define the conditions for the early bookend investment of CHSRA to support the electrification of the Peninsula corridor. In order to provide additional HSR services south of San Jose, additional HSR roundtrips were assumed to start and end in San Jose and connect to Los Angeles and Anaheim. Therefore, the service frequency differs between LA Basin - San Francisco service and LA Basin –San Jose service. As CHSRA continues to work towards the implementation of the HSR system, further refinements to the service plan and the stopping patterns will occur to support a customer-friendly and cost-effective service program.

Please see section A.3.2 of the 2016 Ridership Report that details the service patterns and train frequencies by peak and off-peak periods. https://hsr.ca.gov/wp-content/uploads/docs/about/business_plans/2016_Business_Plan_Ridersihp_Revenue_Forecast.pdf
and section A.3.2 of the 2020 Ridership Report that shows the equivalent information for the 2020 Business Plan. https://hsr.ca.gov/wp-content/uploads/docs/about/business_plans/2020_Business_Plan_CHSR_Ridership_and_Revenue_Model_BP_Model_Ver3_Model_Doc.pdf

Finally, the commenter casts doubt on the "CHSRA's assertion that the high-speed train will displace other modes of transportation." The commenter asks, "Based on the above, if the high-speed train:
- Is not a cost-effective commuter train;
- Is not cost-effective for pleasure trips; and
- Is not the best choice for business travelers who necessitate the shortest travel time,

then what is its unique selling proposition?

With regard to the assertion that high-speed rail is not a cost-effective commuter train or system for pleasure trips, the travel time difference between Palmdale and Burbank Airport using Metrolink versus high-speed rail is 90 minutes (29 minutes on high-speed rail versus 119 minutes on Metrolink). The cost difference is $23 ($32 for high-speed rail and $9 for Metrolink). Commuters typically make trade-offs between time savings and

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fare/cost of travel.

A two-way trip between Palmdale and Burbank Airport would save 3 hours a day and cost $46 more on high-speed rail than using Metrolink. Using the U.S. Department of Transportation guidance titled "Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis," this equates to a value of time savings of $15.33 per hour (or $46 divided by 3). As shown in the guidance memo, the recommended hourly value for travel time savings for personal purposes is $17.20 and for air and high-speed rail travel at $32.60 (see Table 3 below).

Table 3: USDOT Guidance for Value of Time

Recommended Hourly Values of Travel Time Savings (2012 U.S. $ per person-hour)		
Category	**Surface Modes* (except High-Speed Rail)**	**Air and High-Speed Rail Travel**
Local Travel-		
Personal	$12.30	
Business	$24.10	
All Purposes **	$12.80	
Intercity Travel -		
Personal	$17.20	$32.60
Business	$24.10	$60.00
All Purposes **	$18.70	$43.70

Truck Drivers	$26.40
Bus Drivers	$26.40
Transit Rail Operators	$45.20
Locomotive engineers	$37.70
Airline Pilots and Engineers	$82.30

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Source: Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis, (July 9, 2014).
This demonstrates that the large travel time savings versus the existing commuter rail service are indeed cost effective for commuters or leisure trips with the resultant value above the recommended thresholds. Expressed a different way, the actual value of the time savings of these users on average will be higher than the implied value based on the fare and time difference calculation.

With respect to high-speed not being the best choice for business travelers who necessitate the shortest travel time, many if not most business travelers are very time sensitive, taking into account their entire door-to-door trip time. As shown in Table 1, high-speed rail service does provide significant time savings when considering the entire trip chain from origin to destination. Trip frequency and flexibility of travel (choice of departure time) is also especially important for business travelers. High-speed rail will provide many more travel options than current air service (e.g., 6 direct flights between Burbank and San Francisco verses 16 planned one-seat-connections to operate on high-speed rail per day). Based on the significant time savings and much higher service frequency, along with other non-quantifiable factors, such as the increasing complexity of navigating an airport and the fact that high-speed rail will deposit business travelers nearer to the City center than plane trips (discussed below), the high-speed rail connections will be valued by many business travelers.

With regard to high-speed rail and its unique selling proposition, high-speed rail will connect city center to city center, eliminating significant access and egress time that is needed to/from airports along with the time for airport processing. In addition, high-speed rail will provide significant time savings compared to long-distance automobile trips. For the Palmdale to San Francisco example, even an auto trip with 5 individuals occupying one vehicle still shows a value of time savings that is below the threshold defined by the U.S. Department of Transportation in its travel time guidance. Table 4 below shows a per-person value of time savings of $25 per hour saved, which is below the federal guidance of $32.60 per hour for leisure trips on high-speed rail systems.

Even a fully occupied passenger car traveling between Palmdale and downtown San Francisco would still result in a value of time savings per person that will entice users to

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take high-speed rail instead of driving between Palmdale and San Francisco.

Table 4: Comparison of HSR and Auto Trip Times and Cost Savings for a Palmdale to San Francisco Trip

Mode	Summary	End-to-End Trip Time	End-to-End Trip Cost for 1 Person	Frequency per Day	HSR Trip Time Savings	HSR Cost Savings per Person	Value of HSR Time Savings per Person
HSR	HSR - Palmdale - STC	228 min	$69.00	16			
Auto	Auto - Palmdale - STC	395 min	$96.20	as needed	167 min	$7.20	N/A (Cost on HSR is lower)
Groups in Auto	1 Person Occupancy	395 min	$96.20	as needed	167 min	$7.20	N/A (Cost on HSR is lower)
	2 Person Occupancy	395 min	$48.10	as needed	167 min	-$40.90	$14.69
	3 Person Occupancy	395 min	$32.07	as needed	167 min	-$56.93	$20.46
	4 Person Occupancy	395 min	$24.05	as needed	167 min	-$64.95	$23.34
	5 Person Occupancy	395 min	$19.24	as needed	167 min	-$69.76	$25.06

Note: A negative value in HSR cost savings per person indicates that the cost per person traveling as a group in a personal vehicle is lower per person than the corresponding fare on HSR.

Source: Authority, Air Travel Trip Comparison between Palmdale and San Francisco, July 2023.

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The commenter quotes Section 1.1.4 of Appendix 3.2-A, Vehicle Miles Traveled Methodology, which was included as part of Volume 2 of the Palmdale to Burbank Project Section Draft EIR/EIS. The commenter states the HSR system will not displace any air trips from Long Beach Airport and asserts that the diversion of air trips is unrealistic because it includes diversion of trips to the HSR system from airports that are not close to a planned HSR station on an operational HSR corridor in the year modeled. The commenter asks why the Authority included flight reductions for airports serving markets that will not have high-speed rail service and are not within a reasonable distance to an airport that does.

As explained in Appendix 3.2-A, ridership estimates were developed by experts using a travel demand model and best practices to estimate travel behavior with the introduction of HSR as a new travel mode. The mode estimates how many automobile trips and air trips would be diverted to HSR trips in 2025 with a Valley to Valley HSR line, in 2029 with a Phase 1 HSR line opening, and in 2040 with the Phase 1 line opening. With each of the scenarios, the ridership model examines the California transportation network from a holistic point of view that includes the statewide transportation system. The model predicts that the majority of HSR riders will be diverted from air travel between Los Angeles and San Francisco markets when the full Phase 1 system between San Francisco and Los Angeles is operational; however, when modeling the statewide transportation network in whole, the model results show that a small number of diverted air travelers from areas such as San Diego and Sacramento, even prior to the Phase 1 system being operational, is reasonable. Travelers will choose whether to use HSR depending on service frequency, proximity to stations, travel cost, and competitive travel time, including access and egress and convenience.

Regarding the commenter's statement that any diversion of Long Beach air trips to HSR is unrealistic, the Authority's disagrees. The FAA defines the Los Angeles market (Market ID: 32575) to include LAX, BUR, ONT, SNA, and LGB airports. Travelers with an origin or destination in the Los Angeles metropolitan area select one of the listed five airports based on choice parameters and therefore, the assumption is reasonable that travelers can also access HSR stations from anywhere in this market. As of July 2023, there are currently four to five daily nonstop flights with Southwest connecting Long Beach to Oakland, San Jose, and Sacramento. Therefore, a diversion of these nonstop air trips to HSR is possible and would result in a reduction of air trips for these airports.

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Even air travelers that might use LAX or BUR may make a trade-off to use HSR since the access time from Long Beach to LAX or BUR would need to be considered in terms of travel time, travel cost, and convenience.

The airline industry is expected to respond in two ways to the introduction of HSR as a competitive transportation mode. Commercial airlines would either lower airfares or reduce air frequency between select markets to maintain consistent load factors and remain competitive with HSR. The ridership model is therefore reasonable in assuming flight reductions that represent what might be expected in the future.

The most prominent environmental benefits emanating from diversion of travelers from air trips to HSR will materialize when the full Phase 1 system from San Francisco to Anaheim in 2040 is operational.

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The commenter inquired if the Authority believes that HSR service will result in the reduction of flights between Northern and Southern California. As discussed in Section 1.2.4.1 of Chapter 1, Project Purpose, Need, and Objectives of the Draft EIR/EIS, the HSR system would increase the capacity, connectivity, and efficiency of the current intercity travel system. The California HSR System, including the Palmdale to Burbank Project Section, would interface at hubs with many modes of travel, thereby relieving pressure on the region's transportation system, including travelers using interregional highways and airports for longer distance trips (including trips outside of the SCAG region that are longer than 50 miles).

Current national guidance for benefit-cost analysis of transportation projects irrespective of mode does not reflect secondary inducements of travel in other modes that might diminish the benefits of the investment (see U.S. Department of Transportation Benefit-Cost Guidance for Discretionary Grant Programs, January 2023, or at: https://www.transportation.gov/sites/dot.gov/files/2023-01/Benefit%20Cost%20Analysis%20Guidance%202023%20Update.pdf). On page 10, the guidance recommends that ". . . Forecasts should be provided both under the baseline and the improvement alternative. Applicants should take care to ensure that the differences between the two reflect only the proposed project being analyzed in the benefit-cost analysis and not impacts from other planned improvements." For example, an investment in a rail service that diverts vehicle miles traveled from highways to a rail system does not reflect the secondary inducement of new highway trips that could occur if the initial reduction of highway trips resulted in reduced highway congestion. The Authority appropriately follows this U.S. Department of Transportation guidance. Speculation about individual airlines' future business decisions is not required under CEQA or NEPA.

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The commenter presented Table 2.4 in Appendix 3.2-A, Vehicle Miles Traveled Methodology in the Draft EIR/EIS, containing estimated data on HSR ridership diverted from other modes of travel and quoted a disclaimer in the ridership modeling documentation. The commenter suggests the disclaimer means the ridership forecast information is not intended to represent an outcome and asks what it represents. These disclaimers contained in Appendix 3.2-A are standard industry practice for ridership and revenue studies and are meant as disclosure for parties that have financial interests in a given project. The disclosure advises report reviewers that the forecasting team has followed best practice approaches as well as evidence and data sources as they were available at the time the forecasts were made, but that the forecasts also have to rely on assumptions made by the forecasting team or by third parties such as the Department of Finance that provide forecasts of population and employment data for future horizons. These assumptions are drivers of the ridership estimates and therefore the forecasting entity cannot warrant the outcomes of the forecasts or promise a specific outcome because the underlying data is prepared by third parties and outside the control of the forecasters.

The forecasts used in the Draft EIR/EIS are reasonable, having relied on best practices and available data and having been prepared by experts, but the firm preparing this forecast discloses the fact that, if underlying conditions change, the ridership estimates will change as well.

In order to address the potential variability of assumptions, the development of the ridership forecasts included a probability assessment, which was generated through a Monte Carlo simulation to assess the likelihood that a given outcome would occur. For each high-speed rail implementation scenario, the modeling presented high, medium and low ridership forecasts reflecting a range of probabilities. As explained in Chapter 2, Alternatives, Section 2.6, Travel Demand and Ridership Forecasts, the Draft EIR/EIS uses a range of ridership forecasts to provide for a conservative analysis of adverse impacts and benefits. Refer also to Draft EIR/EIS Section 3.1, Introduction, Section 3.1.4.6, Ridership Forecasts and Impacts Analysis, for additional explanation of how the ridership forecasts have been used in the Draft EIR/EIS analysis.

The commenter also questions why passengers would choose to ride HSR trains if

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passengers are not saving time and/or money. Riders make very complex choices and trade-offs between modes when choosing a preferred travel option for a given trip. In addition to the fare/trip cost and the door-to-door trip time the parameters that impact this choice are the frequency of travel options, the convenience of travel, and the reliability of travel. See Draft EIR/EIS Chapter 1, Section 1.2.4, describing the capacity constraints, travel delays, and travel unreliability that form a key part of the statewide and regional need for the HSR system.

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The commenter expresses their concern of noise during construction and operation exceeding the Federal Railroad Administration (FRA) criteria. The commenter's statements regarding noise levels cannot be confirmed, as there is not sufficient information regarding the noise metrics or distances from the sources of noise provided by the commenter. The commenter has adapted information from Table 3.4-24 in a way that does not take into account the methodology used for the noise analysis. The methodology used for the construction noise assessment is contained in Section 3.4.4.3 of the EIR/EIS and is based on the criteria and methodology in the 2012 FRA HSR noise and vibration guidance manual. The maximum noise levels for individual pieces of equipment are described at 50 feet, as the commenter states. However, the criteria for impact are based on Leq values, which are a cumulative noise level, which takes into account both how loud a piece of equipment is and how much it is used during a particular day. For example, a piece of equipment with a maximum noise level of 90 dBA at 50 feet would not necessarily exceed the FRA criteria of 70 dBA Leq and 80 dBA Leq for nighttime and daytime, respectively, without knowing the distance to a receiver or the duration of the usage of the piece of equipment. Table 3.4-24 in the Draft EIR/EIS provides information on the duration of construction and a summary of the distances within which there would be exceedances of the criteria and the potential for construction noise impacts, based on the phase of the project. In the comment letter, the commenter provided the first three columns of Table 3.4-24 of the Draft EIR/EIS, but did not include the last two columns, which show the distances to the 70 dBA Leq and 80 dBA Leq criteria for each of the construction phases. The commenter's table does not include the total methodology identified by the Authority in the Draft EIR/EIS. The Authority used those screening distances to determine if there could be significant noise impacts. Consistent with this methodology, the Authority found that without mitigation, there would be the potential for construction noise impacts within the distances in those last two columns. However, with the implementation of noise and vibration mitigation measure N&V-MM#1, the extent of construction noise impacts would be reduced, but there would still be unavoidable noise impacts from construction. Tables 3.4-25 and 3.4-26 detail the number of noise sensitive receivers that would be within these distances for each alternative, for both daytime and nighttime construction. With the implementation of noise and vibration mitigation measure N&V-MM1, the extent of construction noise impacts would be reduced, but there would still be unavoidable noise impacts from construction. The commenter also expresses concern related to the Angeles National

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Forest and the wildlife that will be affected by noise. Startle effects for humans and wildlife have been evaluated in the EIR/EIS for HSR operations. The methodology for both human startle and animal effects are found in Section 3.4.4.3 of the EIR/EIS. For both humans and animals, the startle effects for the maximum HSR speeds on the corridor would occur within approximately 50 feet of the tracks, much of which would be within the HSR right of way. The FRA uses a threshold of 100dBA SEL to determine the potential for effects on animals. Please see Response to Comment #9398 for more discussion on the analysis of noise impacts to special-status-birds.

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Refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter expresses concern related to noise impacts on animals. The commenter's statements regarding noise levels cannot be confirmed, as there is not sufficient information regarding the noise metrics or distances from the sources of noise provided by the commenter. The FRA uses a threshold of 100 dBA SEL to determine the potential for effects on animals, but it is not clear what metric or distance the commenter is referencing for comparison. 100 dBA SEL would occur within 50 feet of the tracks, most of which would be in the HSR right-of-way, which would be fenced and not accessible to wildlife. During peak hours of operation, trains would pass by every 7.5 minutes in each direction. During off-peak hours trains would pass by every 10-12 minutes in each direction. Startle effects for humans and wildlife have been evaluated in the Draft EIR/EIS for HSR operations. The methodology for both human startle and animal effects are found in Section 3.4, Noise and Vibration (Section 3.4.4.3) of the Draft EIR/EIS. For both humans and animals, the startle effects for the maximum HSR speeds on the corridor would occur within approximately 50 feet of the tracks, much of which would be within the HSR right of way, which would be fenced and not accessible to wildlife and the general public.

The commenter also expresses concern related to noise from trains entering the tunnel. As discussed in Impact N&V#5: Operational Annoyance and Startle Effects on Humans of the Draft EIR/EIS, tunnel openings are being designed to eliminate any additional noise effects from the portals. Attenuation of the portal noise is achieved with long, flared portals and low blockage ratios. In-tunnel cross-passages and vents can reduce pressure magnitudes and rates of rise, though passage of these events may generate additional propagating and steepening wave fronts (page 3.4-76 of the Draft EIR/EIS). These tunnel and tunnel portal design features will be used to attenuate any additional noise associated with a train entering or exiting a tunnel.

Please also refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

4494-9835

Refer to Standard Response PB-Response-N&V-1: Operational Noise and Impacts to Sensitive Receptors, PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter expresses concern regarding noise and vibration impacts, and with the Authority's commitment to minimizing construction noise and vibration. The commenter requests mitigation measures for noise and vibration to be specified before construction begins. The commenter also states that the Draft EIR/EIS overlooks the effects of increased noise levels on wildlife, domestic animals, and livestock. The noise and vibration assessment evaluated noise and vibration impacts from temporary construction activities for all the HSR Build Alternatives. The assessment is based on the criteria and methodology contained in the Federal Transit Administration (FTA) and Federal Railroad Administration (FRA) noise and vibration guidance manuals. As discussed in Section 3.4.3 of the Draft EIR/EIS, the Authority is a state agency and therefore is not required to comply with local land use and zoning regulations; however, it has endeavored to design and construct the HSR project so that it is consistent with land use and zoning regulations. For example, the proposed Build Alternatives would incorporate IAMFs that require the contractor to prepare a plan to demonstrate how construction noise and vibration impacts will be maintained below applicable standards. The Authority has also adopted statewide policies that seek to reduce noise and vibration impacts associated with new sources of noise and vibration (Appendix 3.4-C) below applicable standards. The noise and vibration impact assessment completed for the Palmdale to Burbank Project Section is consistent with both FRA and FTA guidance. Please refer to Standard Response N&V-1: Operational Noise and Impacts to Sensitive Receptors, which provides additional information about why HSR has chosen to use the FRA and FTA Guidance. CEQA Guidelines Section 15126.4 (B) states: "…formulation of mitigation measures shall not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will be considered, analyzed, and potentially incorporated in the mitigation measure." The Authority would commit to its mitigation through adoption of a Mitigation Monitoring and

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4494-9835

Reporting Plan; mitigation includes specific performance standards (i.e., specific noise levels that shall be reached); and identifies the actions that can be achieved to meet performances standards (actions are listed in each mitigation; for example, N&V-MM#1 has a bullet list of actions). For these reasons, mitigation for noise and vibration is not deferred. Regarding the comment about noise effects on wildlife, domestic animals, and livestock, please refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife, which addresses this topic.

4494-9836

The commenter states that the Authority concluded that the noise impacts from the construction and operation of the train are "Less Than Significant." The Authority did not reach that conclusion. The noise significance conclusions for both construction noise and vibration and operations noise and vibration are summarized in Table 3.4-50 in the EIR/EIS. This table identifies conclusions before and after mitigation and the significance determination. Some unavoidable adverse noise impacts would result from implementation of the Build Alternatives, as described in the EIR/EIS. At locations where severe noise impacts have been identified, mitigation measures, as described in Section 3.4.7 of the EIR/EIS, will be implemented in accordance with the CA HSR Noise Mitigation Guidelines, which are included as Appendix 3.4-C of the EIR/EIS. In some cases, the mitigation measures may not be fully effective and sound walls would not be feasible in some locations, based on the mitigation guidelines. The CA HSR Noise Mitigation Guidelines outline where noise barriers would be constructed. Barriers would need to achieve between 5 and 15 dB of noise reduction and meet cost thresholds to be considered reasonable and benefit a minimum number of impacted locations. In areas where barriers are not effective or not feasible, sound insulation of buildings could be considered. In some cases, the mitigation measures may not be fully effective, and locations exist where sound walls would not be feasible, based on the mitigation guidelines. For the SR14A Build Alternative (the Authority's Preferred Alternative), much of the alignment would be underground, and when underground there would be no noise effects.

4494-9837

Refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife.

The commenter expresses concern about adverse impacts to domestic animals and wildlife as a result of noise and vibration from operations of the HSR Palmdale to Burbank Project Section. Please refer to Standard Response PB-Response-N&V-3: Noise Impacts on Domestic Animals/Wildlife, which addresses this impact.

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4494-9838

The commenter expressed concern over the loss of revenues from displaced businesses and residences and the ability to find replacement housing for displaced residents and businesses. Loss of property tax revenues resulting from the project are described in Impact SOCIO#12 in Section 3.12, Socioeconomics and Communities of this Draft EIR/EIS (Table 3.12-38). Total annual regional property tax revenue loss from the project is estimated to be between $1.2 million and $1.6 million (2016 dollars), depending on the Build Alternative. Total annual regional property tax revenue for the 2014-2015 Fiscal Year was approximately $6.3 billion (2016 dollars), based on Los Angeles County Assessor and Auditor-Controller and California State Controller estimates.

As shown in Table 3.12-38 of the Draft EIR/EIS, the estimated regional property tax loss for all Build Alternatives would be approximately 0.02 percent. Given the small percentage of total revenues that would be lost because of project displacements (i.e., 0.02 percent), the overall effect of these revenue losses would be small. As noted in the Authority's cumulative analysis in Section 3.19.5.12 of the Draft EIR/EIS, the cumulative economic impact from construction of the proposed improvements within the Palmdale to Burbank Project Section, in combination with cumulative projects, is not considered an environmental impact under CEQA because it would not cause a physical change in the environment. Nevertheless, impacts on the local tax base would be offset by additional revenues resulting from indirect local economic activity associated with construction spending. Loss of sales tax revenues resulting from displaced businesses are described in Impact SOCIO#13 in Section 3.12 of the Draft EIR/EIS (Table 3.12-39). The estimated sales tax losses shown in these tables assume a conservative scenario under which none of the displaced businesses would be able to find replacement sites within their current city.

Under this conservative scenario, it is estimated the Refined SR14, SR14A, E1, and E1A Build Alternatives would result in $3.8 million of sales revenue lost annually; the E2 and E2A Build Alternatives would result in $2 million of sales revenue lost annually due to business displacements. However, the operation of the Burbank Airport Station would generate new sales tax revenues for the region through annual project spending for operation and maintenance of the station facility.

4494-9838

As stated in Section 3.12.8.2 of the Draft EIR/EIS, residential and business displacements would be direct effects of the Palmdale to Burbank Project Section. In general, there would be enough replacement units available to accommodate displaced residents associated with any of the six Build Alternatives. In areas where there are deficits of available residential units, such as Sun Valley, there would be residential units available in nearby neighborhoods. Implementation of SOCIO-IAMF#2 will provide relocation assistance to all residents displaced by the Build Alternative in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act, and SOCIO-IAMF#3 will establish an appraisal, acquisition, and relocation process in consultation with the affected cities, counties, and property owners. Regarding other taxes noted in the comment (e.g., franchise fees, utility user taxes, etc.), changes in these fees and taxes would not cause a physical change in the environment and are, therefore, not considered impacts under CEQA.

4494-9839

Refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations.

The commenter requests further information on methods for displaced residents to locate available housing. Please refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations. As noted therein, consistent with the requirements of the Uniform Act and California Relocation Assistance Act, the Authority is committed to working closely and proactively with residents and businesses to help them plan ahead for relocation, find a new home or business site, and solve problems related to the acquisitions and relocation.

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4494-9840

Refer to Standard Response PB-Response-SOCIO-2: Property Values.

The commenter requests further information on methods for displaced businesses to locate available properties of similar characteristics. Please refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations. As noted therein, consistent with the requirements of the Uniform Act and California Relocation Assistance Act, the Authority is committed to working closely and proactively with residents and businesses to help them plan ahead for relocation, find a new home or business site, and solve problems related to the acquisitions and relocation.

4494-9841

The commenter asks how CHSRA can guarantee that contractors purchase their supplies in the city of Los Angeles (or any city that had businesses acquired for the project). Assumptions for breakdown of budget spent on taxable goods (e.g., equipment, materials) were based on similar analyses for comparable rail projects and industry literature. Assumptions for capture of spending locally within Los Angeles County were based on preliminary analysis of commodity flows and regional business patterns detailed in the 2017 Commodity Flow Survey conducted by the U.S. Census Bureau and the Bureau of Transportation Statistics. Delineation of construction sales by jurisdiction within Los Angeles County would be speculative, and so values presented within the section are countywide.

4494-9842

The comment asks if the project would have effects on the utility users tax (which affects local government revenues) in the cities of Palmdale, San Fernando, Los Angeles, and unincorporated areas of Los Angeles. From a CEQA standpoint, this comment does not relate to the physical impacts of the project. The Authority does not control how local utility fees are set or calculated and the project would have no effect on the utility users tax. The Authority would pay its fair share of any local utility usage.

4494-9843

The commenter requests additional information on effects to local and regional sales tax, and property tax, from the project. Temporary effects regarding local and regional sales tax revenues are discussed under Impact SOCIO#8, in Section 3.12, Socioeconomics and Communities, of this Final EIR/EIS. Long-term effects on property and sales tax revenues from operations are discussed under Impact SOCIO#12, in Section 3.12 of this Final EIR/EIS. This comment does not address the sufficiency of the Draft EIR/EIS, nor does it suggest edits to the document. No change has been made to the document in response to this comment.

Response to Submission 4494 (Kelly Erin Decker, S.A.F.E. Coalition (Save Angeles Forest for Everyone), December 1, 2022) - Continued

4494-9844

The commenter requested more detail on how inconsistencies between federal, state, regional, and local laws for the Build Alternatives will be resolved. The Authority, as the lead state and federal agency proposing to construct and operate the California HSR system, is required to comply with all federal and state laws and regulations and to secure all applicable federal and state permits prior to initiating construction on the selected Build Alternative. As discussed in Appendix 3.1-B of the Draft EIR/EIS, the project is consistent with the majority of the USFS policy. The project is inconsistent with Policy SD-1, Special Interest Areas, Policy Rec-1, Recreation Opportunity, Policies S9 and S10, related to Scenic Integrity Objectives, and Policy S13 related to critical habitat land use zone. These inconsistencies would be reconciled through mitigation measures discussed throughout Chapter 3, especially Section 3.7, and Biological and Aquatic Resources, Section 3.13, Station Planning and Land Use, and Section 3.16, Aesthetics and Visual. As discussed in Section 3.1, Introduction, the Draft EIR/EIS has been prepared consistent with federal and state statutes and regulations, including the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). In regard to local regulations, the Authority is a state agency and therefore is not required to comply with local land use and zoning regulations; however, it has endeavored to design and construct the HSR project so that it is consistent with land use and zoning regulations. See Appendix 2-H, Regional and Local Policy Consistency Analysis, in the Draft EIR/EIS which shows that the Project is consistent with most of the local land use regulations. For policies that are inconsistent, the Authority will implement mitigation measures and impact avoidance and minimization features to minimize or avoid adverse impacts to resources. For those environmental impacts that cannot be mitigated, under the CEQA statute, the impacts have been deemed significant and unavoidable.

4494-9845

The commenter requests details regarding the Construction Management Plan (CMP), which are provided below.

The development of a Construction Management Plan (CMP) is a requirement of several IAMFs and will cover a range of topics addressing geological conditions, disturbance of undocumented contamination, spill prevention, and construction period, address effects on low-income and minority populations as well as traffic handling to name a few. For example, the CMP will address groundwater withdrawal, unstable soils, subsidence, water and wind erosion, soils with shrink-swell potential, and soils with corrosive potential. The CMP will outline how HSR engineering design appropriately addresses these geologic constraints. The CMP will address procedures for disturbing undocumented contaminated soil. The Contractor would work closely with state and local agencies to resolve any such encounters and address necessary clean-up or disposal. The CMP would also include a construction period spill prevention plan. The plan would identify construction best management procedures designed to contain and prevent accidental spills, including procedures to clean up any accidental hazardous material release.

The CMP also includes addressing effects on low-income and minority populations by requiring the Contractor to prepare a CMP that will include actions pertaining to communications, visual protection, air quality, safety controls, noise controls, and traffic controls to minimize impacts on low-income households and minority populations. The plan will verify that property access is maintained for local businesses, residences, and emergency services. This plan will include maintaining customer and vendor access to local businesses throughout construction by using signs to instruct customers about access to businesses during construction. In addition, the plan will include efforts to consult with local transit providers to minimize impacts on local and regional bus routes in affected communities.

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4494-9846

Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process, PB-Response-GEN-4: General Opinions, Opposition or Support. The commenter inquires as to why there is no build alternative that avoids the Angeles National Forest. Refer to Standard Response PB-Response-ALT-1: Alternatives Selection and Evaluation Process which discusses why the Build Alternatives were selected. The commenter expresses a preference for the No Project Alternative. The commenters support for the No Project Alternative is acknowledged. Refer to Standard Response PB-Response-GEN-4: General Opinions, Opposition or Support. This comment does not address the sufficiency of the draft EIR/EIS nor does it suggest edits to the document. As a result, no change has been made to the document in response to this comment.

4494-9847

Refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations.

The commenter questions how many acres of ANF land would be permanently acquisitioned under the project, and if residents would be compensated for the federal land acquisition. See Table 3.13-17, in Section 3.13, Station Planning, Land Use, and Development of the Final EIR/EIS, for the acreage of areas temporarily impacted during construction activities, and permanently impacted by project operation. Based on the nature of impacts, the Authority determined where a full acquisition, partial acquisition, permanent easement (surface, subterranean, or aerial), temporary easement, or some combination of these would be required. These decisions were based on experience acquiring properties affected by other regional transportation projects. Generally, full acquisitions were designated where a significant portion of the structure or structures comprising the property's principal dwelling or business facility would be within the area to be acquired for the HSR right-of-way or for an extended period during construction. Similarly, where a property's structures would not be affected, but any physical component critical to a property's intended use (such as parking, access, or open space used for storage of goods or equipment) would be acquired, the acquisition would be considered a full acquisition. Of the six Build Alternatives, only the E1 and E1A Build Alternatives would result in residential displacements within the ANF. Only one of two adit options (E1-A1 or E1-A2) would be selected and constructed. Construction of E1-A1 would require the displacement of three residences, and E1-A2 would displace one residence; each of these residential displacements would occur within in-holdings which are private property within the ANF. Refer to Standard Response PB-Response-SOCIO-1: Parcel Acquisitions and Relocations for a discussion of how property owners would be compensated.

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4494-9848

The commenter requests an estimate of gallons of water that would be removed from the aquifers within the Angeles National Forest for each build alternative during the construction phase, and what impacts this removal would have on humans, animals, and plants.

The project is not proposing to remove water from the aquifers within the Angeles National Forest. As discussed in Section 3.8, Hydrology and Water Resources, impact HWR#5, changes in hydrologic conditions associated with tunnel construction beneath the ANF, the project will implement several IAMFs specifically intended to avoid or reduce groundwater from entering tunnels during construction. HYD-IAMF#5: Tunnel Boring Machine Design Features, HYD-IAMF#6: Tunnel Lining Systems, and HYD-IAMF#7: Grouting, would be implemented and intended to prevent or reduce the potential for groundwater to enter tunnel construction. Notwithstanding these IAMFs, the Authority will also implement an Adaptive Management and Monitoring Plan (AMMP) pursuant to mitigation measures HYD-MM#4 and BIO-MM#93 to detect and address adverse changes to subsurface and surface water resources within the Angeles National Forest (ANF), including the San Gabriel Mountains National Monument (SGMNM), that could occur during construction of the High Speed Rail (HSR) tunnels for the Preferred Alternative. The AMMP would provide for timely detection of hydrological changes and implementation of appropriate remediation, if necessary. The Supplemental Water Demand Analysis (Appendix 3.8-D) discusses the options, logistics, and feasibility of implementing the response actions that may be implemented in accordance with the AMMP. Specifically, the analysis describes the methodology used to estimate potential remedial water needs and discusses various scenarios that would necessitate that supplemental water, the potential sources of that supplemental water, and the logistical considerations regarding the conveyance and delivery of that supplemental water.

4494-9849

The commenter requests for each Build Alternative the acreage temporarily and permanently impacted within the Angeles National Forest (ANF). Table 2-37 in Section 2.9.4.1, Operational Right-of-Way, of the Draft EIR/EIS provides a list of the construction staging areas for each Build Alternative that are assumed in this analysis within the ANF. The Refined SR14 and SR14A Build Alternatives will temporarily occupy 32.8 acres. The E1 and E1A Build Alternatives will temporarily occupy 60.8 acres. The E2 and E2A Build Alternatives will temporarily occupy 267.9 acres. Long term impacts are discussed under the header "Potential Permanent Facilities" in Tables 2-30 through 2-32 of Section 2.5.4 of the Draft EIR/EIS. All six Build Alternatives would include a mid-tunnel ventilation building at the adit site that would be approximately 50 feet wide by 50 feet long by 18 feet high, occupying approximately 20,000 square feet. Additionally, each of the Build Alternatives would require powerlines that would require approximately 6.2-33.3 acres depending on the Build Alternative.

4494-9850

The commenter requested further detail regarding electrification equipment and infrastructure that would be built in the Angeles National Forest (ANF) due to construction of the Palmdale to Burbank Project Section.

The project does not define permanent equipment for electrification or infrastructure inside the ANF, except for an entrance to an adit that would be used during construction as an intermediate access to the tunnel, and as emergency and maintenance access during operation. The architectural form for the entrance is yet to be defined, but there are also other alternatives being considered for this access that are located outside of the ANF, and therefore, and adit within the ANF might not even be built.

Any electrical infrastructure installed within the ANF as part of the project will follow existing utility (electrical line) corridors and existing roads (e.g., Little Tujunga Canyon Road) within the forest. Within the existing utility corridor, the addition of this electrical infrastructure would be of similar scale (height), and not substantially alter the existing visual and scenic qualities of the ANF.

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4494-9851

The commenter inquired how many miles of access roads will be built in the Angles National Forest. Refer to Section 2.5.4, High-Speed Rail Build Alternatives - Description of Facilities within the ANF, of the Draft EIR/EIS, including SGMNM, for the exact mileage of access roads which would be built under each Build Alternative, respectively. For the SR14A Build Alternative, the Preferred Alternative, within the ANF, including the SGMNM, approximately 0.6 acre would be used for access roadways.

4494-9852

The commenter inquired if there will be helicopter access points that will be built within the Angeles National Forest for each Build Alternative. No helicopter landing points have been identified as being needed for project construction within the ANF. Detailed access plans for each site would be determined based on the location of the selected candidate sites as well as the means and methods that best protect the surrounding environment.

4494-9853

The commenter asks whether an updated biological study will be performed prior to the final selection of a Build Alternative. All six Build Alternatives have been comprehensively analyzed in the EIR/EIS such that no further study is required for the purposes of NEPA and CEQA. No additional biological studies are planned prior to the Authority issuing a decision. Prior to construction, additional studies, surveys, and other actions would be implemented consistent with the mitigation measures outlined in the Final EIR/EIS.

4494-9854

The commenter requests an updated cost-benefit analysis that reflects changes in population as well as ridership due to more people working from home. There is no requirement in CEQA or NEPA for a cost-benefit analysis to be included in an EIR/EIS. The Authority publishes ridership and revenue forecasts in its business plans on a biannual basis, but this mandate does not require further efforts for the purpose of environmental disclosure in an EIR/EIS.

The analysis presented in the Draft EIR/EIS was initiated using the Authority's 2016 Business Plan. The Authority released a Draft 2022 Business Plan in February 2022 for public review and comment. The Authority's Board of Directors adopted the 2022 Business Plan in April 2022, and the plan was submitted to the Legislature on May 6, 2022. Given that there are minimal differences between the: 2016 Business Plan, 2018 Business Plan, 2020 Business Plan, and 2022 Business Plan, the costs included in the Draft EIR/EIS rely on the 2016 Business Plan.

As described in Chapter 2, Alternatives, Section 2.6 Travel Demand and Ridership Forecasts, the Final EIR/EIS uses ridership estimates developed for the Authority's 2016 Business Plan. The Final EIR/EIS also explains that the latest ridership forecasts prepared by the Authority were documented in the 2022 Business Plan. On a systemwide basis, the 2022 Business Plan had a lower total forecast of HSR ridership than the 2016 Business Plan. Based on this data, it is anticipated that boardings and alightings at individual stations would also have lower ridership than previously estimated. Specifically, the 2016 Business Plan forecasted 42.8 to 56.8 million riders by 2040 for the medium and high forecasts, whereas the 2022 Business Plan forecasted 38.6 to 50.0 million riders by 2040 for the medium and high forecasts. As a result, the activity levels at the Palmdale and Burbank stations and attendant adverse impacts would be less. The Final EIR/EIS explains that project benefits would be less using 2022 ridership forecasts, however, the benefits would continue to accrue over time and eventually reach levels discussed in the Final EIR/EIS for the Phase 1 system.

In addition, despite the reduction in transit, intercity train travel, and air travel trips since March 2020 due to the COVID-19 pandemic, the ridership forecasts discussed in the Final EIR/EIS remain reasonable for environmental analysis purposes due to population growth and the consequent continued increase in traffic congestion and the anticipated

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recovery of transit, intercity train, and air travel. Section 6.3.3 in Chapter 6, Project Costs and Operations of this Final EIR/EIS has been revised to include a footnote referring to adjustments to the Authority's operations and management model assumptions. Those adjustments were based on several factors including full operation of Silicon Valley to Central Valley and Phase 1 services, and updated revenue collection costs described in the 2022 Business Plan. According to data compiled by SCAG in its July 6, 2023, Transit Ridership Update state report (see: https://scag.ca.gov/sites/main/files/file-attachments/printout-3735_transit_ridership_update_7.6.23.pdf?1690420883), all Southern California transit operators have experienced gains in transit ridership over the last year (between 7 percent and 30 percent increases).

Although ridership levels are lower than pre-pandemic, the trends are improved over the previous years. For example, LA Metro bus ridership was up by almost 13 percent in April 2023 compared to April 2022.Amtrak services in California experienced a substantial drop in ridership at the start of the pandemic. Between 2014 and 2019, Amtrak ridership in California increased from about 10.5 million to 11.5 million passengers per year (Rail Passengers Association 2020). This increase included the four national network long-distance trains (California Zephyr, Coast Starlight, Southwest Chief, and Sunset Limited) and the three state-supported routes (Capitol Corridor, Pacific Surfliner, and San Joaquins). After the California COVID-19 stay-at-home order was issued, both the long-distance routes through the state and the state-supported routes experienced declines. Overall, the long-distance routes declined by 39 percent and the state-supported routes declined by 49 percent when comparing fiscal year (FY) 2019 and FY 2020 ridership (Railway Age 2020). In 2022, however, Amtrak demand was close to returning to pre-pandemic levels, and showed an 88 percent increase in ridership compared to 2021, and as of July 2023, ridership has already shown 26 percent year-over-year growth, compared to 2022 (see: https://media.amtrak.com/wp-content/uploads/2022/11/FY22-Year-End-Revenue-and-Ridership.pdf and https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/monthlyperformancereports/2023/Amtrak-Monthly-Performance-Report-July-2023.pdf).

Because the California HSR System would also replace air travel trips, trends in air travel are also relevant. Recent trends in air travel indicate that passenger totals have

4494-9854

steadily increased since the COVID-19 pandemic, with significant year-over-year increases between 2020 and 2022 reported by both Los Angeles International Airport and Hollywood Burbank Airport. These values also indicate the recovery of the travel industry and the continued trends in higher usage of long-distance travel modes (see: https://www.lawa.org/lawa-investor-relations/statistics-for-lax/10-year-summary/passengers and https://www.hollywoodburbankairport.com/about-us/airport-statistics/).While employers offered broad telecommuting arrangements in certain sectors during the pandemic, the long-term persistence of this trend is uncertain. Recent reporting suggests that many private sector companies and government agencies anticipate a return to in-office work for their employees in whole or in part. Therefore, it would be speculative to assume an overall reduction in ridership at this time based on this recent pandemic-induced trend of working from home.

The Authority does not anticipate that the work-from-home trend will significantly affect the need for, or travel demand associated with, the HSR system. With severe constraints for expansion of the existing transportation system, the demand for HSR train service will remain in the long-term despite the near-term effects of the COVID-19 pandemic and the work-from-home trend on the transportation system. Therefore, the ridership projections used by the Authority remain reasonable for the Purpose and Need of the project and the analysis of the project's anticipated impacts and benefits.

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4494-9855

The commenter asks how much power per day and per year each Build Alternative would consume, and how this demand would impact residents and businesses. Please refer to Impact PUE#11 Permanent Operations Energy Demand in Section 3.6 of the Draft EIR/EIS. The operational energy analysis uses a dual baseline approach, which means that the Palmdale to Burbank Project Section operational energy impacts are evaluated against existing conditions and expected 2040 background (No Project) conditions, with additional consideration of impacts in the HSR opening year. The Authority calculated operational energy consumption for medium and high ridership scenarios; ridership scenarios do not differ by Build Alternative. The medium and high ridership scenarios are based on the level of ridership as presented in the Authority's 2016 Business Plan. The complete statewide analysis is included in Appendix 3.6-A to the Draft EIR/EIS, with detailed calculations on the reduction in energy consumption from transportation. Project energy demand results for these ridership scenarios are shown in Table 3.6-26.

Regarding potential impacts to residents and business who already encounter problems due to excessive energy demand, please note that the Authority has coordinated with Pacific Gas and Electric Company and SCE and determined that network upgrades would be required to meet the projected power demands of the Palmdale to Burbank Project Section within the two utilities' respective service territories. Detailed engineering of electrical interconnections and network upgrade components has not been undertaken and would be completed closer to the time of construction. Utility upgrades could include modifications to existing infrastructure such as expansion of existing substations and reconductoring of existing electrical lines (i.e., replacement of power structures [poles and lattice steel towers] and electrical conductors with taller structures and more efficient electrical wires or new electrical lines). Anticipated utility upgrades are included in the Build Alternative footprint and would be implemented pursuant to California Public Utilities Commission General Order 131-D. The upgrades will be designed to ensure that there are no effects on the utility's ability to meet existing and projected electrical demand.

4494-9856

The commenter requested further information on project train emergency protocol in the case of high wind events that would increase the likelihood of wildfire. Application of SS-IAMF#1 and SS-IAMF#2 will require the development and incorporation of a fire and life safety program into the design and construction of the Palmdale to Burbank Project Section. The fire and life safety program is coordinated with local emergency response organizations to provide them with an understanding of the rail system, facilities, and operations, and to obtain their input for modifications to emergency response operations and facilities. Fire risks would also be reduced by the Authority's formation of a statewide Fire and Life Safety and Security Committee (FLSSC) through implementation of SS-IAMF#2, which will be composed of representatives from fire, police, and local building code agencies. The purpose of the FLSSC will be to review issues that are critical to fire and life safety and security; acquire input and concurrence from the state and local authorities having jurisdiction over the proposed designs to meet code requirements; and to comply with state and local fire code standards or fire and life safety hazard programs during the design phase of the project, including emergency response operations and protocol such as operational power shut down to prevent wildfires under certain environmental conditions that could exacerbate the potential for wildfire.

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4494-9857

Refer to Standard Response PB-Response-GEN-2: Project Costs and Funding, PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events, PB-Response-S&S-1: Wildfire.

The commenter identifies risks and impacts associated with the Build Alternatives (including seismicity, wildfire, loss of water resources, impacts on habitat, construction in a national forest and national monument, greenhouse gas emissions from construction, deferral of design considerations, and the 15/85 design model) and states that based on those risks, the only route that can be considered is the No Project Alternative. The commenter also expresses that the benefits of the project are based on speculation and that the ridership projects are flawed. The commenter also expresses that it is speculative that the project will recoup its cost.

This comment is a summary conclusion, referencing the earlier comments in its letter. The Authority has provided a response to every individual comment raised by the commenter (see Response to Comments #9174 through #9586).

The Authority acknowledges that there are potential impacts related to seismicity, wildfire, water resources, habitat, construction in a national forest and national monument, and greenhouse gas emissions from project construction and operation. These impacts are addressed throughout the Draft EIR/EIS. Impact Avoidance and Minimization Features (IAMFs) and mitigation measures have been developed, as appropriate, to reduce and avoid impacts on these resources.

For impacts related to:

- Seismicity, please refer to Standard Response PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events.
- Wildfire, please refer to Standard Response PB-Response-S&S-1: Wildfire.
- Loss of water resources, please refer to the Draft EIR/EIS, including Section 3.8, Hydrology and Water Resources, which addresses impacts related to water quality and Section 3.6, Public Utilities and Energy, which addresses impacts related to water supply.
- Impacts on habitat, please refer to Section 3.7, Biological and Aquatic Resources, which identifies the mitigation that would be implemented to mitigate for loss of habitat.

4494-9857

The commenter does not raise any specific issues related to construction within a national forest and national monument. The Authority analyzes potential impacts to the Angeles National Forest and San Gabriel Mountains National Monument throughout the document, including in Appendix 3.1-B, USFS Policy Consistency Analysis.

Regarding the impacts from emitting GHG emissions during construction, the Authority acknowledges in its Draft EIR/EIS that there would be GHG emissions generated during construction but that these emissions would be almost fully offset after 4 to 6 months of operations (depending on the ridership scenario and Build Alternative) (see page 3.3-126 in Section 3.3, Air Quality and Global Climate Change of the Draft EIR/EIS).

Regarding the comment that the logistical and technical burdens of serious design considerations would be pushed onto contractors with no specified amount of oversight, the commenter raised this issue in earlier comments. Please refer to previous responses to these concerns in Response to Comments #9177, #9180, and #9208.

Regarding the commenter's concern about the 15/85 design build model, the commenter raised this concern in an earlier comment. Please refer to the previous response in Response to Comment #9507.

Regarding the comment that the project benefits are speculative due to flaws in ridership projections, the commenter does not provide any specific evidence to support their assertion that the ridership projections are flawed. Please refer to the Authority's Technical Supporting Document for the California High-Speed Rail 2020 Business Plan Ridership and Revenue Forecasting, which includes additional information about how the ridership was estimated.

Regarding the comment about recouping the cost, please refer to Standard Response PB-Response-GEN-2: Project Costs and Funding.

Regarding the commenter's support for the No Build Alternative. This comment presents an opinion on the HSR Palmdale to Burbank Project Section. The No Build Alternative would not meet the HSR purpose, need, or objectives outlined in Chapter 1, Project Purpose, Need, and Objectives of the EIR/EIS. CEQA and NEPA require a Final EIR and EIS to respond to the comments received on environmental issues (see 14 C.C.R. §15088(a) and Federal Railroad Administration Procedures for Considering Environmental Impacts 14(s)).

Submission 4496 (Leo Grillo, DELTA Rescue, December 5, 2022)

Palmdale - Burbank - RECORD #4496 DETAIL

Status :	Action Pending
Record Date :	12/5/2022
Interest As :	Business and/or Organization
First Name :	Leo
Last Name :	Grillo

Stakeholder Comments/Issues :

4496-8465

We are in Arrastre Canyon, Acton. Our water wells are in the headwater to the Santa Clara river. Your project is an environmental disaster in total, but worse ever if it cuts close to Arrastre Canyon. If we lose our water our 1500 animals will perish. Our sanctuary will perish. Our lawyers will seek an injunction to stop you in your tracks if you announce that you have chosen Arrastre Canyon near which to tunnel. We won one of the few injunctions against LA County for much less an infringement. Consider this in your decision making.

If you run along the 14 freeway we will not have standing to sue you but it will still be an environmental disaster. Why? To melt the ice cube of federal funding?

Good luck.

Leo Grillo

Response to Submission 4496 (Leo Grillo, DELTA Rescue, December 5, 2022)

4496-8465

Refer to Standard Response PB-Response-GEN-2: Project Costs and Funding, PB-Response-GEN-4: General Opinions, Opposition or Support, PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest, PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the ANF.

The commenter states the project will be an environmental disaster and particularly so if it goes close to Arrastre Canyon. The commenter expresses concern over a scenario of impacts on their wells and the ability to provide water to animals. They state an alignment along the SR 14 would also be an environmental disaster and also refer to federal funding. Please refer to Standard Response PB-Response-GEN-4: General Opinions, Opposition or Support. The commenter's opposition to the HSR project is acknowledged and included in the record for consideration by decisionmakers. Note that the alignments of the preferred alternative (SR14A Build Alternative), as well as Refined SR14 Build Alternative, do not go through Arrastre Canyon. The E1, E1A, E2, E2A Build Alternatives would traverse Arrastre Canyon, mostly in a tunnel but with a small portion of cut and cover. The alignments can be seen on the interactive map available at https://geografika.maps.arcgis.com/apps/MapJournal/index.html?appid=ccac46af003e4a2da4528b2a7595141b. A portion of Arrastre Canyon is within the Angeles National Forest (ANF) and part of it is outside the ANF.

Pursuant to the Authority's 2019 Preliminary Geotechnical Data Report for Tunnel Feasibility, Angeles National Forest and 2019 Geotechnical Tunnel Feasibility Evaluation for High-Speed Rail Tunnels Beneath the Angeles National Forest (referenced in Section 3.8 of the EIR/EIS), based on observed impacts on groundwater from past tunnel projects, no impacts to wells are expected to occur outside the tunnel construction resource study area (more than 1 mile from the centerline of each Build Alternative). Section 3.8, Hydrology and Water Resources, of Final EIR/EIS has been revised to expressly clarify concerns related to private water supply wells. As stated in the Final EIR/EIS, because only limited information is available regarding the location of private wells, there is the potential that tunnel construction could result in the destruction of private water supply wells, including wells that have not been identified, if any wells are located directly in the path of the tunnels. HYD-IAMF#8: Private Well Monitoring and Minimizing Access Disruptions for Private Water Supply Wells Outside of the ANF has been added to the Final EIR/EIS to describe in detail the options that the Authority would

4496-8465

consider to address impacts to private water supply wells outside the ANF, including relocating the wells and ensuring similar pumping capacity and water quality in replacement wells. For wells within the ANF that are determined through modeling and monitoring to be adversely affected by groundwater reductions caused by the HSR, the Adaptive Management and Monitoring Plan (AMMP) included in Mitigation Measure HWR-MM#4 requires modifications to the affected wells or by providing supplemental water. Supplemental water would only be provided if monitoring indicates that the HSR construction caused groundwater impacts. However, the Authority has identified several IAMFs to avoid and minimize the potential for impacts to water supply wells and the need for supplemental water. HYD-IAMF#5, HYD-IAMF#6, and HYD-IAMF#7 require design features and construction methods to address potential groundwater intrusion, including the installation of a tunnel liner(s) capable of effectively controlling inflows into the tunnels. As such, groundwater inflow during construction would likely be minimal and temporary. Please refer to both Standard Response PB-Response-HYD-2: Hydrogeologic Impacts in the Angeles National Forest/Tunneling Impacts in the Angeles National Forest and Standard Response PB-Response-HYD-3: Impacts of Tunnels on Wells Outside the Angeles National Forest for additional information regarding impacts to wells and correlating mitigation measures and IAMFs.

It is unclear to the Authority about what the commenter means by "to melt the ice cube of federal funding," and therefore cannot respond to that part of the comment. However, as to the overall purpose of the project, refer to EIR/EIS Chapter 1: Project Purpose, Need, and Objectives. As to funding sources, refer to Standard Response PB-Response-GEN-2: Project Costs and Funding.

Submission 4516 (Jacqueline Ayer, Acton Town Council, December 1, 2022)

4516-8738

Palmdale - Burbank - RECORD #4516 DETAIL

Status :	Delimited
Record Date :	12/6/2022
Interest As :	Business and/or Organization
First Name :	Jacqueline
Last Name :	Ayer
Attachments :	FINAL hydrology and water resources analysis section.pdf (2 mb) ATC, ADTC Joint Comment Letter on CHSRA DEIR-DEIS Hydro Section -signed.pdf (197 kb)

Stakeholder Comments/Issues :

PLEASE CONFIRM RECEIPT

To the California High Speed Rail Authority;
Attached please find comments submitted jointly by the Acton Town Council and the Agua Dulce Town Council pertaining to the "Hydrology and Water Resources" impact analysis (Section 3.8) of the Draft Environmental Impact Report/Environmental Impact Statement issued by the California High Speed Rail Authority for the Palmdale-Burbank Section of the High Speed Rail Project.
Please contact the Acton Town Council at atc@actontowncouncil.org if you have difficulties opening the attached or require additional information. Hard copies of the attached comments have also been submitted via USPS.

Sincerely,
Jacqueline Ayer
Correspondence Secretary

ANALYSIS OF THE "HYDROLOGY AND WATER RESOURCES" SECTION PRESENTED IN THE PALMDALE-BURBANK DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT.

1.0 INTRODUCTION

The "Hydrology and Water Resources" impact assessment presented in Chapter 3.8 of the Draft Environmental Impact Report/Environmental Impact Statement (hereafter referred to as "the Draft") that was prepared by the California High Speed Rail Authority for the Palmdale-Burbank Segment of the High Speed Rail Project ("Project") has been evaluated and numerous factual errors and material deficiencies have been identified. These errors and deficiencies are set forth in the comments presented below; they demonstrate that the Draft does not comply with either the California Environmental Quality Act ("CEQA") or the National Environmental Protection Act ("NEPA"). Please note: These comments were prepared by a competent engineer with more than 35 years of environmental engineering experience and they present expert opinion supported by facts pertaining to the significant environmental effects that will be caused by the Project and which must be mitigated. Accordingly, the comments provided herein constitute "substantial evidence" as that term is defined by the CEQA Statute [California Public Resources Code §21080(e)(1)] and Guidelines [California Code of Regulations Section 15064(f)(5)]. These comments also demonstrate that CHSRA/FRA have failed to conduct a substantive 'hard look' review of the Project's environmental impacts as required by NEPA.

2.0 MAJOR DEFICIENCIES NOTED IN THE DRAFT.

2.1 The "Best Management Practices" That Will be Used for Project Construction Will Result in Significant Erosion and Alter Flow Characteristics Downstream of Project Construction Sites.

Section 3.8 of the Draft concludes that the Project will have a "less than significant impact" on hydrology because it will employ "Impact Avoidance and Minimization Features" ("IAMFs") and utilize standard "Best Management Practices" ("BMP") and implement "Stormwater Pollution Prevention Plans" to control and direct stormwater runoff from project construction sites and thereby not alter surface drainage patterns [Page 3.8-39]. The Draft is very much mistaken. The BMPs and SWPPP elements that are enumerated in the Draft were developed for urban areas where the land surface is almost entirely impervious and where extensive infrastructure (concrete drainage infrastructure, culverts, impervious ditches, channelized facilities, etc.) capture and divert stormwater to either the ocean or detention (dam) facilities or large "spreading grounds"; these BMPs and SWPPS are entirely inappropriate in rural areas that have dirt roads, few impervious areas and no drainage infrastructure and where natural drainage patterns have been maintained and preserved for hundreds of years. For example, a primary purpose of the BMPs and SWPPPs is to control sediment flows and eliminate sediment from stormwater discharges (see pages 3.8-76 and 3.6-78[1]); this is important in urban areas because sediment impairs the operation of stormwater capture and conveyance infrastructure

[1] According to pages 3.8-76 and 3.6-78, the Project will employ IAMFs to control sediment and BMPs will minimize discharges of sediment in stormwater released from construction sites.

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by accumulating in conveyance channels and detention basins reducing system capacity. However, rural areas like Acton and Agua Dulce have no stormwater capture or conveyance infrastructure; so, sedimentation is not a problem. In fact, if the Project does remove sediment from stormwater flows in Acton and Agua Dulce, it will cause tremendous erosion problems on all downstream areas because the "sediment free" stormwater discharged from the construction site into natural drainage courses will pick up sediment as it gains speed on its path toward the Santa Clara River[2]. And, where it picks up sediment as it flows across downstream properties, it causes significant erosion. This is not conjecture; it is fact. The Forecast subdivision between McEnnery Canyon Road and Desert Road in Acton installed stormwater capture and sediment removal facilities (including debris basins and detention basins) that discharged sediment-free water to the natural drainage courses downhill from the subdivision, and when it rained, the "sediment free" water picked up significant amounts of sediment as it flowed across downhill properties the resulted in significant erosion; some downhill properties lost large areas of their back yards. Therefore, IAMFs, BMPs and SWPPs that result in "sediment free" stormwater discharges will cause significantly adverse erosion impacts in Acton and Agua Dulce.

The problem with employing standard IAMFs, BMPs and SWPPP measures at construction sites in Acton and Agua Dulce can perhaps best be illustrated by analyzing a statement found on page 3.8-37 which asserts "Drainage facilities would be specifically designed to convey stormwater runoff, which would result in minimal direct drainage impacts related to these facilities". According to this statement, the Project will not cause drainage impacts because the Project will be designed to "convey stormwater runoff"; the problem is, neither Acton nor Agua Dulce have stormwater infrastructure to accept the "storm water runoff" that the Project "conveys". Neither Acton nor Agua Dulce have stormwater culverts or concrete drainage facilities or stormwater capture infrastructure or channelized flow areas, so the "stormwater runoff" that is "conveyed" by the Project *has nowhere to go*. And, if it is just dumped into the natural drainage courses in these communities, it will cause extensive erosion (as discussed above). To be clear, stormwater runoff is ***never*** "conveyed" in Acton or Agua Dulce; instead, stormwater merely flows to the Santa Clara River along natural drainage courses that have remained unchanged for millennia. The fundamental premise which underlies the Draft's conclusions that hydrologic impacts will be less than significant because the Project includes BMPs and SWPPs to ensure "drainage facilities would be specifically designed to convey stormwater runoff" is only reasonable in urban/suburban areas where there is channelized drainage infrastructure to accept the conveyed stormwater; it is entirely unreasonable and inapplicable to Acton and Agua Dulce. Accordingly, the Draft is patently incorrect to conclude that the Project will have "less than significant" hydrologic impacts in Acton and Agua Dulce.

It is important for CHSRA to understand that natural drainage patterns have generally dictated the location and configuration of all development in Acton and Agua Dulce over the last 150 years; thus, it is critical that drainage patterns and characteristics in these communities remain preserved and unchanged to protect existing developments. Other than an earthquake, the only activity that can alter drainage patterns in Acton and Agua Dulce is development involving stormwater capture, sediment removal, and stormwater control; this is why such developments are precluded in Acton and why all the IAMPFs, BMPs, and SWPPS that are identified in the

[2] This is the principal characteristic of "two phase flow" conditions: clean water flowing over a natural surface will pick up sediment from the surface until an equilibrium is reached; the equilibrium is a measure of the sediment transport capacity of the flow.

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Draft are completely inappropriate for Acton. To better understand how the natural drainage patterns are preserved in Acton and Agua Dulce, the following description is offered:

- Most roads in Acton are dirt and have no stormwater capture or diversion infrastructure; they are maintained by the residents. This does make the roads occasionally impassable during inclement weather, but residents quickly repair the roads and restore access.

- There are culverts under a few paved roads in Acton (the 14 Freeway, Escondido Canyon Road, Sierra Highway, and Soledad Canyon Road) but these culverts are located where natural flows occurred before the roads were built *and they do not have sediment removal facilities*; they simply carry sediment laden flows from one side of the road to the other and do not alter flow patterns or cause erosion on downstream properties.

- Every new residential development complies with applicable stormwater regulations by constructing a natural bioswale on site which is appropriately sized to capture and retain sufficient water to offset the impervious surface area that the development creates; no impervious stormwater capture facilities or sediment removal basins are constructed.

Concerns regarding the use of standard IAMFs, BMPs, and SWPPP measures are particularly acute at the "Acton Window" location which lies immediately adjacent to, and uphill from, an entire residential neighborhood. As indicated in the drainage map that is provided in Attachment 1, there are several natural drainage courses across the "Acton Window" parcel; some of these drainage courses are very near homes that are south of, and just downhill from, the "Acton Window" site. As shown in the figures below, sediment-laden stormwater flows off the "Acton Window" parcel via the natural drainages and passed the homes without eroding or flooding the homes. If the Project employs the BMPs and SWPPPs that are described in the Draft at this location, then significant downhill erosion will occur and the homes will be substantially damaged. It should be noted that, at one time, a residential subdivision was proposed for the large parcel that will be used for the "Acton Window"; the subdivision was configured to connect to Antelope Woods Road at the same location and in the same manner as what is now proposed for the SR14A Alternative. The developer had proposed the use of "Conspan" arch bridges to traverse the unique onsite drainage courses that emanate from under the 14 Freeway in a manner that would not alter any characteristics of runoff from the property. A copy of the subdivider's "post-development" plan is provided in Attachment 2. The efficacy of the developer's proposal to utilize arch bridges to prevent alterations to existing drainage characteristics and patterns was never fully vetted because the subdivision map was withdrawn; however, the information provided in Attachment 2 demonstrates just how essential it is for CHSRA to ensure that Project construction and operation at the "Acton Window" does not modify drainage characteristics or drainage locations at the Acton Widow site.

Taken together, the abovementioned facts demonstrate that implementation of the BMPs and SWPPP measures that are identified in the Draft within the Communities of Acton and Agua Dulce will not reduce impacts from alterations of surface drainage patterns to a level that is less than significant; to the contrary, they will amplify and exacerbate such impacts. Thus, it is particularly important that the Final EIR clearly assert that the Project *will not* adopt standard BMPs and SWPP measures in rural communities like Acton and Agua Dulce because they are only applicable to urban/suburban areas where there are extensive impervious surfaces and

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Photos of sediment laden stormwater flowing off the "Acton Window" property.

sufficient stormwater conveyance facilities to accommodate them. It is also critical that the Final EIR identify and describe the rural-appropriate IAMFs, BMPs, and SWPPP measures that will be utilized to ensure that the Project does not modify existing stormwater runoff patterns or alter the location of, or the flowrate in, or the sediment characteristics of, any natural watercourses in Acton and Agua Dulce.

2.2 The Draft Improperly Conflates Stormwater Treatment with Wastewater Treatment and Fails to Address the Impacts of Wastewater Pollutants on Water Resources.

Section 3.8 of the Draft provides extensive discussions regarding the stormwater treatment infrastructure will be employed to protect water resources at all the Project's tunnel portal sites; however, it fails to discuss the wastewater treatment infrastructure that will be employed to address the significant volumes of wastewater that will be generated every day during tunnel construction. It also does not identify any measures that will be used to protect groundwater resources from wastewater contamination. In fact, the word "wastewater" appears only three times in Section 3.8! Wastewater concerns are mentioned briefly in Section 3.6 of the Draft, but the wastewater treatment approach it describes is lacking because it relies on the Project's stormwater treatment facilities to clean up process wastewater resulting from tunnel construction[3]. In other words, the Draft improperly conflates *wastewater treatment* with *stormwater treatment*. The Project's stormwater facilities will operate only during rare rain events, and in rural communities like Acton and Agua Dulce, stormwater facilities are not particularly complex because stormwater runoff is generally clean with few contaminants (though stormwater does contain sediment which, as discussed above, is naturally occurring and

[3] Pages 3.6-78 – 3.6-79 concludes that wastewater impacts will be less than significant because of the BMPs and SWPPP measures that will be implemented for the Project's stormwater treatment program.

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not a "contaminant"). In contrast, the Project's wastewater treatment facilities will have to be substantially more robust than stormwater treatment facilities because every day, the Project will generate more than one hundred thirty thousand[4] gallons of process wastewater contaminated with the constituents that are released by operations of the tunnel boring machines ("TBM")[5]. None of this is discussed in the Draft. It is essential that the Final EIR/EIS correct this deficiency and include language which ensures that the Project's wastewater treatment program will be properly configured to clean the wastewater and maintain existing drainage patterns, characteristics, and sediment discharge profiles in Acton and Agua Dulce and thus avoid downstream erosion and the other runoff problems described above.

2.3 The Draft Fails to Address the Project's Significant Adverse Impacts on Local Water Resources and Drinking Wells in Acton and Agua Dulce.

Section 3.8 of the Draft is supposed to analyze the Project's impacts on water resources; however, it does not properly address impacts to local water resources and well systems that will result from tunnel construction. In fact, the Project threatens local water resources and drinking water wells in Acton and Agua Dulce in several ways; yet, the Draft fails to address any of them. For instance, tunneling (whether done with TBMs or "traditional methods") will destroy all well facilities that lie in the tunnel path; residences that rely on these well facilities will have their water source immediately curtailed. According to the tunnel route maps, all the routes travel under homes in rural areas that rely on domestic residential wells; yet the Draft does not address the impacts to these homes that would result if a TBM bored through a resident's well. This impact must be addressed and a mitigation measure must be offered in which CHSRA drills a new well that meets all local health department standards or connects the property to municipal water.

Another water resource impact that is not addressed in the Draft pertains to groundwater levels and how they will be affected by tunnel construction. Specifically, Section 3.6 asserts that tunnel construction will rely on water resources provided by the "Antelope Valley-East Kern" Water Agency ("AVEK"), but it also states that non-potable water (i.e., groundwater or partially treated sewage) will also be used to the extent feasible; this means that, in Acton and Agua Dulce, both AVEK resources and local groundwater will be used for tunnel construction (because there are no municipal sewage treatment facilities in Acton or Agua Dulce). However, the Draft fails to address or even mention the significant impacts that will result from extracting more groundwater from the already scant local groundwater supplies in Acton and Agua Dulce. Recently, these concerns were substantially elevated when CHSRA announced at a public meeting on November 4, 2022, that AVEK resources ***will not*** be used for tunnel construction and that the Project will instead rely entirely on local groundwater resources in Acton and Agua Dulce; this news was shocking. If groundwater resources for tunnel construction are used instead of AVEK resources, then each tunnel portal site will require the extraction of more than

[4] Two TBMs will be operating from each portal and, according to page 3.6-78, each TBM will require 366 acre-feet per year; this will result in 653,500 gallons per day used at each portal. According to page 12 of Appendix 3.8-D, at least 20 percent of this water (or 130,700 gallons per day) will flow back and require treatment as contaminated wastewater.

[5] According to Page 3.8-41, the water in the tunnels could be contaminated with drilling muds, sediments, and lubricants.

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650,000 gallons *per day*[6]. The Project will also require the construction of new and extensive groundwater extraction facilities. It will also substantially increase groundwater extraction rates in Acton and Agua Dulce which will introduce new and significant stresses on local groundwater supplies that are already stretched thin due to recent drought conditions. This in turn will directly affect local well yields, cause residential wells to "dry up", and drive people from their homes. Because the Draft fails to analyze or even mention these impacts, it substantially violates both CEQA and NEPA deficiencies. More extensive remarks regarding the significantly adverse environmental impact that will result from using local groundwater resources rather than AVEK resources for tunnel construction are provided in the comments that have been submitted pursuant to Section 3.6; those comments are incorporated herein by reference. The only way to avoid these significant environmental impacts is to preclude the use of groundwater resources for tunnel construction in Acton and Agua Dulce and mandate that AVEK resources be utilized instead.

Another impact that is not properly addressed by the Draft is the significant environmental effects on residential wells in Acton and Agua Dulce that will result from subterranean alterations caused by tunnel construction. Specifically, and as expressed in comments submitted by hundreds of residents of Acton and Agua Dulce before, during, and after Project Scoping, tunnel construction can impact groundwater and perched water resources and thus permanently interrupt domestic water supplies. These concerns are supposed to be addressed as part of "Impact HWR#4", but the analysis of "Impact HWR #4" is superficial, incoherent, and internally inconsistent. For instance, pages 8.6-47-8.6-49 assert: 1) "when tunnel depths are above the known groundwater table, effects on groundwater and groundwater dependent resources would be minimal to none"; 2) "Where tunnel depths may coincide with the groundwater table, there could be impacts"; 3) "tunneling activities required for each of the six Build Alternatives could encounter shallow groundwater south of the California Aqueduct and north of the ANF" [referring to Acton and Agua Dulce] 4) "Not enough groundwater information is available at this time to identify the extent to which the tunnels may be below the water table. There may be perched groundwater or seasonal springs in the vicinity of these tunnels (Figure 3.8-A-21); therefore, local water inflows during portal and tunnel excavations are anticipated in this area"; 5) "Private wells occur within 1 mile of each of the six Build Alternatives outside of the ANF (Figure 3.8-A-21, Figure 3.8-A-22, and Figure 3.8-A-23). Changes in groundwater during tunnel construction could affect water supply to these private supply wells"; 6) "Because of the presence of groundwater, perched groundwater, and seasonal springs, tunneling could provide a conduit for groundwater to drain into the excavation as the advancing tunnel intersects fractures and faults within bedrock or saturated alluvium in groundwater basins"; 7) "For all excavation methods, excessive groundwater pressures might generate some seepage into the tunnel during construction, but additional measures implemented during construction, such as pre-grouting, would help to reduce the flow to manageable values"; 8) "The tunnel lining system would also be important in controlling water flows both during and after construction and would consist of either a single-pass or two-pass lining system, depending on mining methods and groundwater pressure encountered"; 9) "The circumstances under which these approaches would be employed would be guided by site-specific geotechnical and hydrogeological characterizations that would be developed during the preconstruction phase of

[6] Each TBM requires 366 acre-feet of water per year [Page 3.6-78], and each portal site supports two TBMS; this means that each tunnel portal will require more than two acre-feet (or 653,487 gallons) of water per day.

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the selected Preferred Alternative". Coupling this confusing and arguably contradictory accumulation of declarative statements with the assertion offered on Page 3.8-41 that the analysis assumes "all tunnels are below the water table" in the area South of the Aqueduct and north of the ANF (which is where Acton and Agua Dulce are) reveals that CHSRA has no clear picture of where the water table is in Acton and Agua Dulce or where the tunnels are located in relation to the water table. Worse yet, the Draft fails to grasp that the salient issue is not where the tunnels are located in relation to the "water table", rather it is where the tunnels are located in relation to the groundwater sources that residents pull from to extract their drinking water; the distinction is critical because many domestic wells in Acton and Agua Dulce actually extend well below the "water table" to ensure a reliable water supply despite drought conditions. For example, the domestic wells that serve the residents on Salty Dog Road and Hisey Ranch Road under which the SR14A tunnels run have depths ranging from 500 feet to 900 feet (which means that some wells extract water from zones above the tunnel and others extract water from zones below the tunnel). Inadequacies in the "analysis" of "Impact HWR#4" are substantially magnified by the fact that the Draft mistakenly presumes that there are very few wells in Acton and Agua Dulce[7] when, in reality, these communities have more than a thousand wells.

The Draft fails to provide a coherent analysis of "Impact HWR#4" and instead presents a muddled, incoherent, and uninformed mishmash of words which reveals that CHSRA knows nothing about local groundwater or perched water resources in Acton and Agua Dulce; it knows nothing about local well facilities in Acton and Agua Dulce or where they are or how they are configured; and it knows nothing about how tunneling will impact these water resources and well facilities. Yet, and despite these inadequacies, the Draft concludes on page 3.8-49 that impacts on groundwater outside the ANF will be "less than significant". This conclusion is not supported by any evidence (let alone "substantial evidence") and it constitutes the type of speculation that is prohibited by CEQA.

This deficiency must be addressed by revising the Draft to 1) clearly assert that there is insufficient evidence to conclude that the impacts of tunnel construction on groundwater resources in Acton and Agua Dulce will be less than significant; and 2) add a mitigate measure to address the impacts of tunnel construction on private water systems, residential wells, and groundwater resources in Acton and Agua Dulce which includes an "Adaptive Management and Monitoring Plan" ("AMMP") that establishes protocols to determine baseline conditions of ground water levels at all wells in Acton and Agua Dulce that are located within ½ mile of any tunnel and detects changes in groundwater conditions at these locations which are related to tunnel construction to ensure timely implementation of remedial measures; these remedial measures must include supplying supplemental water to all affected well owners until baseline levels are restored or drilling a new well that complies with all applicable local and state requirements. The Draft already proposes a similar AMMP (identified in Mitigation Measure "HWR-MM#4") for ANF lands [Pages 3.8-67 to 3.8-69], so incrementally extending this AMMP to protect the rural residents of Acton and Agua Dulce will not be burdensome. Moreover, CEQA requires that CHSRA mitigate all potentially significant impacts to the extent feasible. Given that this AMMP is clearly feasible (since it will be implemented in the ANF) and given that the Draft clearly affirms that tunnel construction will affect groundwater in Acton and Agua

[7] Table 3.8-3 identifies few wells in the area of the Project in Acton and Agua Dulce; additionally, the Draft appendices indicate that Acton has only 5 active wells and Agua Dulce has no active wells (as discussed in more detail below).

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Dulce (i.e., "South of the California aqueduct and north of the ANF") and given that CHSRA does not know how many wells it will affect or where they are located, CEQA requires that this AMMP be included in a mitigation measure developed for Acton and Agua Dulce.

2.4 The Draft Fails to Address the Impacts on Water Resources That Will Result From Using Non Potable Water for Tunnel Construction.

Section 3.8 of the Draft ostensibly pertains to water resource impacts that will result from Project construction and operation, yet it fails to address the potential contamination of groundwater resources that will result from the use of non-potable water to construct the tunnels on all 6 route alternatives. Specifically, and though the Draft asserts in Tables 3.6-11 and 3.6-21 that tunnel construction will be conducted using AVEK resources (which are potable), page 3.6-90 contradicts this assertion by stating that the Project will require the use of non-potable water for tunnel construction to the extent feasible. The Draft fails to identify the sources of non-potable water that will be used, but non-potable water is typically comprised of either partially treated sewage or untreated groundwater. And, given the substantial likelihood that the TBMs will pierce water channels and aquifers that either overlie, or serve as, public and private drinking water sources in Acton and Agua Dulce (as discussed above), tunnel construction with non-potable water will result in the direct injection of potentially unclean water into groundwaters that directly serve as drinking water sources.

As indicated above, CHSRA staff recently announced that only groundwater resources will be used for tunnel construction in Acton and Agua Dulce. This, coupled with the fact that local groundwater in Acton and Agua Dulce is often contaminated with nitrates and arsenic at levels exceeding federal drinking water standards[8], necessarily implies that tunneling will result in the direct injection of these and other pollutants into all the aquifers, perched water, and other groundwater sources through which the tunnels pass. Yet, the potential contamination of groundwater that is posed by the use of non-potable water for tunnel construction is not addressed anywhere in the Draft. Instead, the Draft simply asserts that "the tunnels are below the water table" [Page 3.8-41] and thus will not contaminate groundwater in Acton and Agua Dulce (a.k.a. "the area south of the California Aqueduct and north of the ANF". This assertion has no evidentiary support; in fact (as discussed above), CHSRA has insufficient information to draw any specific conclusions regarding where tunnels will be located in relation to either the "water table" or the groundwater sources that Acton and Agua Dulce residents rely on.

The lack of analysis of potential groundwater contamination resulting from the use of non-potable water in Acton and Agua Dulce and the attendant lack of mitigation measures to address this impact renders the Draft materially deficient. Accordingly, the Draft must be revised to address this deficiency and offer mitigation; the revisions must include a clear statement that the principal means to avoid these impacts is to preclude the use of groundwater resources for tunnel construction in Acton and Agua Dulce and instead require the use of AVEK resources.

[8] Nitrate concentrations in groundwater extracted from local municipal wells in Acton are reported in Attachment 3. Additionally, arsenic is found in the groundwater within Agua Dulce; in fact, "Agua Dulce" (or "sweet water" in Spanish) is an historic term for water contaminated with arsenic. A study conducted 10 years ago by the Los Angeles County Health Department indicates that many wells in Agua Dulce have detectible levels of arsenic and in some areas, arsenic exceeds the MCL of 10 ppb [http://file.lacounty.gov/SDSInter/bos/supdocs/65110.pdf].

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3.0 ADDITIONAL DEFICIENCIES NOTED IN THE DRAFT

For simplicity and to facilitate review, additional deficiencies and factual errors noted in the Draft are presented sequentially by page number below.

Page 3.8-10 states "The Authority is a state agency and therefore is not required to comply with local land use and zoning regulations"; while it is true that CHSRA is not required to comply with local land use and zoning regulations, CEQA does require CHSRA to identify Project elements that conflict with local land use plans and policies; it also requires CHSRA to mitigate conflicts with any plan or policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect if such conflicts will result in a significant environmental impact. So, while the Project is not required to *conform* with local land use and zoning policies, it must nevertheless mitigate the significant environmental impacts that arise from non-conformance with local land use and zoning policies.

Page 3.8-10 addresses the consistencies of the Project's hydrology and water resource characteristics with applicable planning documents adopted by local agencies and it defers to an analysis presented in Appendix 2-H. It also states "Each of the six Build Alternatives are consistent with the majority of policies reviewed but are potentially inconsistent with 2 policies. These are Policy S 2.2 of the Los Angeles County General Plan, which discourages development from locating downslope from aqueducts, and Policy LU 3.3 of the Los Angeles County Ordinances, which limits the amount of development in Flood Zones designated by FEMA." This consistency analysis does not comply with CEQA. Specifically, CEQA requires that CHSRA ascertain whether the Project is inconsistent with any policies that were adopted for the purpose of avoiding or mitigating an environmental effect and whether these inconsistencies will result in significant environmental impacts; if so, mitigation must be offered[9]. Unfortunately, the Draft does not meet this standard because it offers no mitigation measures to address the inconsistencies that are identified. Equally important, the consistency analysis presented in Appendix 2-H is incomplete and arguably erroneous. For example, Appendix H-2 states on page 2.0-H-27 that the Project is consistent with Los Angeles County General Plan Policy C/NR 5.6 (Minimize point and nonpoint-source water pollution) because CHSRA will prepare a stormwater management and treatment plan and a Stormwater Pollution Prevention Plan (SWPPP) to manage stormwater runoff for all six Build Alternatives; however, stormwater management plans and SWPPs configured to address stormwater runoff are not appropriate for addressing the wastewater generated at each portal location (as discussed above). Moreover, using stormwater facilities or SWPPP measures to treat wastewater will not "minimize water pollution" as required by Policy C/NR 5.6 because "stormwater" and "wastewater" are two very different streams that require different treatment methodologies (as discussed above); this is particularly true in Acton and Agua Dulce where stormwater runoff requires little (if any) treatment. The consistency analysis presented for Policy C/NR 5.6 in Appendix H-2 is inadequate and must be revised to recognize these facts. Another concern is that Appendix H-2 fails to address the water pollution that will result from CHSRA's plan to use non-potable water to operate the TBMs (as discussed above). Furthermore, Appendix H-2 does not address Goal C/NR 6 to achieve "Protected and usable local groundwater resources". Goal C/NR 6 was clearly adopted "for the purpose of avoiding or mitigating an environmental effect"; therefore, CEQA

[9] California Code of Regulation, Title 14, Chapter 3, Appendix G.

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requires that the Final EIR 1) address the manner in which the Project substantially conflicts with this Goal by requiring groundwater resources to be used for tunnel construction in Acton and Agua Dulce; and 2) provide mitigation for the significant impacts to local groundwater levels that will arise from this conflict. The only feasible mitigation measure that will ensure the Project does not conflict with ether Goal C/NR 6 or Policy C/NR 5.6 is to preclude the use of local groundwater for tunnel construction in Acton and Agua Dulce and mandate that only AVEK resources will be used. Finally, Appendix H-2 fails to identify the Antelope Valley Area Plan (AV Plan) or discuss its relevance to the Project. Policy COS 2.7 from the AV Plan pertains to protected and usable local groundwater resources and it is particularly relevant given that the Project may substantially impact local groundwater resources. Additionally, AV Plan Policy COS 3.5 pertaining to the protection of water supplies from pollution is also relevant given that CHSRA proposes to use non-potable water for TBM operation. In summary: Page 3.8-10 and Appendix H-2 must be revised to 1) address the Project's conflicts with Goal C/NR 6, Policy C/NR 5.6, Policy COS 2.7 and Policy COS 3 (all of which were adopted "for the purpose of avoiding or mitigating an environmental effect"); 2) establish the significant environmental impacts resulting from these conflicts; and 3) and provide appropriate mitigation measures to reduce these environmental impacts. Recommended mitigation measures include the development of properly robust wastewater treatment facilities and a commitment to use only potable water supplied by the Antelope Valley-East Kern (AVEK") Water Agency for constructing the tunnels in Acton and Agua Dulce.

Pages 3.8-21 through 3.8-22 pertain to surface water conditions and according to Table 3.8-3, these pages are supposed to address well issues, but they do not. Worse yet, Table 3.8-3 asserts (wrongly) that there are almost no active wells present throughout any of the route alternatives! Table 3.8-3 was ostensibly compiled based on data provided in Appendix 3.8-A, but Appendix 3.8-A fails to identify nearly every single well in Acton and Agua Dulce (for instance, page 3.8-A-21 reports that the entire Community of Acton only has 5 active wells and page 3.8-A-22 reports that there are no active wells in Agua Dulce). For the record, most Acton and Agua Dulce residents are *not* served by Waterworks District #37 so they rely on small domestic wells and local groundwater for their water supply; this means that there are at least a thousand active wells in Acton and Agua Dulce, yet none of them are reflected anywhere in Section 3.8 or in Appendix 3.8-A. For more than 10 years, the residents of Acton and Agua Dulce have expressed concerns that the Project would adversely impact their domestic residential wells; yet, and as discussed above, these concerns have not been properly addressed. Instead, the Draft reports (incorrectly) that there are virtually no active wells in any areas affected by the Project. These appalling material deficiencies must be rectified. CHSRA can easily identify the general area of residential wells in Acton by simply assuming that every house which is not served by Waterworks District 37 has a nearby well. Such an analysis must be conducted and incorporated in the Final EIR/EIS along with the AMMP discussed above to mitigate Project impacts on residential wells in Acton and Agua Dulce; an adverse impact to a single well should be established as the CEQA "threshold of significance" for this analysis.

Pages 3.8-25 through 3.8-26 address affected groundwater basins and Table 3.8-5 asserts that all route alternatives other than E1A and E2A are located within the "Acton Valley" groundwater basin. This is incorrect. In fact, according to Figures 3.8-A-21 and 3.8-A-22 of Appendix 3.8-A, the only Project element lying within the "Acton Valley" Basin is a utility line serving the SR14A route; no tracks or tunnels will be located in the "Acton Valley" water basin. It is a common

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misconception that the "Acton Valley" groundwater basin is located in Acton; however, it is not[10].

Page 3.8-27 States that Figure 3.8-A-21 through Figure 3.8-A-23 depict the groundwater wells within the groundwater "Resource Study Area". This is incorrect. Figure 3.8-A-21 through Figure 3.8-A-23 fail to identify the thousand+ existing wells in Acton and Agua Dulce. Page 3.8-27 also states that there are only 30 active wells in the Refined SR14 and SR4A RSAs and only 24 or fewer active wells in the E1/E1A/E2/E2A RSAs; this statement is also incorrect. The route maps provided with the Draft indicate that the routes traverse many areas where there are hundreds of wells, including Peaceful Valley, Kentucky Springs, Aliso Canyon, Arrastre Canyon, Red Rover Mine, Escondido, Hisey Ranch, Hubbard, etc. These errors must be corrected by revising the Draft to include a complete and thorough survey of all the wells located in the vicinity of the preferred Alternative Route and provide mitigation measures to reduce impacts on these wells to a level that is less than significant.

Page 3.8-28 asserts that CHSRA mapped the "water wells within 1 mile" of all the route alignment alternatives, however it does not clarify where these maps are or how the public can view them to confirm whether they do indeed capture all "water wells within 1 mile" of the alignments. This is a substantial deficiency, particularly given that the residents of Acton and Agua Dulce have a right pursuant to CEQA to know whether CHSRA's impact assessment has properly accounted for their residential well facilities. Moreover, given the mapping errors in Figure 3.8-A-21 through Figure 3.8-A-23 (described above), the public can be relatively confident that CHSRA *did not* map all the "water wells within 1 mile" of all the alignments, and thus the impact analysis presented in the Draft does not account for their well facilities. These errors are compounded by the fact that the Draft offers no measures to mitigate the Project's significant impacts on private domestic wells (including, but not limited to, well destruction by TBM operation). The Draft must be substantially revised to property identify the significant environmental impacts that the Project poses to domestic residential wells and provide appropriate mitigation measures which include well replacement services and municipal water line connection services.

Page 3.8-36 concludes that ancillary features such as power and utility lines will be "strung from utility poles that could be located outside of surface water features and utility lines would be collocated within existing roadway rights-of-way". This conclusion is problematic for several reasons. First, CHSRA has committed to constructing utilities underground in Los Angeles County to the extent feasible[11], and since the only locations where undergrounding utilities may be infeasible are either steep hillsides or across seismic faults, most of the Project's electric

[10] In 2016, the Department of Water Resources (DWR) revised "Bulletin 118"to and improperly combine the groundwater basin that underlies Acton with the groundwater basin that underlies the Antelope Valley. Then, DWR compounded the confusion by renaming the groundwater basin that underlies Agua Dulce to "Acton Valley Basin" even though it is not in the Acton Valley. Under the 2016 version of "Bulletin 118", the basin in Acton and the basin in Antelope Valley are considered to be a single basin called "Antelope Valley Basin", and the basin in Agua Dulce is called the "Acton Valley" Basin. This is of course a mistake; the basin under Acton is in the Santa Clara River watershed and drains to the ocean, whereas the basin under Antelope Valley is in the Antelope Valley watershed portion of the "Great Basin" which does not drain to the ocean. The two basins are separated by the San Andreas fault which prevents communication and groundwater transfer between them.

[11] Appendix H-2 Page 12.

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utilities in Los Angeles County will be underground and not strung on utility poles. Second, the Communities of Acton and Agua Dulce are located in Very High Fire Hazard Severity Zones (VHFHSZs) where above ground electrical utilities pose a very real and significant fire risk[12]; accordingly, electrical infrastructure in Acton and Agua Dulce must be installed underground for fire-safety reasons. Third, the electrical service provided by above-ground facilities is highly unreliable in Acton and Agua Dulce because such facilities are susceptible to frequent power shutoffs (referred to as "Public Safety Power Shutoffs") that can last for days and which will cause extensive service interruptions during Project construction and operation. Fourth, according to the "Utility Relocation Plans" prepared for the Project, utility lines are not always "collocated within existing roadway rights of way"; in fact, CHSRA is proposing to construct an entirely new 230 kV transmission line in a completely new right of way corridor that is not within or near an existing road right of way. Taken together, these factors demonstrate that ancillary features such as power lines and utility infrastructure must be placed underground in Acton and Agua Dulce and not "strung from utility poles"; the Draft must be corrected to reflect that all utility installations (including the 230 kV line) will be underground in Acton and Agua Dulce.

Page 3.8-46 states "Each of the Build Alternative footprints in the Antelope Valley Groundwater Basin are within developed suburban land uses and infrastructure. Because these areas are developed, the net increase in impervious surfaces would be relatively low." These statements are only valid for the portion of the Antelope Valley Groundwater basin that is located in Palmdale, they are not valid for the portion of the Antelope Valley Groundwater basin that is located in Acton. This is because Acton is a rural community with very little impervious surface area; it is not developed with suburban land uses and infrastructure. Accordingly, and contrary to what the Draft asserts, any net increase in impervious surfaces in Acton will be relatively high. Page 3.8-46 also states that, within the Antelope Valley Groundwater Basin, "Each of the build alternatives Stormwater retention and detention BMPs would be implemented to control stormwater runoff while also increasing groundwater recharge"; however (and as discussed above), the use of standard retention and detention BMPs to control stormwater runoff in Acton and Agua Dulce will result in significant erosion problems and therefore cannot be utilized.

Page 3.8-47 states "The E1/E2 Build Alternatives would require footprint in the Acton Valley Groundwater Basin". This statement is incorrect. As explained above, the "Acton Valley Groundwater Basin" boundaries are located entirely in Agua Dulce and, as shown in Figures 3.8-A-21 and 3.8-A-22, no portion of any of the "E" route alternative comes close to it.

Page 3.8-83 through 3.8-85 present CEQA significance conclusions indicating that the Project will avoid all significant impacts on hydrology and water resources. These conclusions are insupportable because:

- The BMPs and SWPPP measures that the Draft relies upon to conclude that the Project will not impact drainage patterns or runoff characteristics cannot be implemented in rural areas like Acton because they will result in significant erosion and other significantly adverse hydrologic impacts.

[12] Most of the deadly and extensive wildfires that have been sparked since 2017 were caused by "above-ground" electrical lines in VHFHSZs

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- The Draft fails to provide a proper analysis of the impacts of tunneling on groundwater resources and residential wells in Acton and Agua Dulce (which is referred to as the area "south of the Aqueduct and north of the ANF") and instead presents a jumble of disjointed and arguably contradictory statements which reveal that CHSRA has no idea of where groundwater resources are in relation to tunnel locations or well infrastructure and that tunnel construction can indeed impact groundwater levels. Then, the Draft simply declares (without evidentiary support) that the Project will not impact groundwater resources or residential wells. All of this substantially violates CEQA and NEPA.

- The Draft conflates stormwater treatment with wastewater treatment and fails to property articulate the measures that will be used to treat the hundred thousand+ gallons of contaminated wastewater that will be generated daily at each tunnel portal in Acton and Agua Dulce.

- The Draft fails to address or even mention the impacts of using local groundwater resources for tunnel construction rather than AVEK resources; these impacts include depletion of the already scant groundwater resources that Acton and Agua Dulce residents depend on as well as contamination of aquifer, groundwater, and perched water sources.

- The Draft does not comply with CEQA because it does not offer any strategies for minimizing the significant environmental impacts that will occur as a result of inconsistencies between the Project and local plans, policies, and ordinances that were adopted for the purpose of avoiding environmental effects (particularly those policies pertaining to the protection of groundwater resources and groundwater quality).

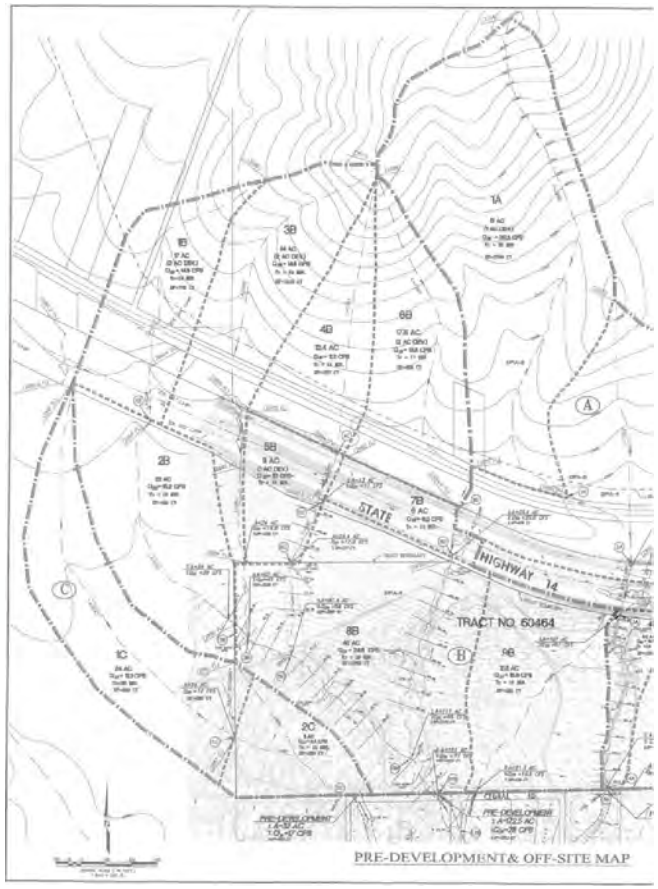
3.0 CONCLUSION

For the reasons set forth above, the Draft Environmental Impact Report prepared for the Palmdale to Burbank section is deficient and does not comply with CEQA or NEPA; these deficiencies must be corrected in the Final EIR which must specifically address the residential well impacts and groundwater impacts of the Project and include appropriate BMPs and SWPPPs for rural areas that guarantee there will be no change in any runoff characteristics (including, but not limited to, volume, location, sediment loading, discharge rate, etc.). Without these corrections, the Final EIR will not comply with CEQA or NEPA.

Submission 4516 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

ATTACHMENT 1

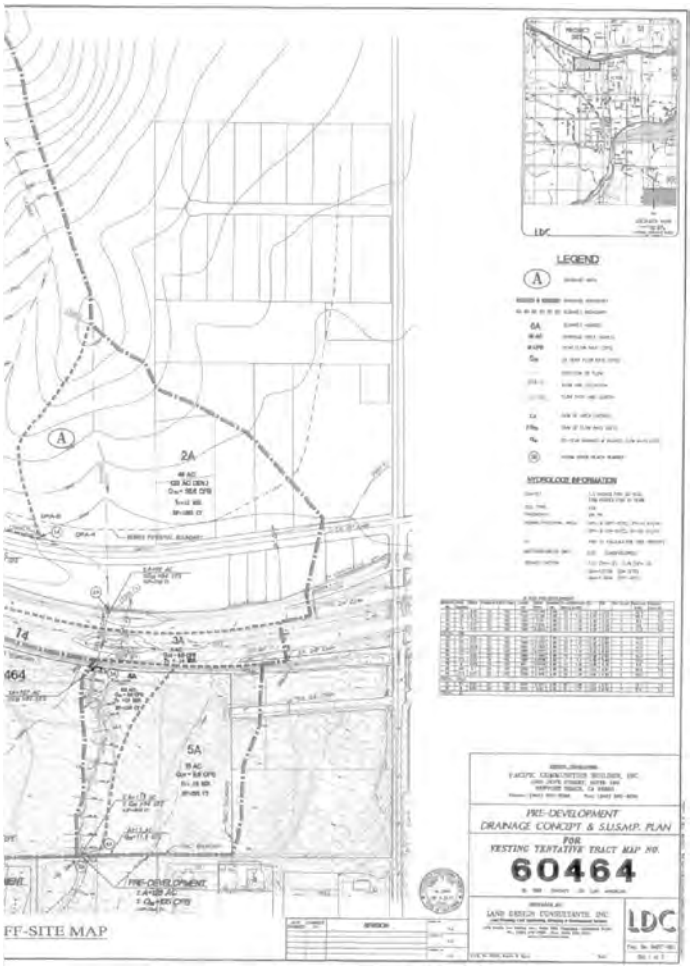
Drainage Map of the Area Where the "Acton Window" Will be Constructed Under the Environmentally Preferred SR14A Route Alternative.
(Source: Developer Submittal to Los Angeles County Department of Public Works).



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Submission 4516 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued



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ATTACHMENT 2

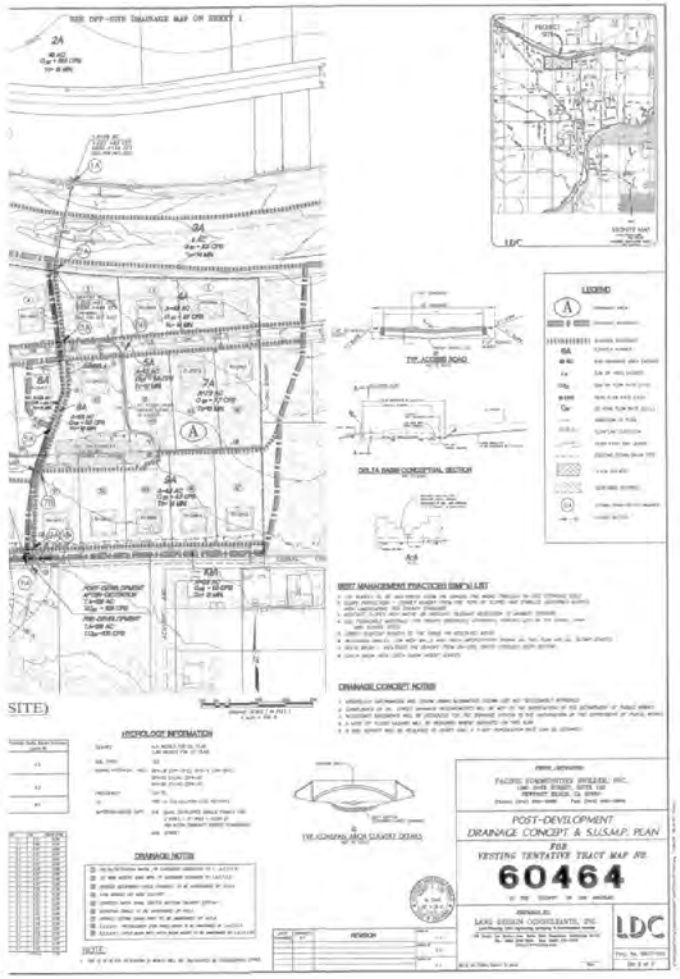
Subdivider's "Post Development Map" of the Area Where the "Acton Window" Will be Constructed Under the Environmentally Preferred SR14A Route Alternative.
(Source: Developer Submittal to Los Angeles County Department of Public Works).

17

Submission 4516 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued



18

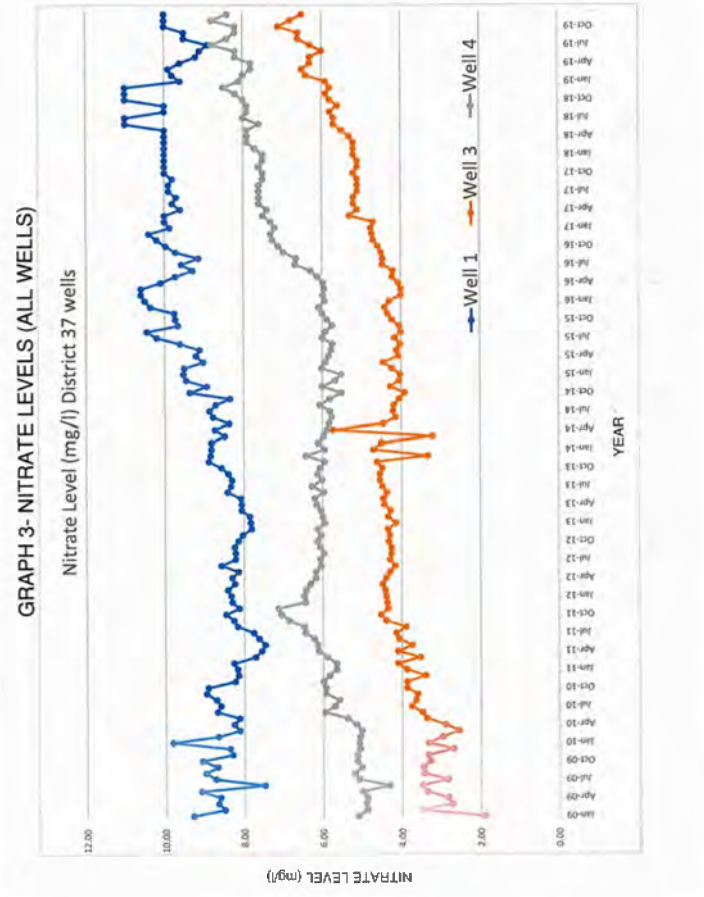


19

Submission 4516 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

ATTACHMENT 3

Nitrate levels measured in local groundwater in Acton.
(Source: Waterworks District 37).



Submission 4516 (Jacqueline Ayer, Acton Town Council, December 1, 2022) - Continued

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December 1, 2022

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Electronic Transmission of 21 pages to
Palmdale_Burbank@hsr.ca.gov

Subject: Acton Town Council and Agua Dulce Town Council Joint Comments on Section 3.8 of the Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement.

Reference: Notice of Notice of Availability/Notice of Public Hearing for the California High-Speed Rail – Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement Issued September 2, 2022.

To the California High Speed Rail Authority;

Attached please find comments submitted jointly by the Acton Town Council and the Agua Dulce Town Council on Section 3.8 of the Draft Environmental Impact Report/Environmental Impact Statement prepared for the Palmdale to Burbank Project Section of the California High Speed Rail Project. If you have any questions or require further information, please contact the Acton Town Council at atc@actontowncouncil.org.

Sincerely,

Jeremiah Owen, President
The Acton Town Council

Don Henry
Don Henry, President
Agua Dulce Town Council – 2022

Hardcopy sent via USPS

cc: Rick Simon, Engineering Manager, Palmdale-Burbank Section [Rick.Simon@hsr.ca.gov]
Genoveva Arellano, Principal; Arellano & Associates [GArellano@arellanoassociates.com]

"Our lives begin to end the day we become silent about things that matter" Martin Luther King, Jr.

Response to Submission 4516 (Jacqueline Ayer, Acton Town Council, December 1, 2022)

4516-8738

This comment is a duplicate. See responses to Submission PB-4415.

Submission 4517 (Don Henry, Acton Town Council, December 1, 2022)

Palmdale - Burbank - RECORD #4517 DETAIL

Status :	Delimited
Record Date :	12/7/2022
Interest As :	Business and/or Organization
First Name :	Don
Last Name :	Henry
Attachments :	2022-1201 Acton Town Council_Hydrology.pdf (3 mb)

Stakeholder Comments/Issues :

Attached please find comments submitted jointly by the Acton Town Council and Agua Dule Town Council.

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Submission 4517 (Don Henry, Acton Town Council, December 1, 2022) - Continued

4517-10280

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Candy Clemente, Member
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December 1, 2022

California High Speed Rail Authority
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Sincerely,

Jeremiah Owen, President
The Acton Town Council

Don Henry

Don Henry, President
Agua Dulce Town Council – 2022

Hardcopy sent via USPS

cc: Rick Simon, Engineering Manager, Palmdale-Burbank Section [Rick.Simon@hsr.ca.gov]
Genoveva Arellano, Principal; Arellano & Associates [GArellano@arellanoassociates.com]

"Our lives begin to end the day we become silent about things that matter" Martin Luther King, Jr

ANALYSIS OF THE "HYDROLOGY AND WATER RESOURCES" SECTION PRESENTED IN THE PALMDALE-BURBANK DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT.

1.0 INTRODUCTION

The "Hydrology and Water Resources" impact assessment presented in Chapter 3.8 of the Draft Environmental Impact Report/Environmental Impact Statement (hereafter referred to as "the Draft") that was prepared by the California High Speed Rail Authority for the Palmdale-Burbank Segment of the High Speed Rail Project ("Project") has been evaluated and numerous factual errors and material deficiencies have been identified. These errors and deficiencies are set forth in the comments presented below; they demonstrate that the Draft does not comply with either the California Environmental Quality Act ("CEQA") or the National Environmental Protection Act ("NEPA"). Please note: These comments were prepared by a competent engineer with more than 35 years of environmental engineering experience and they present expert opinion supported by facts pertaining to the significant environmental effects that will be caused by the Project and which must be mitigated. Accordingly, the comments provided herein constitute "substantial evidence" as that term is defined by the CEQA Statute [California Public Resources Code §21080(e)(1)] and Guidelines [California Code of Regulations Section 15064(f)(5)]. These comments also demonstrate that CHSRA/FRA have failed to conduct a substantive 'hard look' review of the Project's environmental impacts as required by NEPA.

2.0 MAJOR DEFICIENCIES NOTED IN THE DRAFT.

2.1 The "Best Management Practices" That Will be Used for Project Construction Will Result in Significant Erosion and Alter Flow Characteristics Downstream of Project Construction Sites.

Section 3.8 of the Draft concludes that the Project will have a "less than significant impact" on hydrology because it will employ "Impact Avoidance and Minimization Features" ("IAMFs") and utilize standard "Best Management Practices" ("BMP") and implement "Stormwater Pollution Prevention Plans" to control and direct stormwater runoff from project construction sites and thereby not alter surface drainage patterns [Page 3.8-39]. The Draft is very much mistaken. The BMPs and SWPPP elements that are enumerated in the Draft were developed for urban areas where the land surface is almost entirely impervious and where extensive infrastructure (concrete drainage infrastructure, culverts, impervious ditches, channelized facilities, etc.) capture and divert stormwater to either the ocean or detention (dam) facilities or large "spreading grounds"; these BMPs and SWPPS are entirely inappropriate in rural areas that have dirt roads, few impervious areas and no drainage infrastructure and where natural drainage patterns have been maintained and preserved for hundreds of years. For example, a primary purpose of the BMPs and SWPPPs is to control sediment flows and eliminate sediment from stormwater discharges (see pages 3.8-76 and 3.6-78[1]); this is important in urban areas because sediment impairs the operation of stormwater capture and conveyance infrastructure

[1] According to pages 3.8-76 and 3.6-78, the Project will employ IAMFs to control sediment and BMPs will minimize discharges of sediment in stormwater released from construction sites.

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Submission 4517 (Don Henry, Acton Town Council, December 1, 2022) - Continued

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by accumulating in conveyance channels and detention basins reducing system capacity. However, rural areas like Acton and Agua Dulce have no stormwater capture or conveyance infrastructure; so, sedimentation is not a problem. In fact, if the Project does remove sediment from stormwater flows in Acton and Agua Dulce, it will cause tremendous erosion problems on all downstream areas because the "sediment free" stormwater discharged from the construction site into natural drainage courses will pick up sediment as it gains speed on its path toward the Santa Clara River[2]. And, where it picks up sediment as it flows across downstream properties, it causes significant erosion. This is not conjecture; it is fact. The Forecast subdivision between McEnnery Canyon Road and Desert Road in Acton installed stormwater capture and sediment removal facilities (including debris basins and detention basins) that discharged sediment-free water to the natural drainage courses downhill from the subdivision, and when it rained, the "sediment free" water picked up significant amounts of sediment as it flowed across downhill properties the resulted in significant erosion; some downhill properties lost large areas of their back yards. Therefore, IAMFs, BMPs and SWPPs that result in "sediment free" stormwater discharges will cause significantly adverse erosion impacts in Acton and Agua Dulce.

The problem with employing standard IAMFs, BMPs and SWPPP measures at construction sites in Acton and Agua Dulce can perhaps best be illustrated by analyzing a statement found on page 3.8-37 which asserts "Drainage facilities would be specifically designed to convey stormwater runoff, which would result in minimal direct drainage impacts related to these facilities". According to this statement, the Project will not cause drainage impacts because the Project will be designed to "convey stormwater runoff"; the problem is, neither Acton nor Agua Dulce have stormwater infrastructure to accept the "storm water runoff" that the Project "conveys". Neither Acton nor Agua Dulce have stormwater culverts or concrete drainage facilities or stormwater capture infrastructure or channelized flow areas, so the "stormwater runoff" that is "conveyed" by the Project *has nowhere to go*. And, if it is just dumped into the natural drainage courses in these communities, it will cause extensive erosion (as discussed above). To be clear, stormwater runoff is ***never*** "conveyed" in Acton or Agua Dulce; instead, stormwater merely flows to the Santa Clara River along natural drainage courses that have remained unchanged for millennia. The fundamental premise which underlies the Draft's conclusions that hydrologic impacts will be less than significant because the Project includes BMPs and SWPPs to ensure "drainage facilities would be specifically designed to convey stormwater runoff" is only reasonable in urban/suburban areas where there is channelized drainage infrastructure to accept the conveyed stormwater; it is entirely unreasonable and inapplicable to Acton and Agua Dulce. Accordingly, the Draft is patently incorrect to conclude that the Project will have "less than significant" hydrologic impacts in Acton and Agua Dulce.

It is important for CHSRA to understand that natural drainage patterns have generally dictated the location and configuration of all development in Acton and Agua Dulce over the last 150 years; thus, it is critical that drainage patterns and characteristics in these communities remain preserved and unchanged to protect existing developments. Other than an earthquake, the only activity that can alter drainage patterns in Acton and Agua Dulce is development involving stormwater capture, sediment removal, and stormwater control; this is why such developments are precluded in Acton and why all the IAMPFs, BMPs, and SWPPS that are identified in the

[2] This is the principal characteristic of "two phase flow" conditions: clean water flowing over a natural surface will pick up sediment from the surface until an equilibrium is reached; the equilibrium is a measure of the sediment transport capacity of the flow.

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Draft are completely inappropriate for Acton. To better understand how the natural drainage patterns are preserved in Acton and Agua Dulce, the following description is offered:

- Most roads in Acton are dirt and have no stormwater capture or diversion infrastructure; they are maintained by the residents. This does make the roads occasionally impassable during inclement weather, but residents quickly repair the roads and restore access.

- There are culverts under a few paved roads in Acton (the 14 Freeway, Escondido Canyon Road, Sierra Highway, and Soledad Canyon Road) but these culverts are located where natural flows occurred before the roads were built *and they do not have sediment removal facilities*; they simply carry sediment laden flows from one side of the road to the other and do not alter flow patterns or cause erosion on downstream properties.

- Every new residential development complies with applicable stormwater regulations by constructing a natural bioswale on site which is appropriately sized to capture and retain sufficient water to offset the impervious surface area that the development creates; no impervious stormwater capture facilities or sediment removal basins are constructed.

Concerns regarding the use of standard IAMFs, BMPs, and SWPPP measures are particularly acute at the "Acton Window" location which lies immediately adjacent to, and uphill from, an entire residential neighborhood. As indicated in the drainage map that is provided in Attachment 1, there are several natural drainage courses across the "Acton Window" parcel; some of these drainage courses are very near homes that are south of, and just downhill from, the "Acton Window" site. As shown in the figures below, sediment-laden stormwater flows off the "Acton Window" parcel via the natural drainages and passed the homes without eroding or flooding the homes. If the Project employs the BMPs and SWPPPs that are described in the Draft at this location, then significant downhill erosion will occur and the homes will be substantially damaged. It should be noted that, at one time, a residential subdivision was proposed for the large parcel that will be used for the "Acton Window"; the subdivision was configured to connect to Antelope Woods Road at the same location and in the same manner as what is now proposed for the SR14A Alternative. The developer had proposed the use of "Conspan" arch bridges to traverse the unique onsite drainage courses that emanate from under the 14 Freeway in a manner that would not alter any characteristics of runoff from the property. A copy of the subdivider's "post-development" plan is provided in Attachment 2. The efficacy of the developer's proposal to utilize arch bridges to prevent alterations to existing drainage characteristics and patterns was never fully vetted because the subdivision map was withdrawn; however, the information provided in Attachment 2 demonstrates just how essential it is for CHSRA to ensure that Project construction and operation at the "Acton Window" does not modify drainage characteristics or drainage locations at the Acton Widow site.

Taken together, the abovementioned facts demonstrate that implementation of the BMPs and SWPPP measures that are identified in the Draft within the Communities of Acton and Agua Dulce will not reduce impacts from alterations of surface drainage patterns to a level that is less than significant; to the contrary, they will amplify and exacerbate such impacts. Thus, it is particularly important that the Final EIR clearly assert that the Project *will not* adopt standard BMPs and SWPP measures in rural communities like Acton and Agua Dulce because they are only applicable to urban/suburban areas where there are extensive impervious surfaces and

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Photos of sediment laden stormwater flowing off the "Acton Window" property.

sufficient stormwater conveyance facilities to accommodate them. It is also critical that the Final EIR identify and describe the rural-appropriate IAMFs, BMPs, and SWPPP measures that will be utilized to ensure that the Project does not modify existing stormwater runoff patterns or alter the location of, or the flowrate in, or the sediment characteristics of, any natural watercourses in Acton and Agua Dulce.

2.2 The Draft Improperly Conflates Stormwater Treatment with Wastewater Treatment and Fails to Address the Impacts of Wastewater Pollutants on Water Resources.

Section 3.8 of the Draft provides extensive discussions regarding the stormwater treatment infrastructure will be employed to protect water resources at all the Project's tunnel portal sites; however, it fails to discuss the wastewater treatment infrastructure that will be employed to address the significant volumes of wastewater that will be generated every day during tunnel construction. It also does not identify any measures that will be used to protect groundwater resources from wastewater contamination. In fact, the word "wastewater" appears only three times in Section 3.8! Wastewater concerns are mentioned briefly in Section 3.6 of the Draft, but the wastewater treatment approach it describes is lacking because it relies on the Project's stormwater treatment facilities to clean up process wastewater resulting from tunnel construction[3]. In other words, the Draft improperly conflates *wastewater treatment* with *stormwater treatment*. The Project's stormwater facilities will operate only during rare rain events, and in rural communities like Acton and Agua Dulce, stormwater facilities are not particularly complex because stormwater runoff is generally clean with few contaminants (though stormwater does contain sediment which, as discussed above, is naturally occurring and

[3] Pages 3.6-78 – 3.6-79 concludes that wastewater impacts will be less than significant because of the BMPs and SWPPP measures that will be implemented for the Project's stormwater treatment program.

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not a "contaminant"). In contrast, the Project's wastewater treatment facilities will have to be substantially more robust than stormwater treatment facilities because every day, the Project will generate more than one hundred thirty thousand[4] gallons of process wastewater contaminated with the constituents that are released by operations of the tunnel boring machines ("TBM")[5]. None of this is discussed in the Draft. It is essential that the Final EIR/EIS correct this deficiency and include language which ensures that the Project's wastewater treatment program will be properly configured to clean the wastewater and maintain existing drainage patterns, characteristics, and sediment discharge profiles in Acton and Agua Dulce and thus avoid downstream erosion and the other runoff problems described above.

2.3 The Draft Fails to Address the Project's Significant Adverse Impacts on Local Water Resources and Drinking Wells in Acton and Agua Dulce.

Section 3.8 of the Draft is supposed to analyze the Project's impacts on water resources; however, it does not properly address impacts to local water resources and well systems that will result from tunnel construction. In fact, the Project threatens local water resources and drinking water wells in Acton and Agua Dulce in several ways; yet, the Draft fails to address any of them. For instance, tunneling (whether done with TBMs or "traditional methods") will destroy all well facilities that lie in the tunnel path; residences that rely on these well facilities will have their water source immediately curtailed. According to the tunnel route maps, all the routes travel under homes in rural areas that rely on domestic residential wells; yet the Draft does not address the impacts to these homes that would result if a TBM bored through a resident's well. This impact must be addressed and a mitigation measure must be offered in which CHSRA drills a new well that meets all local health department standards or connects the property to municipal water.

Another water resource impact that is not addressed in the Draft pertains to groundwater levels and how they will be affected by tunnel construction. Specifically, Section 3.6 asserts that tunnel construction will rely on water resources provided by the "Antelope Valley-East Kern" Water Agency ("AVEK"), but it also states that non-potable water (i.e., groundwater or partially treated sewage) will also be used to the extent feasible; this means that, in Acton and Agua Dulce, both AVEK resources and local groundwater will be used for tunnel construction (because there are no municipal sewage treatment facilities in Acton or Agua Dulce). However, the Draft fails to address or even mention the significant impacts that will result from extracting more groundwater from the already scant local groundwater supplies in Acton and Agua Dulce. Recently, these concerns were substantially elevated when CHSRA announced at a public meeting on November 4, 2022, that AVEK resources ***will not*** be used for tunnel construction and that the Project will instead rely entirely on local groundwater resources in Acton and Agua Dulce; this news was shocking. If groundwater resources for tunnel construction are used instead of AVEK resources, then each tunnel portal site will require the extraction of more than

[4] Two TBMs will be operating from each portal and, according to page 3.6-78, each TBM will require 366 acre-feet per year; this will result in 653,500 gallons per day used at each portal. According to page 12 of Appendix 3.8-D, at least 20 percent of this water (or 130,700 gallons per day) will flow back and require treatment as contaminated wastewater.

[5] According to Page 3.8-41, the water in the tunnels could be contaminated with drilling muds, sediments, and lubricants.

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650,000 gallons *per day*[6]. The Project will also require the construction of new and extensive groundwater extraction facilities. It will also substantially increase groundwater extraction rates in Acton and Agua Dulce which will introduce new and significant stresses on local groundwater supplies that are already stretched thin due to recent drought conditions. This in turn will directly affect local well yields, cause residential wells to "dry up", and drive people from their homes. Because the Draft fails to analyze or even mention these impacts, it substantially violates both CEQA and NEPA deficiencies. More extensive remarks regarding the significantly adverse environmental impact that will result from using local groundwater resources rather than AVEK resources for tunnel construction are provided in the comments that have been submitted pursuant to Section 3.6; those comments are incorporated herein by reference. The only way to avoid these significant environmental impacts is to preclude the use of groundwater resources for tunnel construction in Acton and Agua Dulce and mandate that AVEK resources be utilized instead.

Another impact that is not properly addressed by the Draft is the significant environmental effects on residential wells in Acton and Agua Dulce that will result from subterranean alterations caused by tunnel construction. Specifically, and as expressed in comments submitted by hundreds of residents of Acton and Agua Dulce before, during, and after Project Scoping, tunnel construction can impact groundwater and perched water resources and thus permanently interrupt domestic water supplies. These concerns are supposed to be addressed as part of "Impact HWR#4", but the analysis of "Impact HWR #4" is superficial, incoherent, and internally inconsistent. For instance, pages 8.6-47-8.6-49 assert: 1) "when tunnel depths are above the known groundwater table, effects on groundwater and groundwater dependent resources would be minimal to none"; 2) "Where tunnel depths may coincide with the groundwater table, there could be impacts"; 3) "tunneling activities required for each of the six Build Alternatives could encounter shallow groundwater south of the California Aqueduct and north of the ANF" [referring to Acton and Agua Dulce] 4) "Not enough groundwater information is available at this time to identify the extent to which the tunnels may be below the water table. There may be perched groundwater or seasonal springs in the vicinity of these tunnels (Figure 3.8-A-21); therefore, local water inflows during portal and tunnel excavations are anticipated in this area"; 5) "Private wells occur within 1 mile of each of the six Build Alternatives outside of the ANF (Figure 3.8-A-21, Figure 3.8-A-22, and Figure 3.8-A-23). Changes in groundwater during tunnel construction could affect water supply to these private supply wells"; 6) "Because of the presence of groundwater, perched groundwater, and seasonal springs, tunneling could provide a conduit for groundwater to drain into the excavation as the advancing tunnel intersects fractures and faults within bedrock or saturated alluvium in groundwater basins"; 7) "For all excavation methods, excessive groundwater pressures might generate some seepage into the tunnel during construction, but additional measures implemented during construction, such as pre-grouting, would help to reduce the flow to manageable values"; 8) "The tunnel lining system would also be important in controlling water flows both during and after construction and would consist of either a single-pass or two-pass lining system, depending on mining methods and groundwater pressure encountered"; 9) "The circumstances under which these approaches would be employed would be guided by site-specific geotechnical and hydrogeological characterizations that would be developed during the preconstruction phase of

[6] Each TBM requires 366 acre-feet of water per year [Page 3.6-78], and each portal site supports two TBMS; this means that each tunnel portal will require more than two acre-feet (or 653,487 gallons) of water per day.

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the selected Preferred Alternative". Coupling this confusing and arguably contradictory accumulation of declarative statements with the assertion offered on Page 3.8-41 that the analysis assumes "all tunnels are below the water table" in the area South of the Aqueduct and north of the ANF (which is where Acton and Agua Dulce are) reveals that CHSRA has no clear picture of where the water table is in Acton and Agua Dulce or where the tunnels are located in relation to the water table. Worse yet, the Draft fails to grasp that the salient issue is not where the tunnels are located in relation to the "water table", rather it is where the tunnels are located in relation to the groundwater sources that residents pull from to extract their drinking water; the distinction is critical because many domestic wells in Acton and Agua Dulce actually extend well below the "water table" to ensure a reliable water supply despite drought conditions. For example, the domestic wells that serve the residents on Salty Dog Road and Hisey Ranch Road under which the SR14A tunnels run have depths ranging from 500 feet to 900 feet (which means that some wells extract water from zones above the tunnel and others extract water from zones below the tunnel). Inadequacies in the "analysis" of "Impact HWR#4" are substantially magnified by the fact that the Draft mistakenly presumes that there are very few wells in Acton and Agua Dulce[7] when, in reality, these communities have more than a thousand wells.

The Draft fails to provide a coherent analysis of "Impact HWR#4" and instead presents a muddled, incoherent, and uninformed mishmash of words which reveals that CHSRA knows nothing about local groundwater or perched water resources in Acton and Agua Dulce; it knows nothing about local well facilities in Acton and Agua Dulce or where they are or how they are configured; and it knows nothing about how tunneling will impact these water resources and well facilities. Yet, and despite these inadequacies, the Draft concludes on page 3.8-49 that impacts on groundwater outside the ANF will be "less than significant". This conclusion is not supported by any evidence (let alone "substantial evidence") and it constitutes the type of speculation that is prohibited by CEQA.

This deficiency must be addressed by revising the Draft to 1) clearly assert that there is insufficient evidence to conclude that the impacts of tunnel construction on groundwater resources in Acton and Agua Dulce will be less than significant; and 2) add a mitigate measure to address the impacts of tunnel construction on private water systems, residential wells, and groundwater resources in Acton and Agua Dulce which includes an "Adaptive Management and Monitoring Plan" ("AMMP") that establishes protocols to determine baseline conditions of ground water levels at all wells in Acton and Agua Dulce that are located within ½ mile of any tunnel and detects changes in groundwater conditions at these locations which are related to tunnel construction to ensure timely implementation of remedial measures; these remedial measures must include supplying supplemental water to all affected well owners until baseline levels are restored or drilling a new well that complies with all applicable local and state requirements. The Draft already proposes a similar AMMP (identified in Mitigation Measure "HWR-MM#4") for ANF lands [Pages 3.8-67 to 3.8-69], so incrementally extending this AMMP to protect the rural residents of Acton and Agua Dulce will not be burdensome. Moreover, CEQA requires that CHSRA mitigate all potentially significant impacts to the extent feasible. Given that this AMMP is clearly feasible (since it will be implemented in the ANF) and given that the Draft clearly affirms that tunnel construction will affect groundwater in Acton and Agua

[7] Table 3.8-3 identifies few wells in the area of the Project in Acton and Agua Dulce; additionally, the Draft appendices indicate that Acton has only 5 active wells and Agua Dulce has no active wells (as discussed in more detail below).

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Dulce (i.e., "South of the California aqueduct and north of the ANF") and given that CHSRA does not know how many wells it will affect or where they are located, CEQA requires that this AMMP be included in a mitigation measure developed for Acton and Agua Dulce.

2.4 The Draft Fails to Address the Impacts on Water Resources That Will Result From Using Non Potable Water for Tunnel Construction.

Section 3.8 of the Draft ostensibly pertains to water resource impacts that will result from Project construction and operation, yet it fails to address the potential contamination of groundwater resources that will result from the use of non-potable water to construct the tunnels on all 6 route alternatives. Specifically, and though the Draft asserts in Tables 3.6-11 and 3.6-21 that tunnel construction will be conducted using AVEK resources (which are potable), page 3.6-90 contradicts this assertion by stating that the Project will require the use of non-potable water for tunnel construction to the extent feasible. The Draft fails to identify the sources of non-potable water that will be used, but non-potable water is typically comprised of either partially treated sewage or untreated groundwater. And, given the substantial likelihood that the TBMs will pierce water channels and aquifers that either overlie, or serve as, public and private drinking water sources in Acton and Agua Dulce (as discussed above), tunnel construction with non-potable water will result in the direct injection of potentially unclean water into groundwaters that directly serve as drinking water sources.

As indicated above, CHSRA staff recently announced that only groundwater resources will be used for tunnel construction in Acton and Agua Dulce. This, coupled with the fact that local groundwater in Acton and Agua Dulce is often contaminated with nitrates and arsenic at levels exceeding federal drinking water standards[8], necessarily implies that tunneling will result in the direct injection of these and other pollutants into all the aquifers, perched water, and other groundwater sources through which the tunnels pass. Yet, the potential contamination of groundwater that is posed by the use of non-potable water for tunnel construction is not addressed anywhere in the Draft. Instead, the Draft simply asserts that "the tunnels are below the water table" [Page 3.8-41] and thus will not contaminate groundwater in Acton and Agua Dulce (a.k.a. "the area south of the California Aqueduct and north of the ANF". This assertion has no evidentiary support; in fact (as discussed above), CHSRA has insufficient information to draw any specific conclusions regarding where tunnels will be located in relation to either the "water table" or the groundwater sources that Acton and Agua Dulce residents rely on.

The lack of analysis of potential groundwater contamination resulting from the use of non-potable water in Acton and Agua Dulce and the attendant lack of mitigation measures to address this impact renders the Draft materially deficient. Accordingly, the Draft must be revised to address this deficiency and offer mitigation; the revisions must include a clear statement that the principal means to avoid these impacts is to preclude the use of groundwater resources for tunnel construction in Acton and Agua Dulce and instead require the use of AVEK resources.

[8] Nitrate concentrations in groundwater extracted from local municipal wells in Acton are reported in Attachment 3. Additionally, arsenic is found in the groundwater within Agua Dulce; in fact, "Agua Dulce" (or "sweet water" in Spanish) is an historic term for water contaminated with arsenic. A study conducted 10 years ago by the Los Angeles County Health Department indicates that many wells in Agua Dulce have detectible levels of arsenic and in some areas, arsenic exceeds the MCL of 10 ppb [http://file.lacounty.gov/SDSInter/bos/supdocs/65110.pdf].

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3.0 ADDITIONAL DEFICIENCIES NOTED IN THE DRAFT

For simplicity and to facilitate review, additional deficiencies and factual errors noted in the Draft are presented sequentially by page number below.

Page 3.8-10 states "The Authority is a state agency and therefore is not required to comply with local land use and zoning regulations"; while it is true that CHSRA is not required to comply with local land use and zoning regulations, CEQA does require CHSRA to identify Project elements that conflict with local land use plans and policies; it also requires CHSRA to mitigate conflicts with any plan or policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect if such conflicts will result in a significant environmental impact. So, while the Project is not required to *conform* with local land use and zoning policies, it must nevertheless mitigate the significant environmental impacts that arise from non-conformance with local land use and zoning policies.

Page 3.8-10 addresses the consistencies of the Project's hydrology and water resource characteristics with applicable planning documents adopted by local agencies and it defers to an analysis presented in Appendix 2-H. It also states "Each of the six Build Alternatives are consistent with the majority of policies reviewed but are potentially inconsistent with 2 policies. These are Policy S 2.2 of the Los Angeles County General Plan, which discourages development from locating downslope from aqueducts, and Policy LU 3.3 of the Los Angeles County Ordinances, which limits the amount of development in Flood Zones designated by FEMA." This consistency analysis does not comply with CEQA. Specifically, CEQA requires that CHSRA ascertain whether the Project is inconsistent with any policies that were adopted for the purpose of avoiding or mitigating an environmental effect and whether these inconsistencies will result in significant environmental impacts; if so, mitigation must be offered[9]. Unfortunately, the Draft does not meet this standard because it offers no mitigation measures to address the inconsistencies that are identified. Equally important, the consistency analysis presented in Appendix 2-H is incomplete and arguably erroneous. For example, Appendix H-2 states on page 2.0-H-27 that the Project is consistent with Los Angeles County General Plan Policy C/NR 5.6 (Minimize point and nonpoint-source water pollution) because CHSRA will prepare a stormwater management and treatment plan and a Stormwater Pollution Prevention Plan (SWPPP) to manage stormwater runoff for all six Build Alternatives; however, stormwater management plans and SWPPs configured to address stormwater runoff are not appropriate for addressing the wastewater generated at each portal location (as discussed above). Moreover, using stormwater facilities or SWPPP measures to treat wastewater will not "minimize water pollution" as required by Policy C/NR 5.6 because "stormwater" and "wastewater" are two very different streams that require different treatment methodologies (as discussed above); this is particularly true in Acton and Agua Dulce where stormwater runoff requires little (if any) treatment. The consistency analysis presented for Policy C/NR 5.6 in Appendix H-2 is inadequate and must be revised to recognize these facts. Another concern is that Appendix H-2 fails to address the water pollution that will result from CHSRA's plan to use non-potable water to operate the TBMs (as discussed above). Furthermore, Appendix H-2 does not address Goal C/NR 6 to achieve "Protected and usable local groundwater resources". Goal C/NR 6 was clearly adopted "for the purpose of avoiding or mitigating an environmental effect"; therefore, CEQA

[9] California Code of Regulation, Title 14, Chapter 3, Appendix G.

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requires that the Final EIR 1) address the manner in which the Project substantially conflicts with this Goal by requiring groundwater resources to be used for tunnel construction in Acton and Agua Dulce; and 2) provide mitigation for the significant impacts to local groundwater levels that will arise from this conflict. The only feasible mitigation measure that will ensure the Project does not conflict with ether Goal C/NR 6 or Policy C/NR 5.6 is to preclude the use of local groundwater for tunnel construction in Acton and Agua Dulce and mandate that only AVEK resources will be used. Finally, Appendix H-2 fails to identify the Antelope Valley Area Plan (AV Plan) or discuss its relevance to the Project. Policy COS 2.7 from the AV Plan pertains to protected and usable local groundwater resources and it is particularly relevant given that the Project may substantially impact local groundwater resources. Additionally, AV Plan Policy COS 3.5 pertaining to the protection of water supplies from pollution is also relevant given that CHSRA proposes to use non-potable water for TBM operation. In summary: Page 3.8-10 and Appendix H-2 must be revised to 1) address the Project's conflicts with Goal C/NR 6, Policy C/NR 5.6, Policy COS 2.7 and Policy COS 3 (all of which were adopted "for the purpose of avoiding or mitigating an environmental effect"); 2) establish the significant environmental impacts resulting from these conflicts; and 3) and provide appropriate mitigation measures to reduce these environmental impacts. Recommended mitigation measures include the development of properly robust wastewater treatment facilities and a commitment to use only potable water supplied by the Antelope Valley-East Kern (AVEK") Water Agency for constructing the tunnels in Acton and Agua Dulce.

Pages 3.8-21 through 3.8-22 pertain to surface water conditions and according to Table 3.8-3, these pages are supposed to address well issues, but they do not. Worse yet, Table 3.8-3 asserts (wrongly) that there are almost no active wells present throughout any of the route alternatives! Table 3.8-3 was ostensibly compiled based on data provided in Appendix 3.8-A, but Appendix 3.8-A fails to identify nearly every single well in Acton and Agua Dulce (for instance, page 3.8-A-21 reports that the entire Community of Acton only has 5 active wells and page 3.8-A-22 reports that there are no active wells in Agua Dulce). For the record, most Acton and Agua Dulce residents are *not* served by Waterworks District #37 so they rely on small domestic wells and local groundwater for their water supply; this means that there are at least a thousand active wells in Acton and Agua Dulce, yet none of them are reflected anywhere in Section 3.8 or in Appendix 3.8-A. For more than 10 years, the residents of Acton and Agua Dulce have expressed concerns that the Project would adversely impact their domestic residential wells; yet, and as discussed above, these concerns have not been properly addressed. Instead, the Draft reports (incorrectly) that there are virtually no active wells in any areas affected by the Project. These appalling material deficiencies must be rectified. CHSRA can easily identify the general area of residential wells in Acton by simply assuming that every house which is not served by Waterworks District 37 has a nearby well. Such an analysis must be conducted and incorporated in the Final EIR/EIS along with the AMMP discussed above to mitigate Project impacts on residential wells in Acton and Agua Dulce; an adverse impact to a single well should be established as the CEQA "threshold of significance" for this analysis.

Pages 3.8-25 through 3.8-26 address affected groundwater basins and Table 3.8-5 asserts that all route alternatives other than E1A and E2A are located within the "Acton Valley" groundwater basin. This is incorrect. In fact, according to Figures 3.8-A-21 and 3.8-A-22 of Appendix 3.8-A, the only Project element lying within the "Acton Valley" Basin is a utility line serving the SR14A route; no tracks or tunnels will be located in the "Acton Valley" water basin. It is a common

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misconception that the "Acton Valley" groundwater basin is located in Acton; however, it is not[10].

Page 3.8-27 States that Figure 3.8-A-21 through Figure 3.8-A-23 depict the groundwater wells within the groundwater "Resource Study Area". This is incorrect. Figure 3.8-A-21 through Figure 3.8-A-23 fail to identify the thousand+ existing wells in Acton and Agua Dulce. Page 3.8-27 also states that there are only 30 active wells in the Refined SR14 and SR4A RSAs and only 24 or fewer active wells in the E1/E1A/E2/E2A RSAs; this statement is also incorrect. The route maps provided with the Draft indicate that the routes traverse many areas where there are hundreds of wells, including Peaceful Valley, Kentucky Springs, Aliso Canyon, Arrastre Canyon, Red Rover Mine, Escondido, Hisey Ranch, Hubbard, etc. These errors must be corrected by revising the Draft to include a complete and thorough survey of all the wells located in the vicinity of the preferred Alternative Route and provide mitigation measures to reduce impacts on these wells to a level that is less than significant.

Page 3.8-28 asserts that CHSRA mapped the "water wells within 1 mile" of all the route alignment alternatives, however it does not clarify where these maps are or how the public can view them to confirm whether they do indeed capture all "water wells within 1 mile" of the alignments. This is a substantial deficiency, particularly given that the residents of Acton and Agua Dulce have a right pursuant to CEQA to know whether CHSRA's impact assessment has properly accounted for their residential well facilities. Moreover, given the mapping errors in Figure 3.8-A-21 through Figure 3.8-A-23 (described above), the public can be relatively confident that CHSRA *did not* map all the "water wells within 1 mile" of all the alignments, and thus the impact analysis presented in the Draft does not account for their well facilities. These errors are compounded by the fact that the Draft offers no measures to mitigate the Project's significant impacts on private domestic wells (including, but not limited to, well destruction by TBM operation). The Draft must be substantially revised to property identify the significant environmental impacts that the Project poses to domestic residential wells and provide appropriate mitigation measures which include well replacement services and municipal water line connection services.

Page 3.8-36 concludes that ancillary features such as power and utility lines will be "strung from utility poles that could be located outside of surface water features and utility lines would be collocated within existing roadway rights-of-way". This conclusion is problematic for several reasons. First, CHSRA has committed to constructing utilities underground in Los Angeles County to the extent feasible[11], and since the only locations where undergrounding utilities may be infeasible are either steep hillsides or across seismic faults, most of the Project's electric

[10] In 2016, the Department of Water Resources (DWR) revised "Bulletin 118"to and improperly combine the groundwater basin that underlies Acton with the groundwater basin that underlies the Antelope Valley. Then, DWR compounded the confusion by renaming the groundwater basin that underlies Agua Dulce to "Acton Valley Basin" even though it is not in the Acton Valley. Under the 2016 version of "Bulletin 118", the basin in Acton and the basin in Antelope Valley are considered to be a single basin called "Antelope Valley Basin", and the basin in Agua Dulce is called the "Acton Valley" Basin. This is of course a mistake; the basin under Acton is in the Santa Clara River watershed and drains to the ocean, whereas the basin under Antelope Valley is in the Antelope Valley watershed portion of the "Great Basin" which does not drain to the ocean. The two basins are separated by the San Andreas fault which prevents communication and groundwater transfer between them.

[11] Appendix H-2 Page 12.

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utilities in Los Angeles County will be underground and not strung on utility poles. Second, the Communities of Acton and Agua Dulce are located in Very High Fire Hazard Severity Zones (VHFHSZs) where above ground electrical utilities pose a very real and significant fire risk[12]; accordingly, electrical infrastructure in Acton and Agua Dulce must be installed underground for fire-safety reasons. Third, the electrical service provided by above-ground facilities is highly unreliable in Acton and Agua Dulce because such facilities are susceptible to frequent power shutoffs (referred to as "Public Safety Power Shutoffs") that can last for days and which will cause extensive service interruptions during Project construction and operation. Fourth, according to the "Utility Relocation Plans" prepared for the Project, utility lines are not always "collocated within existing roadway rights of way"; in fact, CHSRA is proposing to construct an entirely new 230 kV transmission line in a completely new right of way corridor that is not within or near an existing road right of way. Taken together, these factors demonstrate that ancillary features such as power lines and utility infrastructure must be placed underground in Acton and Agua Dulce and not "strung from utility poles"; the Draft must be corrected to reflect that all utility installations (including the 230 kV line) will be underground in Acton and Agua Dulce.

Page 3.8-46 states "Each of the Build Alternative footprints in the Antelope Valley Groundwater Basin are within developed suburban land uses and infrastructure. Because these areas are developed, the net increase in impervious surfaces would be relatively low." These statements are only valid for the portion of the Antelope Valley Groundwater basin that is located in Palmdale, they are not valid for the portion of the Antelope Valley Groundwater basin that is located in Acton. This is because Acton is a rural community with very little impervious surface area; it is not developed with suburban land uses and infrastructure. Accordingly, and contrary to what the Draft asserts, any net increase in impervious surfaces in Acton will be relatively high. Page 3.8-46 also states that, within the Antelope Valley Groundwater Basin, "Each of the build alternatives Stormwater retention and detention BMPs would be implemented to control stormwater runoff while also increasing groundwater recharge"; however (and as discussed above), the use of standard retention and detention BMPs to control stormwater runoff in Acton and Agua Dulce will result in significant erosion problems and therefore cannot be utilized.

Page 3.8-47 states "The E1/E2 Build Alternatives would require footprint in the Acton Valley Groundwater Basin". This statement is incorrect. As explained above, the "Acton Valley Groundwater Basin" boundaries are located entirely in Agua Dulce and, as shown in Figures 3.8-A-21 and 3.8-A-22, no portion of any of the "E" route alternative comes close to it.

Page 3.8-83 through 3.8-85 present CEQA significance conclusions indicating that the Project will avoid all significant impacts on hydrology and water resources. These conclusions are insupportable because:

- The BMPs and SWPPP measures that the Draft relies upon to conclude that the Project will not impact drainage patterns or runoff characteristics cannot be implemented in rural areas like Acton because they will result in significant erosion and other significantly adverse hydrologic impacts.

[12] Most of the deadly and extensive wildfires that have been sparked since 2017 were caused by "above-ground" electrical lines in VHFHSZs

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- The Draft fails to provide a proper analysis of the impacts of tunneling on groundwater resources and residential wells in Acton and Agua Dulce (which is referred to as the area "south of the Aqueduct and north of the ANF") and instead presents a jumble of disjointed and arguably contradictory statements which reveal that CHSRA has no idea of where groundwater resources are in relation to tunnel locations or well infrastructure and that tunnel construction can indeed impact groundwater levels. Then, the Draft simply declares (without evidentiary support) that the Project will not impact groundwater resources or residential wells. All of this substantially violates CEQA and NEPA.

- The Draft conflates stormwater treatment with wastewater treatment and fails to property articulate the measures that will be used to treat the hundred thousand+ gallons of contaminated wastewater that will be generated daily at each tunnel portal in Acton and Agua Dulce.

- The Draft fails to address or even mention the impacts of using local groundwater resources for tunnel construction rather than AVEK resources; these impacts include depletion of the already scant groundwater resources that Acton and Agua Dulce residents depend on as well as contamination of aquifer, groundwater, and perched water sources.

- The Draft does not comply with CEQA because it does not offer any strategies for minimizing the significant environmental impacts that will occur as a result of inconsistencies between the Project and local plans, policies, and ordinances that were adopted for the purpose of avoiding environmental effects (particularly those policies pertaining to the protection of groundwater resources and groundwater quality).

3.0 CONCLUSION

For the reasons set forth above, the Draft Environmental Impact Report prepared for the Palmdale to Burbank section is deficient and does not comply with CEQA or NEPA; these deficiencies must be corrected in the Final EIR which must specifically address the residential well impacts and groundwater impacts of the Project and include appropriate BMPs and SWPPPs for rural areas that guarantee there will be no change in any runoff characteristics (including, but not limited to, volume, location, sediment loading, discharge rate, etc.). Without these corrections, the Final EIR will not comply with CEQA or NEPA.

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Submission 4517 (Don Henry, Acton Town Council, December 1, 2022) - Continued

ATTACHMENT 1

Drainage Map of the Area Where the "Acton Window" Will be Constructed Under the Environmentally Preferred SR14A Route Alternative.
(Source: Developer Submittal to Los Angeles County Department of Public Works).

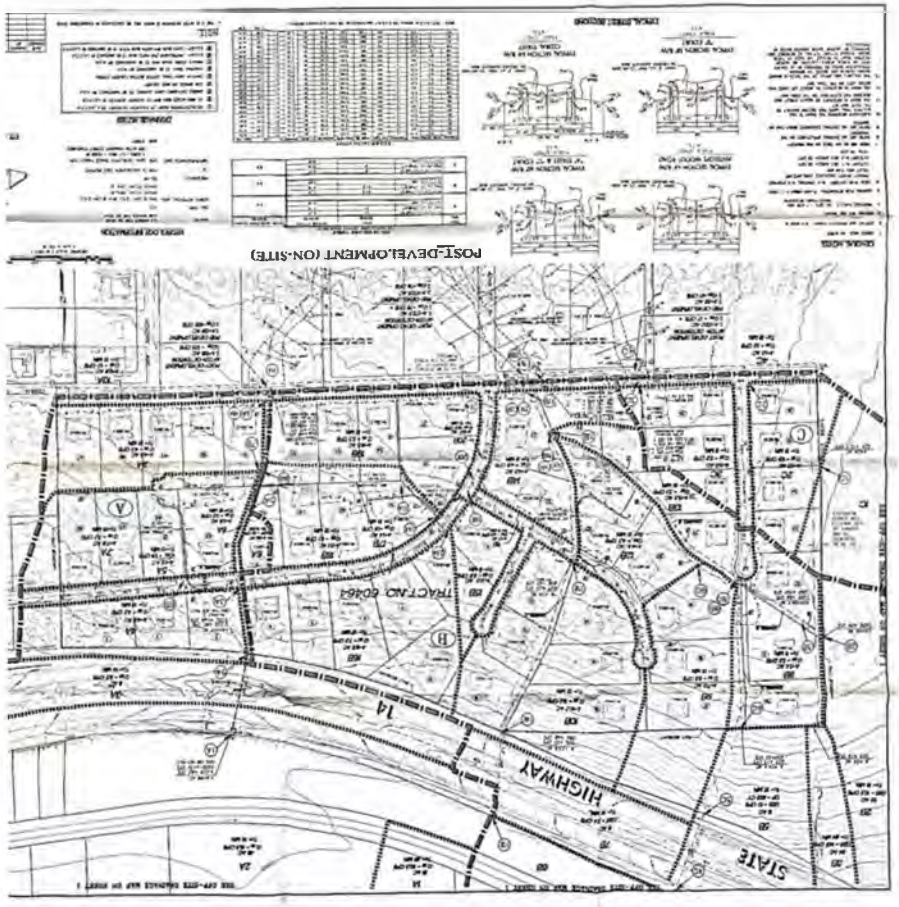


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Submission 4517 (Don Henry, Acton Town Council, December 1, 2022) - Continued

ATTACHMENT 2

Subdivider's "Post Development Map" of the Area Where the "Acton Window" Will be Constructed Under the Environmentally Preferred SR14A Route Alternative.
(Source: Developer Submittal to Los Angeles County Department of Public Works).

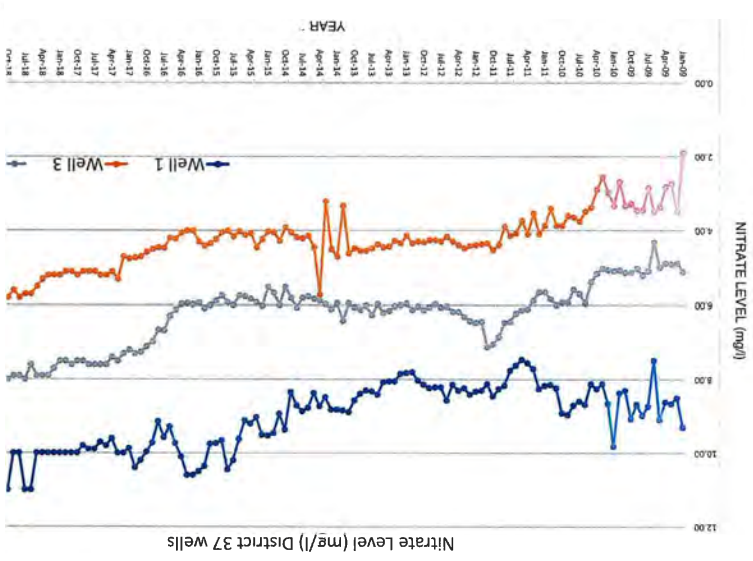


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Submission 4517 (Don Henry, Acton Town Council, December 1, 2022) - Continued

ATTACHMENT 3

Nitrate levels measured in local groundwater in Acton.
(Source: Waterworks District 37).



GRAPH 3- NITRATE LEVELS (ALL WELLS)

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Response to Submission 4517 (Don Henry, Acton Town Council, December 1, 2022)

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The comment is a duplicate of Comment PB-4415. Refer to previously provided responses to submission 4415, Responses to Comments #8719 through #8737.

Submission 4518 (Don Henry, Acton Town Council, December 1, 2022)

Palmdale - Burbank - RECORD #4518 DETAIL

Status :	Delimited
Record Date :	12/7/2022
Interest As :	Business and/or Organization
First Name :	Don
Last Name :	Henry
Attachments :	2022-1201 Acton Town Council_Noise and Vibration.pdf (4 mb)

Stakeholder Comments/Issues :

Attached please find comments submitted jointly by the Acton Town Council and Agua Dule Town Council.



Submission 4518 (Don Henry, Acton Town Council, December 1, 2022) - Continued

4518-10278

ACTON TOWN COUNCIL
1887
P.O.Box 810, Acton CA 93510

December 1, 2022

California High Speed Rail Authority
Southern California Regional Office
355 S. Grand Avenue, Suite 2050
Los Angeles, CA 90071
Electronic Transmission of 52 pages to
Palmdale_Burbank@hsr.ca.gov

Subject: Acton Town Council Comments on Section 3.4 of the Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement.

Reference: Notice of Notice of Availability/Notice of Public Hearing for the California High-Speed Rail – Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement Issued September 2, 2022.

To the California High Speed Rail Authority;

Attached please find comments submitted by the Acton Town Council on Section 3.4 of the Draft Environmental Impact Report/Environmental Impact Statement prepared for the Palmdale to Burbank Project Section of the California High Speed Rail Project. If you have any questions or require further information, please contact the Acton Town Council at atc@actontowncouncil.org.

Sincerely,

Jeremiah Owen, President
The Acton Town Council

Hardcopy sent via USPS

cc: Rick Simon, Engineering Manager, Palmdale-Burbank Section [Rick.Simon@hsr.ca.gov]
Genoveva Arellano, Principal; Arellano & Associates [GArellano@arellanoassociates.com]

"Our lives begin to end the day we become silent about things that matter" Martin Luther King, Jr

ANALYSIS OF THE "NOISE AND VIBRATION" SECTION PRESENTED IN THE PALMDALE-BURBANK DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT.

1.0 INTRODUCTION

The noise impact assessment presented in Chapter 3.4 of the Draft Environmental Impact Report/Environmental Impact Statement (hereafter referred to as "the Draft") that was prepared by the California High Speed Rail Authority ("CHSRA") for the Palmdale-Burbank Segment of the High Speed Rail Project ("HSR Project" or "Project") has been evaluated and numerous material deficiencies, factual errors and other substantial insufficiencies have been identified. These deficiencies, errors, and insufficiencies are set forth in the comments provided below; they demonstrate that the Draft does not comply with either the California Environmental Quality Act ("CEQA") or the National Environmental Protection Act ("NEPA"). Please note: These comments were prepared by a competent engineer with more than 35 years of environmental engineering experience and they present expert opinion supported by fact pertaining to the significant environmental effects that will be caused by the Project and which must be mitigated. Accordingly, the comments provided herein constitute "substantial evidence" as that term is defined by the CEQA Statute [California Public Resources Code §21080(e)(1)] and Guidelines [California Code of Regulations Section 15064(f)(5)]. These comments also demonstrate that CHSRA/FRA have failed to conduct a substantive 'hard look' review of the Project's environmental impacts as required by NEPA.

2.0 MAJOR DEFICIENCIES NOTED IN THE DRAFT

2.1 The Draft Fails to Provide ANY information Regarding Noise Modeling or the Model Inputs and Assumptions or the Model Output or Results.

The noise impact analysis presented in the Draft was prepared in accordance with the directives established by the Federal Railway Administration ("FRA") in the manual titled "High-Speed Ground Transportation Noise and Vibration Impact Assessment" ("FRA Manual"); this manual establishes methodologies for calculating the noise generated by a high speed train as it passes by (referred to as a "passby") at any distance from the track. It also recommends thresholds for evaluating train noise impacts that are based on a parameter referred to as the "Day-Night" noise level (or "L_{dn}"); L_{dn} does not reflect the actual noise level that occurs during a train "passby" event; instead, it is a calculated value which averages of all the train noise levels experienced at a particular location over a 24 hour period and is "weighted" with a penalty of 10 dBA for noises that occur between 10 PM and 7 AM[1]. This averaging technique effectively "masks" the significant noise created during train "passby" events by simply averaging all the noise insults together; this allows the Lead Agency to conclude that a proposed train project will not result in significant noise impacts even when if it generates 86 dBA noise levels hundreds of

[1] L_{dn} "may be thought of as a noise exposure, totaled after increasing all nighttime A-Levels (between 10 p.m. and 7 a.m.) by 10 dBA. FRA Manual at 2-4. https://railroads.dot.gov/sites/fra.dot.gov/files/fra_net/2680/20120220_FRA_HSR_NV_Manual_FINAL_102412.pdf

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times a day at a residential location. Moreover, the "Noise Impact Criteria" established by the FRA Manual are relatively lenient because they permit significant L_{dn} increases before the noise impacts of a train project are deemed to be "severe". For example, a relatively quiet area that has an existing average noise level of 55 dBA is not deemed to be severely affected by train noise until the L_{dn} resulting from train operations increases to 61.1 dB (which represents a 50% increase over the existing 55 dBA ambient noise levels).

While the Draft describes FRA calculation methodologies used to derive train noise L_{dn} values, it does not provide any specific information pertaining to the noise calculations performed for the Project itself. Presumably, CHSRA relied on a noise modeling program to prepare the noise impact results presented in the Draft; however, the Draft fails to disclose any of the assumptions and data that were input to the model. These are critical omissions and without them, the efficacy of the noise impact results cannot be assessed[2]. Worse yet, the Draft provides no information whatsoever regarding the results from the model or the noise levels that the project will generate; instead, the Draft merely identifies a handful of vaguely described locations where various number of residences are identified has having either "severe" or "moderate" noise impacts [Tables 3.4-31 and 3.4-32]. At the very least, the paltry results presented by the Draft violate FRA Manual directives to provide noise contour results and other data. Specifically, the FRA Manual states:

> *"Illustrate the areas of Impact and Severe Impact on maps or aerial photographs. This illustration could consist of noise impact contours on the maps or aerial photographs, along with the impact areas highlighted. This is done by delineating two impact lines: one between the areas of No Impact and Impact and the second between Impact and Severe Impact. To conform with the practices of other agencies (e.g., FHWA, U.S. Federal Aviation Administration (FAA)), include several contour lines of constant project noise, such as L_{dn} 65, L_{dn} 70, and L_{dn} 75."*

As discussed in more detail below, some locations in Acton are so quiet that they will experience "severe" noise impacts if the L_{dn} level generated by the Project is only 61 dBA; therefore, and in accordance with the directives issued by the FRA Manual, the Draft should have provided noise contours with L_{dn} values that are as small as 55 dBA. Yet, the Draft provides no noise contours at all[3]. Apparently, CHSRA simply expects the public to "take it on faith" that the modeling was done correctly, that the assumptions upon which the modeling was done are reasonable, and that the modeling results themselves are unassailably accurate. However, this is not permissible under either CEQA or NEPA; CHSRA is reminded that CEQA Guidelines Section 15147

[2] For example, sound propagation and attenuation characteristics are dictated by a number of factors (geography, development densities, vegetation characteristics, etc.); therefore, sound propagation and attenuation characteristics in Acton differ substantially from urban and suburban areas. Because the Draft fails to provide any information pertaining to sound propagation and attenuation assumptions (or any other assumptions) that were used to calculate noise impacts, it is impossible to assess the efficacy of CHRA's noise modeling results.

[3] Page of the Draft states on page 3.4-38 that "detailed mapping of noise effect locations is provided in Appendix E of the Noise and Vibration Technical Report" however, no noise contour maps are provided in Appendix E. In fact, the "maps" provided in Appendix E of the "Noise and Vibration Technical Report" appear to be the same as the maps provided in the Draft (specifically, Figures 3.4-17 to 3.4-35).

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mandates EIRs provide sufficient technical information to "permit full assessment of significant environmental impacts by reviewing agencies and members of the public" and that Section 1502.23 of the NEPA regulations requires that agencies "identify any methodologies used and shall make explicit reference to the scientific and other sources relied upon for conclusions in the [Environmental Impact] Statement". The Draft does not comply with these requirements because it does not provide sufficient technical detail to "permit full assessment" of the Draft's conclusions regarding significant Project noise impacts and it does refer to the sources or data that were relied upon to derive these conclusions. Finally, an independent assessment of noise impacts that will be experienced by "receptor sites" (aka residences) in Acton which have an unobstructed "line of site" view to the train tracks is provided in Attachment 1[4] and it reveals that noise impacts in the Community of Acton will be much more substantial and far-reaching than what is reported in the Draft (as discussed in more detail below). Taken together, these factors demonstrate that the noise analysis presented in the Draft is deficient and will not withstand judicial review; these deficiencies can only be overcome by revising the draft to 1) provide all relevant modeling information (including inputs, outputs and assumptions) and in particular, data regarding "shielding" and noise attenuation assumptions that were made for the Community of Acton; and 2) provide noise impact contours down to 55 dBA in areas like the Community of Acton where existing noise levels are substantially low compared to urban and suburban areas. Another alternative is select the SR14A Route Alternative and forego all the others.

2.2 The Draft Fails to Identify Numerous Acton Residences that will Experience Severe Noise Impacts.

The Draft asserts that "existing" L_{dn} noise levels are 60 dBA in the area surrounding Red Rover Mine Road where the Refined SR 14 route crosses the 14 Freeway on elevated tracks [Table 3.4-16]. Accordingly, and consistent with page 3-4 of the FRA Manual, all residences that experience an L_{dn} noise level of 63.3 dBA along the Refined SR 14 route are deemed to be "severely impacted". The Draft only considers noise impacts on residences located within 1,800 feet of the tracks [page 3.4-38], so only residences within this narrow envelope were evaluated for noise impacts. However, and according to the noise analyses provided in Attachment 1, residences located within 3,600 feet of the elevated tracks that have an unobstructed "line of sight" view of the tracks over the 14 freeway will experience "severe" noise levels with an L_{dn} that exceeds 63 dBA; this represents a large portion of the Crown Valley area of Acton where many homes have a "line of sight" to the elevated track location. Yet, the Draft reports that only 11 residences in Acton will be severely affected by the Revised SR14 Route [Page 3.4-78]. The discrepancies between these results cannot be reconciled because the Draft fails to provide any quantitative information regarding the noise analysis upon which its results are based.

[4] The noise analyses were prepared in accordance with calculation procedures set forth in Chapter 5 and Appendix C of the FRA Manual and based on the train configuration data provided on Page 3.4-23 of the Draft. These calculations assume 1) The train operates at 220 mph at ground level; 2) the receptor has an unobstructed view of the tracks and there is no "shielding" (which is appropriate to Acton's geography and sparse development profile); 3) the ground is acoustically "hard" (which accurately represents the rock and hardpack clay of Acton's geology and the fact that there is little vegetation because of Acton's arid environment); and 4) there is no ground attenuation for trains traveling in the aerodynamic regime (FRA Manual at 5-13). The calculations presented in Attachment 1 are consistent with information published by CHSRA in 2018 which is provided in Attachment 2 indicating that the noise generated by a high speed train at a location 100 feet from the tracks is 98 dBA.

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A similar discrepancy is noted in the Draft's noise impact analysis of the "E" routes in the Aliso Canyon area of Acton where, according to Table 3.4-17 of the Draft, the existing L_{dn} level is 57 dBA (which means the "severe" noise impact threshold is 61.9 dBA per the FRA Manual [Page 3-4]). Nonetheless, the Draft concludes that no Acton residences in Aliso Canyon will experience severe noise impacts even though the tracks that cross Aliso Canyon Road on aerial structures at that location [Figure 3.4-25] are visible from Acton residences. This conclusion is contradicted by the results presented in Attachment 1 showing that residences located within 5,300 feet of, and which have an unobstructed "line of sight" to, the elevated tracks will experience L_{dn} levels exceeding 62 dBA. Several residences are located within 5,300 feet of the "E" tracks and have a "line of sight" to the aerial structure locations (including the historic "Blum Ranch"). Yet, for reasons that remain inscrutable, the Draft concludes that Acton residences in the Aliso Canyon area will not experience any noise impacts from any of the "E" Route alternatives all.

A deficiency that has been noted (which may explain the discrepancies observed above) is that the Draft does not properly report "severe" impact thresholds established by the FRA Manual. For example, in areas where the existing L_{dn} noise level is 60 dBA, the Draft asserts that the L_{dn} noise threshold for "severe" impacts to residential properties is 64 dBA [Page 3.4-78]; this is incorrect. The FRA Manual clearly establishes at Page 3-4 that the noise threshold for severe impacts is 63.3 at residential locations where existing L_{dn} values are 60 dBA. Another possible reason for the discrepancies noted above is that the Draft's noise analysis generally only considers "noise receptors" within 1,200 feet of the tracks [Page 3.4-38]; thus, the Draft did not evaluate noise levels out to 5,200 feet or even 3,600 feet. In fact, the Draft concludes that, beyond 1,800 feet "noise impacts were no longer detected" at any location along any of the route alternatives [Page 3.4-38]. The noise analysis results presented in Attachment 1 contradict this conclusion because they show that noise levels at receptor sites that have an unobstructed "line of sight" to the train at 1,800 feet from the tracks will experience L_{dn} levels of 66.74 which exceed FRA's "severe" noise impact thresholds for areas like Acton where existing L_{dn} levels are 60 dBA or less. Another possible reason for the discrepancies is that the Draft's noise analysis may have failed to properly account for the lack of vegetation and sparse development profile in Acton and therefore assumed incorrect noise attenuation parameters. This is important; sound propagates with little attenuation in Acton because of the low density development and the lack of vegetation and "hard ground" (i.e., rock and packed clay) characteristics in the Community. In any event, the discrepancies noted above cannot be reconciled because the Draft fails to provide any technical data pertaining to its noise analyses that it presents; this is a substantial deficiency because it prevents the public from properly assessing the efficacy of the Draft's conclusions regarding significant noise impacts and offering substantial evidence pertaining to deficiencies in the Draft's analyses.

Notably, the noise analyses presented in Attachment 1 are very conservative because they do not factor in the incrementally higher noise levels attributed to elevated tracks compared to "at grade" tracks on the ground. Specifically, the calculations presented in Attachment 1 understate the actual noise levels by at least 2 dBA because they assume that the train tracks are on the ground and not elevated in the vicinity of Red Rover Mine Road (for the Refined SR14 alternative) or Aliso Canyon Road (for the "E" routes) [5]. Thus, the actual noise levels will be at least 2 dBA louder than what the calculated results in Attachment 1 indicate.

[5] Trains on aerial tracks are 2 dBA louder than trains "at grade". FRA Manual at 4-10.

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2.3 The Draft Suppresses Noise Impact Results for Neighborhoods in Acton

Another substantial deficiency of the Draft's Noise analysis is that it suppresses noise impact results for neighborhoods in Acton. For example, according to the Technical Report titled "Noise and Vibration Technical Report" that was obtained via an information request submitted pursuant to the California Public Records Act ("CPRA"), CHSRA collected baseline noise measurements over three one-hour periods at the intersection of Y-8 and Aliso Canyon in Acton (which is referred to as location "N8" on the data sheets provided on pages D-48 through D-50); these results indicate that existing L_{dn} levels at this location are 54.7 dBA[6]. Thus, according to Page 3-4 of the FRA Manuel, residences at this location are deemed to experience "severe" noise impacts by rail Projects that generate L_{dn} levels at or above 61 dBA. The intersection of Alison Canyon Road and Avenue Y-8 is adjacent to the historic Blum Ranch in Acton and has a "line of sight" view of the tracks for all the "E" Route alternatives where they cross over Aliso Canyon Road on aerial structures approximately 2,200 feet away. As indicated in the noise calculation results presented in Attachment 1, Project L_{dn} levels at this location will be almost 66 dBA; therefore, residences in these areas (including Blum Ranch) will experience severe noise impacts if CHSRA selects any of the "E" route alternatives for the project. Yet, the Draft fails to even identify location N8 or the baseline noise data collected for location N8[7] and it does not report the significant noise impacts that Project operations pose to Blum Ranch and nearby homes. This constitutes a significant deficiency that must be addressed in the Final EIR; or, in the alternative, CHSRA can simply approve the Route SR14A (in which case, noise impacts to Blum Ranch and other areas of Acton become moot).

2.4 The Methodology Adopted by the Draft to Assess Project Noise Impacts Does Not comply with CEQA or NEPA.

The Noise Analysis presented in the Draft does not comply with CEQA or NEPA in a number of ways. First, both CEQA and NEPA require the Lead Agency to provide details regarding how a project will alter the existing environment[8]; with respect to noise impacts, these CEQA and NEPA provisions necessarily require CHSRA to provide some indication of what the Project's noise levels will be within the affected environment. Unfortunately, the Draft does not comply with this requirement because it does not provide any indication of how the Project will alter the existing noise environment. The Draft does not provide "noise contour" data or give any indication of what noise levels will be when the trains are operating. It does not explain that the Project will cause noise levels exceeding 80 dBA more than 400 times per day at residences that are in view of, and located within a mile of, the elevated tracks. It does not explain that the equestrian trails in Acton which are directly under elevated tracks will experience noise insults exceeding 100 dBA which will make it too dangerous for horses to use. It does not explain that

[6] The three one-hour sets of noise measurements were ostensibly collected in the morning, in the afternoon, and very late at night, and the average results for each of the three time intervals were 46.2, 47.6. and 49.7 dBA. Using these three numbers to represent baseline conditions during the morning, afternoon, and nighttime intervals in the L_{dn} calculation methodology yields an L_{dn} value of 54.7.

[7] Tables 3.4-15 and 3.4-16 in the Draft.

[8] CEQA requires that the EIR "include relevant specifics" of "physical changes" that will result from the Project [Guidelines 15126.2(a)] and NEPA requires that the EIS "Identify environmental effects and values in adequate detail so the decision maker can appropriately consider such effects" [1501.2(b)(2)].

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the noise level that will be experienced at Vasquez High School with every "passby" event on the Refined SR14 route will exceed 85 dBA and that, to comply with adopted safety requirements, teachers and staff will have to wear hearing protection when outdoors[9]. In fact, the only "noise impact" information that the Draft provides is a vaguely described list of areas where "severe" noise impacts are projected to occur and a number indicating what the 24-hour weighted average noise level is projected to be in that area; the Draft does not report any *actual* noise levels that will result when an *actual* "passby" events occur, so no *actual* noise impacts are reported. Nothing in the Drafts' noise impact analysis comports with CEQA's requirement to "include relative specifics" of "physical changes" that will result from the Project; in fact, the Draft deliberately omits any "specifics" regarding how existing noise levels will be altered by the Project. Nothing in the Draft's noise impact analysis comports with NEPA's requirement to "Identify environmental effects and values in adequate detail"; in fact, the Draft specifically omits all details regarding the Project's actual noise effects on the environment.

Second, the Draft fails to analyze the noise effects of Project operations as required by CEQA and NEPA. Specifically, both CEQA and NEPA require that the EIR/EIS clearly identify the "effects" that a Project will have on the environment and both CEQA and NEPA define "effects" to include "direct effects" which are caused by the action and occur "at the same time and place" as the action[10]. To comply with these definitions, an EIR/EIS noise analysis is required to report noise effects "at the same time and place" they occur. The Draft fails to comply with this requirement because it does not report Project noise effects "at the same time and place" they occur; instead, the Draft averages all the noise effects together and reports a single "cumulative" value that does not in any way represent the *actual* "direct" noise effects of the Project which occurs at the time and place of a "passby" event. In other words, the "cumulative" L_{dn} values that are calculated and reported in the Draft for a few vaguely described locations in Table 3.4-31 through 3.4-33 do not represent the "direct" noise effects of the Project that occur "at the same time and place" as required by CEQA and NEPA. This is a substantial deficiency that can only be corrected by revising the Draft to include noise contour maps indicating what the *actual* Project noise levels (referred to as the "Sound Exposure Levels" or "SELs") will be in all areas where Project operations will alter existing noise profiles. For the Community of Acton, it is recommended that SEL noise contours maps be prepared in 5 dBA increments starting at 100 dBA and extending down to 65 dBA. It must be pointed out that these CEQA/NEPA compliance concerns have been raised several times in comments submitted over the last 7 years both verbally and in writing; it seems that these comments were ultimately ignored. Fortunately, the entire issue will be rendered moot if CHSRA selects the SR14A Route Alternative because this would eliminate all "direct" noise effects from Project operations in Acton.

[9] Vasquez High School is located 1,600 feet from the elevated tracks that will be constructed under the Refined SR14 route alternative. Thus, and as indicated in Attachment 1, each train "passby" event will generate a Sound Exposure Level of at least 86.8 dBA; this will occur more than 400 times per day. Because the Federal Occupational Safety and Health Administration requires hearing protection in work areas where noise levels exceed 85 dBA [Draft at Page 3.4-8], teachers and staff will be required to wear hearing protection whenever they are outside to protect their ears from the noise insults created by Project operations.

[10] NEPA Section 1508.1(g)(1) defines effects to include "Direct effects, which are caused by the action and occur at the same time and place". CEQA Guidelines Section 15358 defines effects to include "Direct or primary effects which are caused by the project and occur at the same time and place".

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Finally, both CEQA and NEPA require CHSRA to evaluate indirect impacts, which are defined as effects caused by the action and are later in time or farther removed in distance[11]. Because the L_{dn} results reported in the Draft are derived from cumulative noise levels averaged over a 24 hour interval, it could be argued that L_{dn} values reasonably represent the indirect noise impacts that will result from Project operations. However, and as discussed above, L_{dn} does not provide an adequate basis for assessing the direct noise impacts resulting from the Project.

2.5 The Model Used by CHSA to Derive Project Noise Impacts Is Not Shown To Be Properly Validated.

The Draft asserts on page 3.2-24 that a "Benchmark test" was used to validate the model that was relied upon to derive the noise impact results, and that details regarding the benchmark test are provided in a "Technical Report" that has been withheld from the public. When a copy of this "Technical Report" was procured pursuant to a CPRA record request, it revealed that the "benchmark test" was not particularly rigorous: "The environmental program manager for the Authority distributed a series of input parameters and output results against which the noise model could be compared for accuracy." However, nothing about this procedure establishes the accuracy of the model or materially "validates" the model results:

- The proper way to "validate" a model and assess its accuracy is to compare the output from the model (in this case, the "Sound Exposure Levels" calculated for a train "passby") to actual physical measurements that are collected under the conditions that are modeled. The "benchmark" test did not utilize physical noise measurements or compare modeled SEL values to measured SEL values; thus, it cannot be concluded that the "benchmark" test demonstrates that the model is either accurate or valid.

- There is no provenance or background information regarding the "output results" that were provided by the "environmental program manager for the Authority" and used to compare the model results for accuracy, so there is no basis to conclude that such "output results" are an appropriate standard by which to validate CHSRA's noise model. In other words, there is no information explaining where these "output results" came from or how they were derived or why the public and the decisionmakers should accept them as the appropriate "standard" for validating the noise model; so, they prove nothing. It is certain that they were not derived from physical measurements taken from actual trainsets because the configurations they represent are not typical and in fact some configurations are completely implausible (as discussed below); accordingly, the "benchmark" test does not constitute evidence that the noise model is either valid or accurate.

- The "output results" that were provided by the "environmental program manager for the Authority" assume unrealistic conditions and are therefore facially invalid. For example, the configuration assumed in the "output results" for elevated structures are particularly unrealistic because they all include the placement of a 63 foot high noise barrier just

[11] NEPA Section 1508.1(g)(2) establishes that indirect effects "are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable". CEQA Guidelines Section 15358 defines indirect or secondary effects" as those effects "which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable".

15.5 feet from the track; this configuration is implausible. CHSRA would never install 63 foot high barriers adjacent to an elevated tracks because the purpose of elevating tracks by 63 feet is to cross over a large physical impediment (such as a river or freeway or seismic fault area); so, installing a 63 foot high wall adjacent to the tracks would defeat the whole purpose for elevating the tracks. As another example, all of the "output results" assume the presence of noise barriers (see Tables 4-2 and 4-3) however noise barriers will generally not be used for the Project[12]. The defects in this analysis are of particular concern to the Community of Acton because all the route alternatives except SR14A require the construction of elevated structures in Acton, and since high speed trains traveling on elevated structures are much louder than trains traveling on the ground[13], it is critical to Acton's future that the Project noise analysis accurately and realistically portray the actual noise insults that Acton will experience if any alternative other than SR14A is selected. The "Benchmark test" does not demonstrate that CHSRA's models are either accurate or realistic because they reflect configurations that are at best, not useful, and at worst, completely implausible.

- The results provided in Attachment 1 indicate that the modeled results upon which the Draft's noise impact analysis is based may not be accurate because they show that significant noise impacts in Acton will extend beyond 1,800 feet and will be much more significant than what is predicted by CHSRA's model.

It is essential that both the public and the CHSRA Board have confidence that the noise analyses and the noise impact results presented in the EIR/EIS are accurate and reliable, and that they realistically reflect the actual noise impacts that Acton residents will experience if any route other than SR14A is selected. For the reasons set forth above, the public has no such confidence and the Board has no substantive basis to conclude that the noise analysis and noise impact results reported in the Draft are either accurate or reliable, or realistic. Accordingly, CHSRA cannot certify or adopt an EIR for the Project, and FRA cannot issue a Record of Decision for the Project until the significant deficiencies noted above are corrected.

2.6 Key Reports That Were Relied Upon to Prepare the Draft Were Not Made Accessible to the Public.

The Draft frequently cites various "technical reports" which provide all the fundamental technical information upon which the Draft's conclusions regarding the "significance" of all environmental impacts are based (see for example pages 3.4-1, 3.4-2. 3.4-14, 3.4-24, 3, etc.). However, none of these reports were made available to the public: they were not posted on the CHSRA website with the Draft and they were not included in the copies of the Draft that were provided for the public to review and they were not filed with the State Clearinghouse as required by CEQA[14]. These documents can only be accessed by submitting a record request pursuant to the California Public Records Act ("CPRA"). All of this is utterly contrary to the open and public processes that are intended by both CEQA and NEPA.

[12] Only two noise barriers are proposed for the Refined SR14 route, only one is proposed for the SR14A route, and only three or fewer barriers are proposed for the "E" routes. Page 3.4-148.

[13] FRA Manual at Page 4-10.

[14] https://ceqanet.opr.ca.gov/2014071074/2

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3.0 ADDITIONAL SUBSTANTIVE DEFICIENCIES NOTED IN THE DRAFT

To facilitate review, additional deficiencies noted in the Draft are presented sequentially below.

Page 3.4-8 discusses Federal Noise Standards that apply to interstate rail carriers, and it asserts that these standards will not be met by the Project; it further indicates that CHSRA's position is that Federal Noise Standards will not be addressed and instead CHSRA will apply European Noise Standards to its environmental analysis. CHSRA's position is not only legally untenable, it makes no sense. First, CHSRA cannot simply ignore federal noise standards or replace them with standards developed by European lawmakers and bureaucrats over which American voters have no control; all high speed rail projects will have to comply with Federal Noise Standards the instant they initiate any operation that is subject to such standards. Second, even if CHSRA were permitted to ignore Federal Noise Standards and instead comply with European noise standards, the Draft is still deficient because it fails to identify what the European Standards are and it certainly does not demonstrate how the Project will meet these standards. Third, the European Noise Standard is based on trainset speeds; in fact, the "Technical Specification for Interoperability" ("TSI") pertaining to noise that was adopted by the European Union limits train speeds to 320 kilometers per hour[15] (or 190 miles per hour). This means that Project operations will not comply with the European Noise Standard because CHSRA's trainsets will operate at 220 miles per hour, not 190 miles per hour. Fourth, it is patently false to conclude that California high speed rail trainsets cannot comply with Federal Noise Standards; these Standards are easily be met by limiting trainset speeds to less than 190 miles per hour because this restriction will eliminate primary aerodynamic noise sources and thereby maintains compliance with Federal Noise Standards[16]. In other words, by limiting trainset speeds, project operations will comply with both Federal and European Noise Standards. Finally, according to a recent publication by the Federal Railway Administration, noise measurements taken for a variety of trains operating throughout Europe demonstrate that *the Federal Noise Standard is achievable through speed control*[17], therefore, Project operations can comply with Federal Noise Standards despite the Draft's statements to the contrary. Furthermore, there is nothing to prevent CHSRA from operating the Project at 190 mph once construction is completed because Proposition 1A does not require the Project to operate at 220 mph; to the contrary, it merely requires CHSRA to prioritize corridors based on criteria that includes "the need to test and certify trains operating at speeds of 220 miles per hour[18]".

[15] Page 34 of "High Speed Rail Noise Standards and Regulations" issued by the Federal Railway Administration February, 2021 states "The introduction of normalized noise limit values was introduced to consolidate the TSI Noise regulations to one document. The increase in train speed is not a key reason for this consolidation *since the current TSI also limits train speeds to 320 km/hr*" (emphasis added). https://railroads.dot.gov/sites/fra.dot.gov/files/2021-02/HSR%20Noise%20Standards%20and%20Regulations.pdf

[16] Aerodynamic noise does not become significant until the train reaches 180 miles per hour. Page 2-11 of FRA's 2012 "High-Speed Ground Transportation Noise and Vibration Impact Assessment" Manual. https://railroads.dot.gov/sites/fra.dot.gov/files/fra_net/2680/20120220_FRA_HSR_NV_Manual_FINAL_102412.pdf).

[17] Table 78 in the FRA "High Speed Rail Noise Standards and Regulations" document issued Feb. 2021. https://railroads.dot.gov/sites/fra.dot.gov/files/2021-02/HSR%20Noise%20Standards%20and%20Regulations.pdf.

[18] Streets and Highways Code Section 2704.08(f)(2).

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Page 3.4-12 mentions the Los Angeles County General Plan ("Plan"), but it fails to articulate the policies or goals of the Plan. CEQA demands that Plan goals and associated policies and relevant factors be identified and discussed in the EIR because CEQA requires CHSRA to identify all instances in which the Project is inconsistent with adopted planning documents. For instance, the Plan asserts that there is a 30% probability that people will be awakened by a peak noise level of 70 dBA, and therefore establishes that a primary goal is to reduce excessive noise impacts in unincorporated areas [Goal N 1 and Page 191]; the Project will not meet this Goal because all routes except the SR14A will result in peak noise levels that substantially exceed 70 at all locations in Acton that are within two miles of, and have an unobstructed "line of sight" to, the tracks. This fact is demonstrated by the noise analyses presented in Attachment 1 which reports that, even two miles away, peak noise levels (referred to as "Cumulative Sound Exposure Level" or "Cumulative SEL") exceed 75 dBA during a train "passby". Since all the tracks are elevated in Acton for all the routes other than the SR14A alternative, many Acton residents will have a "line of site" to the tracks and will therefore experience noise levels exceeding the Plan's 70 dBA objective more than 460 times per day[19]. Moreover, 56 trains will traverse Acton between 10 PM and 7 AM, which means that many Acton residents will not get *any* sleep because they will experience a noise event exceeding 70 dBA with every nighttime train "passby". And, if the Refined SR14 A alternative is selected, students at Vasquez High School will constantly experience 86 dBA noise events throughout the school day[20]. It is clear that, other than the SR14A alternative, all of the Project route alternatives are inconsistent with, and will substantially interfere with, the Los Angeles County General Plan goal of "reducing excessive noise impacts" in the Community of Acton; yet, the Draft fails to mention any of this. The Draft must be substantially revised to quantitatively show the extent to which the Project will interfere with the County's objective of reducing excessing noise impacts; this concern will be eliminated if CHSRA approves Route SR14A.

Page 3.4-12 "The Los Angeles Country General Plan 2035 refers to the Los Angeles County Municipal Code for direction on and definition of specific noise criteria". This statement is incorrect. Consistent with Government Code Section 65302(f), the Noise Element of the Plan includes implementation measures and solutions to address existing and foreseeable noise problems; the purpose of the Municipal Code is to implement these measures established by the Plan. In other words, the Plan drives the Municipal Code, not the other way round.

Page 3.4-13 states "The Authority is a state agency and therefore is not required to comply with local land use and zoning regulations". While it is true that CHSRA is not required to comply with local land use and zoning regulations, CEQA requires that CHSRA ascertain whether the Project is inconsistent with any general plan policies that were adopted for the purpose of avoiding or mitigating an environmental effect and whether these inconsistencies will result in significant environmental impacts; if so, mitigation must be offered[21]. Accordingly, while the

[19] The Project will result in 189 trains per day in each direction during the daytime hours, 28 trains per day in each direction during the nighttime hours, and 14 trains in each direction during the peak hours. Page 3.4-23.

[20] The aerial structure required by the Refined SR14A Alternative will be located within 1,600 feet of Vasquez High School, and as shown in the analyses provided in Attachment 1, each train "passby" will generate a sound level exceeding 86 dBA on the Vasquez campus.

[21] California Code of Regulation, Title 14, Chapter 3, Appendix G.

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Project is not required to *conform* with local land use and zoning policies, CEQA nevertheless requires the Project to mitigate the significant environmental impacts that arise from non-conformance. Because all the noise protection policies set forth in the Plan were adopted for the purpose of mitigating noise effects on the environment, any noise protection policy that is not met by the Project constitutes a potentially significant environmental impact that must be addressed. The Draft fails to even mention that the Project is inconsistent with the Plan's 70 dBA noise objective and it certainly does not address this inconsistency or offer mitigation measures to ameliorate it. Therefore, the Draft does not comply with CEQA.

Page 3.4-13 asserts that CHSRA has "endeavored to design and construct the HSR project so that it is consistent with land use and zoning regulations. For example, the proposed Build Alternatives would incorporate IAMFs that require the contractor to prepare a plan to demonstrate how construction noise and vibration impacts will be maintained below applicable standards. The Authority has also adopted statewide policies that seek to reduce noise and vibration impacts associated with new sources of noise and vibration (Appendix 3.4-C) below applicable standards". While these statements may be true regarding the SR-14A alternative in Acton, they are not true regarding the other alternatives for several reasons. First, it is clear from the noise analyses provided in Attachment 1 that the Project will result in substantial noise impacts on the Community of Acton regardless of whether CHSRA "endeavors" to be consistent with adopted plans or "seeks" ways to reduce noise impacts. Second, it does not matter whether CHSRA *endeavors* for the Project to be consistent with adopted plans and policies; it only matters if the Project *is* consistent with adopted plans and policies; as discussed above, the Project's noise profile in Acton *will not be* consistent the Los Angeles County General Plan for any of the routes except SR14A. This fact should be clearly asserted in the Draft and not buried under a "word salad" of meaningless aspirations. Third, requiring a contractor to develop a plan that will show how the contractor will comply with applicable noise standards is impermissible under CEQA because it defers the development of mitigation measures to reduce significant noise impacts until after the Project is approved. Finally, while CHSRA may assert that its policies *seek* to reduce noise impacts, the noise mitigation policies provided in Appendix 3.4-C *do not actually* reduce noise impacts in most areas. For instance, CHSRA only provides noise barriers under certain circumstances and will not deploy them to reduce noise impacts in most areas even though they would be both feasible and effective[22]. Virtually every statement found on page 3.4-13 is either disingenuous or factually incorrect or intended to obscure the facts regarding Project noise impacts and the extent to which they are inconsistent with adopted Plans and standards: other than Alternative SR14A, every single route alternative in Acton fails to comport with adopted County noise policies and standards. The Draft must be revised to present this simple truth.

Page 3.4-13 also presents Table 3.4-2 that identifies numerous noise standards in adopted plans and codes and which states that the construction and operation of all six proposed routes "may not be possible to meet standards" established by the Los Angeles County General Plan (which applies to unincorporated communities like Acton). This characterization is incorrect. Based on the noise calculations provided in Attachment 1, none of the proposed route alternatives except

[22] CHSRA only deploys noise barriers when there are at least 10 receptor sites who will experience significantly adverse noise levels; if 9 or fewer receptor sites will experience significantly adverse noise levels, no noise barriers will be installed, and the people who live and work at these sites will suffer immeasurably. Appendix 3.4-C Noise and Vibration Mitigation Guidelines at c-1.

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SR14A will meet the Los Angeles County General Plan noise standards in Acton; this is particularly true given that no noise mitigation measures are proposed for the elevated tracks that will be constructed in Acton if either the Refined SR14 route or any of the "E" routes are selected. Therefore, Table 3.4-2 must be revised to state that it "will not be possible to meet standards" in the Los Angeles County Plan and further clarify that this constitutes a significant environmental impact. All route alternatives will generate noise levels in unincorporated areas which exceed the Los Angeles County General Plan noise standards; the only way to minimize this significant environmental impact is to select the SR-14A route alternative route which provides the fewest number of miles of above-ground tracks in unincorporated communities.

Page 3.4-14 states "Despite the inconsistencies, the project is consistent with the majority of regional and local policies and plans". The logical fallacy presented by this statement renders it false: The Project is materially inconsistent with 10 of the 12 local and regional plans adopted for the project area [Page 3.4-13]; these inconsistencies are not mitigated away. Therefore, it can only be concluded that the project ***is not*** consistent with the majority of regional and local policies and plans. The Draft errs substantially in declaring otherwise.

Page 3.4-14 states "Table 3.4-2, IAMFs and mitigation measures would generally minimize noise impacts and would ultimately meet the overall objectives of the local policies". This statement is categorically false. As discussed above, for all alternatives other than SR14A, project operations within the Community of Acton will result in more than 460 noise events per day that exceed 75 dBA in many areas of Acton; these noise events will not be reduced by any IAMFs or mitigation measures. Accordingly, the Project will not meet any objectives of local noise policies applicable to Acton (and on this basis, it could be argued that CEQA prevents the Project from being approved at all). The Draft must be revised to clarify that, even with IAMFs and mitigation measures, the Project will not meet most local policy objectives.

Page 3.4-16 asserts that NV-IAMPF#1 will minimize construction noise, and the Draft implicitly presumes that it will do so. However, NV-IAMPF#1 is nothing more than a statement that the contractor will prepare a "technical memorandum" stating that FTA and FRA guidelines will be utilized to reduce noise impacts on sensitive receptors within 1,000 feet of construction activity. NV-IAMPF#1 is deficient because the 1,000 foot distance is far too short; the noise generated by Project construction will be significant well beyond a 1,000 foot perimeter. This is especially true in Acton near Red Rover Mine Road (at the refined SR 14 construction site) and Aliso Canyon (at the "F" Route construction site) because the construction sites are surrounded by hills where sound reverberates instead of attenuates due to Acton's low density development profile and sparse vegetation. The constant, mind-numbing operation of pile drives and other construction equipment will make living adjacent to the construction site and learning at Vasquez High School impossible. NV-IAMPF#1 is also deficient because the "thresholds of significance" that are established by the Draft for construction noise impacts are based on federal standards that are far too lax (as discussed in detail below); when the draft is revised to incorporate more appropriately restrictive significance thresholds for construction noise impacts, NV-IAMPF#1 will have to include receptors much further away than 1,000 feet from the construction site. Alternatively, CHSRA can simply select alternative SR14A.

Page 3.4-16 asserts "Wildlife and human sensitive receivers could be startled or annoyed by California HSR System passbys, and wildlife communication could be affected by project noise". This is an understatement. There is no uncertainty regarding whether high speed train noise

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affects wildlife and domesticated animals; the Federal Railway Administration's 2012 "High-Speed Ground Transportation Noise and Vibration Impact Assessment" Manual ("FRA Manual") fully admits to this [Appendix A]. In fact, the FRA Manual not only acknowledges that animal startle and annoyance are real problems, it openly asserts that it has no definitive information upon which to establish a quantitative threshold for determining the significance of these impacts[23]. Astonishingly, after admitting that it has no quantitative basis for establishing significance thresholds for startle impacts, the FRA Manual arbitrarily assigns a 100 dBA sound exposure level (averaged over a 1 second time interval) for startle effects and then, without justification, the Draft simply adopts this as a significance threshold [Page 3.4-34]. This 100 dBA threshold is based purely on speculation and conjecture and is therefore impermissible under CEQA. Because the Draft's threshold for noise impacts on animals is completely unsubstantiated and admittedly indefensible, it will not withstand judicial review. Furthermore, as a rural agricultural community that is surrounded by national forestland, Acton is replete with both domesticated animals and wildlife, and the "lived experiences" of our residents directly contradict the presumption established by the Draft that animal startle and annoyance is not significant until noise levels reach 100 dBA. As has been explained in numerous and extensive public comments submitted to CHSRA, animal startle (whether wild or domesticated) can result from a distant helicopter flyover and even a distant car passby or backfire; all of these noise levels are far less than 100 dBA. Conveniently, the unsubstantiated and arbitrarily high 100 dBA noise threshold that CHSRA establishes for animal impacts allows the Draft to conclude that noise impacts on animals resulting from all the route alternatives are generally "insignificant"; in fact, the only locations where the Draft concludes that potentially significant noise impacts on animals will occur are on the Pacific Crest Trail, in the Vasquez Rocks Natural Area, at the Hansen Dam Recreation Area, and at the Stonehurst Park and Recreation Center because horses are known to be there [page 3.4-107]. CHSRA is reminded that horses, cows, sheep, goats, chickens, llamas, ducks, lions, tigers, and many other types of animals are known to be in Acton (as the public has pointed out many times over the last 10 years); therefore, Acton should be included in this list of locations where potentially significant noise impacts on animals will occur. Furthermore, the Refined SR14 route travels directly over established equestrian trails along Sierra Highway, Red Rover Mine Road, and Escondido Canyon Road (including over the Darrell Readmond trail), and according to Sheet ST-J1009-S14 of the "Bridges and Elevated Structures Plans", the tracks will be less than 40 feet above the trail; this means that noise levels on the trail will actually exceed 102 dBA[24]. Thus, even if the 100 dBA threshold for significant noise impacts on animals were acceptable (which it is not), it is certain that the Project will result in significant animal impacts in the Community of Acton. Furthermore, there is no uncertainty regarding whether humans will be startled or annoyed by Project operations; according to a 2021 study issued by FRA, human startle effects can occur at

[23] The 100 dBA threshold identified in the FRA Manual was based on observed turkey responses to aircraft and Table A-1 of the Manual demonstrates a wide variety of aircraft reaction thresholds for animals. Because there is no data pertaining to high speed trains, and because what little data there is regarding animal responses to aircraft, the FRA Manual lamely states on page A-20 that "Until more definitive information on thresholds can be developed, an interim criterion of SEL = 100 dB will be used for disturbance by high-speed rail operations."

[24] The noise that is generated by a train traveling on aerial structure exceeds 101 dBA at a location 50 feet from the tracks; since the trails along Red Rover, Escondido Canyon Road, and Sierra Highway will be only 39 feet from the tracks, noise levels at these trails will greatly exceed 101 dBA.

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Noise levels less than 90 dBA[25]. Additionally, a 1974 study by the Federal Department of Transportation demonstrates that human startle impacts can occur at noise levels that are as low as 81 dBA[26]. That high speed train noise will annoy humans is a *fact* that is demonstrated by the infamous "Schultz Curve" which shows measurable human annoyance occurring at L_{dn} levels as low as 60 dBA[27]. Given that all but one of the six Project alternatives will increase L_{dn} sound levels in Acton well beyond 60 dBA (see table 3.4-31), it is a certainty that Acton residents will be annoyed by the Project. In other words, the Draft errs substantially in stating that human sensitive receptors ***could*** be startled or annoyed by HSR operation; it is a certainty that they ***will*** be startled and annoyed by HSR operation. Startle and annoyance impacts of the proposed project on the community of Acton can only be avoided by selecting the SR14A alternative which eliminates all operational noise impacts. All the deficiencies noted here render the Draft substantially deficient; these deficiencies can only be corrected by substantially revising the Draft to properly address startle effect on animals and startle and annoyance effects on humans.

Pages 3.4-17-3.4-18 describes various sources of noise that may result from Project construction, but it fails to identify or discuss the blasting noise impacts that will occur as a result of using "traditional" tunneling techniques to construct the tunnels in Acton for all the "E" Route alternatives[28] (specifically, in the residential neighborhoods around Foreston Street and Aliso Canyon Road). Blasting techniques are substantially disruptive in rural communities like Acton where a sudden noise can cause horses, livestock, and other domesticated animals to panic and become very difficult and dangerous to handle. The Draft fails to disclose that blasting techniques will be used in the Community of Acton, it fails to consider the adverse impacts of such techniques in the community, and it certainly fails to offer mitigation measures to reduce these impacts. The Draft must be revised to address all of these deficiencies and it must also clarify that these impacts cannot be mitigated to a level that is less than significant and will only be avoided if the none of the "E" Routes are approved.

[25] According to the FRA report issued in February, 2021 and titled "*High Speed Rail Noise Standards and Regulations*", startle effects are deemed excessive by the public when a high speed train's average noise level measured 25 feet from the track centerline is only 90 dBA. This conclusion is based on the following specific facts drawn from the "*High Speed Rail Noise Standards and Regulations*" report: 1) Page 45 states that "The startle noise of the Thalys trains running at 300 km/h (186 mph) was deemed excessive"; 2) Page 136 that the Thalys train running at 300 km/hr generates a passby noise level L_{paeqp} of 90 dBA; 3) Page 20 states that L_{paeqp} is the average of noise energy a train generates from all cars during the time of the passby of the entire train; and 4) Page 31 states that L_{paeqp} is measured 7.5 meters (approximately 25 feet) from the track centerline. The extent to which the Thalys L_{paeqp} values represent the average noise level during a train passby event is demonstrated in figure 5 from a separate FRA study titled "*High Speed Rail: Cost of Compliance for Noise Mitigation Procedures*". Because the Project will expose people and animals to 90 dBA noise levels in Acton within 700 feet of the track (as indicated in Attachment 1), startle effects will be much more prevalent than the Draft suggests.

[26] "Development of an Acoustic Rating Scale for Assessing Annoyance Caused by Wheel/Rail Noise in Urban Mass Transit". U.S. Department of Transportation Interim Report. 1974. At Table 1.

[27] See page A-12 of the FRA Manual.

[28] At a meeting with CHSRA engineers and staff on October 4, 2022, it was announced that tunnel boring machines would not be used to construct any of the tunnels for the "E" Route alternatives between Palmdale and Arrastre Canyon and that "traditional" tunnelling methods would be used instead.

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Page 3.4-19 addresses the "Construction Noise Criteria" applied for assessing project construction noise impacts, and it states that the Draft relies solely upon federal criteria established by the FRA for determining whether the Project's construction noise impacts are "significant". This is unacceptable. FRA construction noise standards are substantially lax because they allow a daytime 8-hour average noise level (referred to as "8-hour Leq") of 80 dBA and a nighttime 8-hour average noise level of 70 dBA; this means that Project construction can continuously create noise levels up to 80 dBA all day and 70 dBA all night in a residential area and such noise impacts would not be considered "significant". It also means that daytime and nighttime noise levels can be as high as 100 dBA or even higher as long as these high noise events are sufficiently balanced by lower noise events to ensure that the cumulative noise level averaged over an 8 hour interval does not exceed 80 dBA in the daytime or 70 dBA at night. To be clear, an 80 dBA noise insult is quite loud (it is equivalent to an alarm clock[29]), thus it is entirely unreasonable to conclude that residents will not be significantly affected if they are continuously exposed for an entire day to noise levels that are equivalent to an alarm clock. Yet, that is precisely what the federal standard allows for daytime construction activities. Moreover, local noise policies and standards more accurately reflect just how disruptive noise impacts can be in rural communities like Acton (particularly at night). For instance, and as discussed above, the Los Angeles County General Plan affirms that there is a 30% probability that people will be awakened by 70 dBA noise events; this is why the Los Angeles County Code prohibits construction noise disturbances across residential property line that exceed 75 dBA during the day and 60 dBA during the night[30]. The Draft ignores all these material facts, and instead adopts a noise standard which is so lenient that it *guarantees* sleepless nights for many Acton residents because it allows for continuous nighttime noise levels of 70 dBA. It is entirely inappropriate and arguably a CEQA violation for CHSRA to disregard local noise policies in determining the significance of noise generated by Project construction in favor of a federal standard that was developed without regard for rural circumstances or consideration of local conditions. CEQA is very clear: it requires the Lead Agency to 1) exercise careful judgement in making determinations regarding whether a project may have a significant effect on the environment; 2) base such determinations on scientific and factual data; and 3) recognize that an activity which may not be significant in an urban area may be significant in a rural area [CEQA Guidelines 15064(b)(1)]. The Draft fails to comply with these CEQA directives because it simply adopts a federal standard without thought or analysis and despite the fact that it is entirely inappropriate for local conditions. In other words, it is technically unacceptable and legally insupportable under CEQA to adopt "thresholds of significance" which are inappropriate for the rural environmental and are so lenient that a Project is not deemed to pose significant effects even when it causes significant and continuous incursions of noise events that are of sufficient magnitude to substantially interrupt sleep and interfere with living conditions. These are precisely the circumstances presented by the Draft; accordingly, the Draft is deficient and it will not withstand legal challenge. To correct these deficiencies, the Draft must be revised to incorporate restrictions on construction noise within the Community of Acton which are reasonable and appropriate for the rural community of Acton; the construction noise standards adopted by Los Angeles County Code are a good starting point. Alternatively, CHSRA can just approve the SR14 A route alternative and eliminate all construction noise impacts in Acton.

[29] https://decibelpro.app/blog/decibel-chart-of-common-sound-sources/

[30] The County Code prohibits residential noise disturbances ≥ 75 dBA from 7:00 a.m. to 8:00 on Monday-Saturday, and ≥60 dBA from 8:00 p.m. to 7:00 a.m. at all other times. [LACC 12.08.440].

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Page 3.4-23 states "For the Palmdale to Burbank Project Section, it is assumed that there would be 189 trains per day in each direction during the daytime hours (7:00 a.m. to 10:00 p.m.), 28 trains per day in each direction during the nighttime hours (10:00 p.m. to 7:00 a.m.), and 14 trains in each direction during the peak hours." This description is ambiguous. Specifically, it is not clear whether the statement "14 trains in each direction during the peak hours" means that each peak hour will have an additional 14 trains or it mean that the additional 14 trains in each direction will be spread over all the peak hours. The difference is significant; the former implies that there will be 231 daily trains in each direction (189 + 28 + 14) for a total of 462 trains per day and the latter implies there will be 301 daily trains in each direction per day (189 + 28 + (14 x 6 peak hours per day)) for a total of 602 trains per day. This ambiguity should be addressed and the projected train schedule should be clearly identified.

Page 3.4-24 generally discusses noise propagation and the factors that affect sound travel; however, it does not correctly represent material facts that are pertinent to the Project. For example, it states that "If a line of sight exists from a subsource on the HSR to a noise-sensitive receiver, the ground factor becomes more critical in determining the amount of attenuation over a given distance". This statement is not accurate and does not represent conditions that will result from Project operations. Specifically, Project train speeds will exceed 200 mph, therefore, aerodynamic noise will tend to dominate the radiated noise levels[31]; therefore, the "ground factor" is not relevant because in the aerodynamic regime, ground absorption has little attenuating effect[32]. Furthermore, in the Community of Acton, "ground factor" will not contribute significantly to sound attenuation because many neighborhoods will have a direct "line of sight" to the train because the tracks are elevated in the Community for all route alternatives except SR14A. Finally, the discussion regarding noise barriers and the extent to which they will attenuate noise gives the false impression that noise barriers will be deployed to protect the public from the Project's significant noise impacts when in reality, CHSRA is generally disinclined to utilize noise barriers and is only proposing that a few be used to mitigate noise impacts (as discussed above).

Page 3.4-33 addresses "startle effect" in humans and wildlife due to "Rapid Onset Rates" from high speed trains, and it presents a "distance verses speed" chart that was ostensibly developed by FRA to indicate the distances from a high speed rail track where human "startle" effects can occur at various train speeds. According to the chart, an unsuspecting a person walking only 47 feet from a high speed rail track will not be "startled" by an oncoming high speed train unless the train speed exceeds 225 mph. This conclusion is *preposterous* because a person walking only 47 feet from a train traveling at 220 mph will experience a sudden noise level exceeding 101 dBA (as well as a significant air pressure wave) and will absolutely experience "startle". Yet, the Draft concludes that no such startle effects would occur because the train is only moving at 220 mph. Given the absurdity of this conclusion, a further review of the FRA figure was conducted. It turns out that the FRA Manual does not explain the "distance verses speed" chart at all; it does not disclose the chart's origins or cite the technical data that the chart reflects or describe the assumptions that underlie it or articulate the circumstances under which is deemed to apply. Furthermore, the "distance verses speed" chart appears to contradict other information that is provided in the FRA Manual. For instance, the FRA Manual cites an Air Force study that

[31] FRA Manual at 2-11.

[32] Id at 5-13.

indicates startle effect can occur when onset speeds reach 15 dBA/second[33] which (according to Figure 2-5) occurs when the "speed to distance" ration is at approximately 2.5. Reconciling this this 2.5 ratio to the Project's 220 mph velocity envelope indicates that "startle" will occur when a person is actually 88 feet from the tracks (not 47). Surprisingly, and despite the presence of contradictory Air Force data, the FRA Manual "adopts" an onset noise threshold of 30 dBA/second as the basis for "establishing distances within which startle is likely to occur" even though Figure 2-5 presented in the FRA Manual reveals a 30 dBA/second threshold to be entirely implausible because it shows that no high speed trains (including Maglev trains) are even capable of achieving a 30 dBA/second onset rate[34]. Finally, this assessment by FRA's is contradicted by various studies described above including a 2021 FRA study (indicating that startle effects are deemed excessive by the public when a high speed train's average noise level measured 25 feet from the track centerline is only 90 dBA) and a 1974 study by the Federal Department of Transportation (demonstrating that human startle impacts can occur at noise levels that are as low as 81 dBA). The discussion of "startle" effects presented in the FRA Manual is arguably contradictory and not supported by technical evidence; thus, and by extension, the Draft's conclusions regarding "startle" effect are groundless and should be accorded no weight.

Page 3.4-36 explains the methodology that the Draft adopts for assessing the significance of Project operating noise impacts pursuant to CEQA, and it establishes that a noise impact will only be significant if it generates noise levels that exceed Federal Railway Administration/ Federal Transportation Administration standards (which are referred to as "Noise Impact Criteria" and are set forth in Figure 3-1 and on page 3-4 of the FRA Manual). This is categorically unacceptable for the following reasons. First, the FRA "Criteria" are entirely inappropriate in quiet rural communities like Acton because they do not designate a project as having a severe noise impact unless it nearly ***doubles*** the average ambient noise level. This is clearly depicted in Figure 3-1, which shows that existing areas with average noise levels of 50 dBA are not deemed to be severely impacted unless train operations increase the average ambient noise level by nearly 10 dBA (which is a doubling of noise "loudness"[35]). It is neither reasonable nor appropriate for any Lead Agency to conclude that a project will not have a significant noise impact unless it doubles the ambient noise level in a quiet rural area. Second, the FRA "Criteria" are so lenient that they preclude any project from ever being designated as having a "severe" noise impact unless and until the project noise levels exceed the 55 dBA "outdoor activity" noise threshold which interferes with activities and creates annoyance[36]. This fact is clearly revealed by inspection of Figure 3.4-12 in the Draft which shows that noise levels must exceed 55 dBA before they can be considered "severe". Another example of the inappropriate leniency that is "built into" the FRA "Criteria" is that it precludes projects from being designated as having a "severe" noise impact even if the project causes ambient noise

[33] FRA Manual at 2-7.

[34] According to Figure 2-5 in the FRA Manual, the maximum onset rate that steel wheel trains can achieve is less than 12 dBA/second; the onset rates achieved by Maglev trains are less than 25 dBA/second.

[35] FRA Manual at A-2.

[36] https://www.epa.gov/archive/epa/aboutepa/epa-identifies-noise-levels-affecting-health-and-welfare.html

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levels to exceed the 65 dBA established by HUD as a "normally unacceptable living environment"[37]. This fact is clearly revealed by inspection of Figure 3.4-12 in the Draft which shows that project noise levels can exceed 65 dBA and still not be considered "severe". The very notion that a project's noise impacts are not deemed significant unless they interfere with outdoor activities or create annoyance or result in normally unacceptable living environments is fundamentally contrary to CEQA which requires that significance determinations be based on careful judgment, facts, and technical data. Third, a detailed analysis of the FRA "Criteria" was conducted in 2016 which revealed that they are largely based on urban-based studies (such as the infamous "Schultz" curve) and thus do not incorporate research data pertaining to quiet, rural (non-urban) areas like Acton. This analysis was submitted to CHSRA in comments that were provided in 2016 in response to CHSRA's request for public input; it is included herein as Attachment 3. Importantly, this analysis demonstrates conclusively that the FRA "Criteria" used by the Draft to assess the significance of Project noise impacts may be applicable to urban environments, but they do not reflect the conditions or circumstances in quiet rural areas like Acton. Accordingly, application of FRA "Criteria" to Acton is utterly contrary to CEQA's holding that criteria used to determine whether an activity will have a significance effect must be appropriate for the setting in which the activity will occur because "an activity which may not be significant in an urban area may be significant in a rural area" [Guidelines 15064(b)(1)]. Fourth, FRA "Criteria" are based on L_{dn} levels that are calculated average values and represent only "cumulative noise exposure from all events over a 24-hour period"[38]; therefore, the FRA "criteria" are only useful for assessing the cumulative noise effects of a project and cannot be used to assess the direct noise effects of a project. As discussed above, both CEQA and NEPA require a Lead Agency to assess the significance of a Project's direct effects; this necessarily requires consideration of the "Sound Exposure Level" ("SEL") that is experienced by a receptor ***during*** a "passby" event. Furthermore, a new set of criteria must be developed to assess the significance of these direct effects. Such a "direct effect" analysis would require a determination of whether a resident who lives 2,000 feet from, and has an unobstructed view of, the HSR tracks would be "significantly impacted" when he/she experiences an 86 dBA noise insult more than 400 times per day throughout the day and night (which is equivalent to a jack hammer going off 50 feet away[39]). The FRA "Criteria" are not based on the SEL standard and are thus useless for assessing the significance of direct noise effects of a train project. This reveals an additional deficiency in the Draft: not only does the Draft fail to properly evaluate direct noise impacts, it also fails to identify criteria with which to assess the significance of direct noise impacts. Fifth, the methodology established by the FRA Manual and the manner in which it masks the significance of noise events by averaging them over a 24 hour period render them facially deficient for assessing even indirect noise impacts. For instance, there is no question that a train project poses a "significant" noise impact if it forces a resident living 2,000 feet from the tracks to experience an 86 dBA noise insult (equivalent to a jack hammer going off) more

[37] The U.S. Department of Housing and Urban Development has designated the L_{dn} value of 65 dBA as the noise level above which a normally unacceptable living environment exists. https://www.hudexchange.info/programs/environmental-review/noise-abatement-and-control/#:~:text=The%20%22Normally%20Unacceptable%22%20noise%20zone,65%20decibels%20to%2075%20decibels.

[38] FRA Manual at 2-4.

[39] https://ops.fhwa.dot.gov/wz/workshops/accessible/schexnayder_paper.htm

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than 460 times throughout the day and night, and any reasonable person would conclude that this impact is indeed "significant". Yet, this scenario would not even be captured by the FRA methodologies adopted in the Draft because the Draft only considers "receptor sites" within 1,800 feet of the tracks. There are a number of residents in the Acton Valley who live within 2,000 feet of, and will have an unobstructed "line of sight" to, the elevated tracks that will be constructed under the Refined SR14 route, and they will routinely experience 86 dBA noise events if this route is selected; these residents will also experience a Project L_{dn} value greater than 66 dBA and as such, should be designated as "severely impacted" according to the FRA Manual [Page 3-4]. However, they are not accounted for in the Draft. In fact, according to Figure 3.4-18, the Draft concludes that only Acton residences located within 1,300 feet of the elevated tracks of the Refined SR14 route will experience "severe" noise impacts. Sixth, the FRA methodology for assessing train noise impacts does not represent the *actual* cumulative noise impact that an area will experience as a result of high speed rail operation because the L_{dn} value it calculates for train noise only considers train noise events and does not incorporate the area's existing noise profile (in other words, it assumes a zero noise level during the portions of the 24 hour averaging interval when trains are not operating). This is perhaps one of the most egregious deficiencies of the FRA methodology; it isolates train noise events and calculates an L_{dn} value based solely on train operation and then merely compares this isolated train L_{dn} value to the existing cumulative noise profile in a community *thus it does not provide any indication of the **actual** cumulative (existing + project) noise levels that will occur* in an area once train operations begin. The FRA methodology is somewhat analogous to assessing the impacts of a tsunami at a particular location without regard for tidal influences[40]. This is not an ideal analogy because water waves and sound waves behave differently and because tsunamis typically only strike an area once and not 460+ times a day, but it makes the point that the quantification of cumulative noise levels in a community necessarily involves a calculation which *integrates* projected train noise events with existing ambient noise level and does not merely compare projected train noise levels with existing ambient noise levels. The FRA methodology does not achieve this integration; thus, the cumulative train noise L_{dn} values calculated per the FRA Manual are biased low. Finally, it is noted that the High Speed Rail Project is a California project funded largely by California taxpayers; thus, it is entirely inappropriate to adopt inapplicable federal criteria to assess the impacts of a state project, particularly given that the federal criteria are not representative of, and have no consideration for, the unique rural environments that will be affected by the Project (as discussed above).

Pages 3.4-60 to 3.4-70 concludes that up to 1,900 residences will experience significant noise impacts during Project construction, and that, despite implementation of mitigation measure N&V-MM#1 (which requires the contractor to prepare a noise-monitoring program describing how the contractor will meet the 80 dBA average daytime and 70 dBA average nighttime noise standards) "some receivers may still experience noise that would exceed acceptable limits". Unfortunately, this analysis substantially underrepresents the number of residences that will experience significant adverse noise impacts from Project construction because the significance threshold is based on a federal standard which (as discussed above) is entirely too lenient to be sufficient for the purposes of CEQA. The Final EIR/EIS must correct this deficiency by adopting CEQA-compliant thresholds for determining significant construction noise impacts and using these revised thresholds to prepare a more accurate "count" of the number of residences that

[40] Tsunamis are much more damaging if they occur during a high tide interval.

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will experience significant construction noise impacts; this will necessarily result in the identification of many more residences that will experience significant construction noise impacts. Another concern is that mitigation measure N&V-MM#1 will not protect Acton residents from significant construction noise impacts because it only requires the construction contractor to comply with the (too) lenient federal construction noise standards. In other words, many Acton residents will experience significant construction noise impacts even if the contractor successfully implements N&V-MM#1 and reduces construction noise in compliance with federal noise standards because the federal standards are absurdly lenient. This deficiency must be corrected by adopting more stringent performance standards for mitigation measure N&V-MM#1 which are applicable to areas like Acton.

Pages 3.4-75 to 3.4-76 address startle and annoyance impacts on humans, and assert that human startle impacts will only occur if train onset rates exceed 30 dBA/second; it is concluded that no startle impacts will occur. This conclusion is defective because it is based on criteria taken from the FRA Manual that are at best insupportable and at worst completely implausible (as discussed above). Because the Draft applies inappropriate and implausible thresholds of significance for startle and annoyance impacts and ignores technical studies showing human startle impacts can occur at noise levels as low as 81 dBA and annoyance impacts can occur at noise levels as low as 73 dBA, it improperly concludes that human startle and annoyance impacts are less than significant. The magnitude of this error becomes apparent when one considers that it means an Acton resident who lives half a mile from the tracks will never be annoyed or startled by any Project operations even though the Project will expose the resident to an 85 dBA noise insult more than 460 times per day; such a conclusion is ridiculous and the Draft is substantially defective for even suggesting it. This deficiency must be corrected by adopting reasonable and technically defensible noise thresholds for assessing human startle and annoyance effects and applying these thresholds to projected noise levels to properly quantify the scope and extent of the Project's startle and annoyance impacts.

Pages 3.4-76 to 3.4-106 address the noise impacts of Project operations, and conclude that relatively few residents will experience significant noise impacts resulting from Project operations. This conclusion is defective because it is based on FRA "criteria" that do not comply with CEQA because they do not reflect local conditions or circumstances in rural communities like Acton (as discussed above). This conclusion is also incomplete because it is based on calculated L_{dn} values that only addresses "cumulative noise exposure" impacts which are perhaps germane for assessing the Project's indirect noise effects but are not appropriate for assessing the Project's direct noise effects. If the Draft had adopted CEQA-compliant noise impact thresholds, the noise analysis would have extended beyond the 1,300 foot boundary that was analyzed in Acton and far more residences would have been properly identified as receptor sites that will experience significant noise impacts. The Draft utterly fails in this regard, and because it substantially underreports the scope and extent of the Project's noise impacts, it violates CEQA. These deficiencies must be corrected by 1) adopting reasonable and technically defensible noise thresholds for assessing direct noise impacts in rural, suburban, and urban environments; and 2) adopting reasonable and technically defensible noise thresholds for assessing indirect noise impacts in rural areas (because the FRA "Criteria" are only applicable to urban areas); and 3) applying these thresholds to projected noise levels to properly quantify the full scope and extent of the Project's direct and indirect noise impacts.

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Pages 3.4- 89 and 3.4-98 summarize the noise impact result for all the "E" routes in the central section of the Project and simply assert that "no noise impacts on institutional uses (e.g., schools, libraries, theaters, and churches) were identified". These pages give the impression that no residential properties in the central sections of all the "E" routes will be affected by Project noise; however, this impression is incorrect. A number of residences will experience significant noise impacts in the central sections of all the "E" routes and a number of them are in Acton (see Tables 3.4-32 and 3.4-33). These pages should be revised to properly reflect that all the E routes will result in significant noise impacts on non-institutional uses in the central section of the Project.

Page 3.4-144 through 3.4-149 summarize NEPA impacts of the Project. However, the Draft does not comply with NEPA because it fails to provide noise impact assessment methodologies and significance criteria which properly evaluate the direct noise impacts resulting from Project operations; it also relies on deficient and insupportable analyses pertaining to human and animal startle impacts.

Page 3.4-149 through 3.4-151 present CEQA significance conclusions indicating the Project will result in significant noise impacts. However, the Draft underrepresents the scope and extent of the Project's significant noise impacts and it does not comply with CEQA because the Draft:

- Relies on inappropriately lenient federal standards that are not applicable to rural areas for assessing construction noise impacts.
- Relies on inappropriately lenient federal standards that are not applicable to rural areas for assessing cumulative noise impacts resulting from Project operations.
- Fails to provide noise impact assessment methodologies that properly evaluate the direct noise impacts that will result from Project operations.
- Fails to identify appropriate criteria for assessing the significance of the Project's direct noise impacts.
- Adopts unsubstantiated and insupportable criteria for assessing the impacts of Project operations on domestic animals and wildlife
- Adopts unsubstantiated and insupportable criteria for assessing the startle and annoyance impacts of Project operations on humans.

4.0 ANECDOTAL EVIDENCE DEMONSTRATES THAT Ldn VALUES ARE USELESS FOR ASSESSING SIGNIFICANT NOISE IMPACTS.

The Town of Acton was founded in the 1880s based on farming, mining and the railroad, so the residents of Acton have extensive experience with adverse noise impacts of rail operations. Because of the unique geography and geology of our community, coupled with a sparse vegetation profile, rail noises reverberate and do not attenuate in Acton. Residents who have no "line of sight" to the tracks are still awakened at 2 AM by rail traffic (even residents who live 2

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miles from the tracks; indoor noise measurements taken during these "passby" events are typically 70 dBA). The anecdotal evidence that has been collected from affected Acton residents demonstrates that ***adverse rail noise impacts occur when the train is transiting because that is when activity disruption occurs.*** The Draft does not address the noise impacts that will occur in Acton during transit of a high speed train; therefore, the Draft fails to address the very circumstances under which the most significant Project noise impacts will occur. Accordingly, the Draft is utterly deficient.

The Draft reports that Acton's baseline L_{dn} is 60 dBA or less which (according to the FRA manual) means that Acton has no significant noise issues. However, nothing could be further from the truth because sleep disruption and activity interruption are routine occurrences in Acton because significant adverse noise impacts occur ***during*** rail "passby" events. This fact alone utterly controverts the premise established by the FRA Manual and adopted by the Draft that a 24-hour average noise value is an appropriate indicator of adverse noise impacts; it is not.

Rail operations in Acton have grown steadily over the years, and as a result, adverse noise impacts have also grown steadily; in fact, some residents have even moved because noise impacts have become too burdensome. At the request of residents, and because noise generated during rail "passby" events have become too disruptive, the Acton Town Council began a campaign nearly 10 years ago to have "quiet zones" installed along the rail corridor in Acton. The fact that the Community of Acton is diligently working to have "quiet zones" installed even though L_{dn} values in the Community are 60 dBA or less is proof positive that L_{dn} values are, frankly, useless for determining whether rail noise impacts are significant.

5.0 CONCLUSION

For the reasons set forth above, the noise analysis results presented in the Draft EIR/EIS prepared for the Palmdale to Burbank section is deficient and does not comply with CEQA or NEPA; these deficiencies must be corrected in the Final EIR/EIS and in particular, defects noted herein must be addressed. Without these corrections, the Final EIR/EIS will not comply with CEQA or NEPA. Alternatively, CHSRA could simply adopt the SR14A Route Alternative and avoid all noise impacts from Project Operations in the Community of Acton.

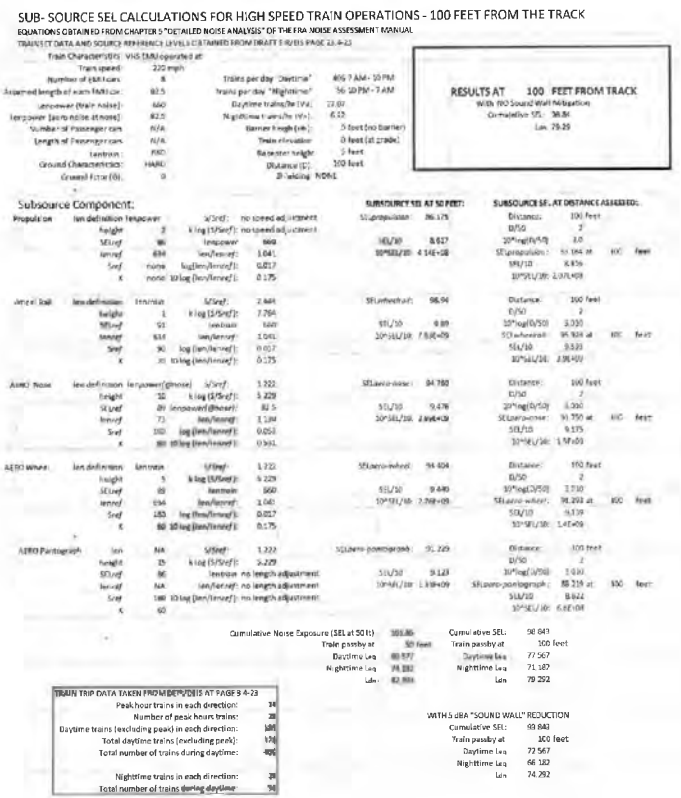
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ATTACHMENT 1

Noise analysis results for HSR Operations that were prepared in accordance with calculation procedures set forth in Chapter 5 and Appendix C of the FRA Manual and based on the train configuration data provided on Page 3.4-23 of the Draft. These calculations assume 1) The train operates at 220 mph at ground level; 2) the receptor has an unobstructed view of the tracks (no "shielding"); 3) the ground is acoustically "hard" and there is little vegetation; and 4) there is no ground attenuation for trains traveling in the aerodynamic regime.

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SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 100 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23.4-23

Train Characteristics: VHS EMU operated at:

Train speed:	220 mph		
Number of EMU cars:	8	Trains per day "Daytime"	406 7 AM - 10 PM
Assumed length of each EMU car:	82.5	Trains per day "Nighttime"	56 10 PM - 7 AM
Lenpower (train noise):	660	Daytime trains/hr (Vd):	23.07
Lenpower (aero noise at nose):	82.5	Nighttime trains/hr (Vn):	6.22
Number of Passenger cars	N/A	Barrier height (Hb):	0 feet (no barrier)
Length of Passenger cars	N/A	Train elevation	0 feet (at grade)
Lentrain:	660	Receiver height	5 feet
Ground Characteristics:	HARD	Distance (D):	100 feet
Ground Fctor (G):	0	Shielding:	NONE

RESULTS AT 100 FEET FROM TRACK
With NO Sound Wall Mitigation
Cumulative SEL: 98.84
Lde: 79.29

Subsource Component:

Propulsion	len definition	lenpower	S/Sref:	no speed adjustment	SELpropulsion:	86.175	Distance:	100 feet
	height	3	K log (S/Sref):	no speed adjustment			D/50	2
	SELref	86	lenpower	660	SEL/10	8.617	10*log(D/50)	3.0
	lenref	634	len/lenref:	1.041	10^SEL/10:	4.14E+08	SELpropulsion:	83.164 at 100 feet
	Sref	none	log(len/lenref):	0.017			SEL/10	8.316
	K	none	10 log (len/lenref):	0.175			10^SEL/10:	2.07E+08

Wheel Rail	len definition	lentrain	S/Sref:	2.444	SELwheel rail:	98.94	Distance:	100 feet
	height	1	K log (S/Sref):	7.294			D/50	2
	SELref	91	lentrain	660	SEL/10	9.89	10*log(D/50)	3.010
	lenref	634	len/lenref:	1.041	10^SEL/10:	7.83E+09	SELwheel rail:	95.924 at 100 feet
	Sref	90	log (len/lenref):	0.017			SEL/10	9.592
	K	20	10 log (len/lenref):	0.175			10^SEL/10:	3.95E+09

AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222	SELaero nose:	84.780	Distance:	100 feet
	height	10	K log (S/Sref):	5.229			D/50	2
	SELref	89	lenpower(@nose):	82.5	SEL/10	9.478	20*log(D/50)	6.020
	lenref	73	len/lenref:	1.130	10^SEL/10:	2.99E+08	SELaero nose:	91.750 at 100 feet
	Sref	100	log (len/lenref):	0.053			SEL/10	9.175
	K	80	10 log (len/lenref):	0.531			10^SEL/10:	1.5E+09

AERO Wheel	len definition	lentrain	S/Sref:	1.222	SELaero wheel:	94.404	Distance:	100 feet
	height	5	K log (S/Sref):	5.229			D/50	2
	SELref	89	lentrain	660	SEL/10	9.440	10*log(D/50)	3.010
	lenref	634	len/lenref:	1.041	10^SEL/10:	2.76E+09	SELaero wheel:	91.293 at 100 feet
	Sref	183	log (len/lenref):	0.017			SEL/10	9.139
	K	80	10 log (len/lenref):	0.175			10^SEL/10:	1.4E+09

AERO Pantograph	len	NA	S/Sref:	1.222	SELaero pantograph:	91.229	Distance:	100 feet
	height	15	K log (S/Sref):	5.229			D/50	2
	SELref	86	lentrain	no length adjustment	SEL/10	9.123	10*log(D/50)	3.010
	lenref	NA	len/lenref:	no length adjustment	10^SEL/10:	1.33E+09	SELaero pantograph:	88.219 at 100 feet
	Sref	180	10 log (len/lenref):	no length adjustment			SEL/10	8.822
	K	60					10^SEL/10:	6.6E+08

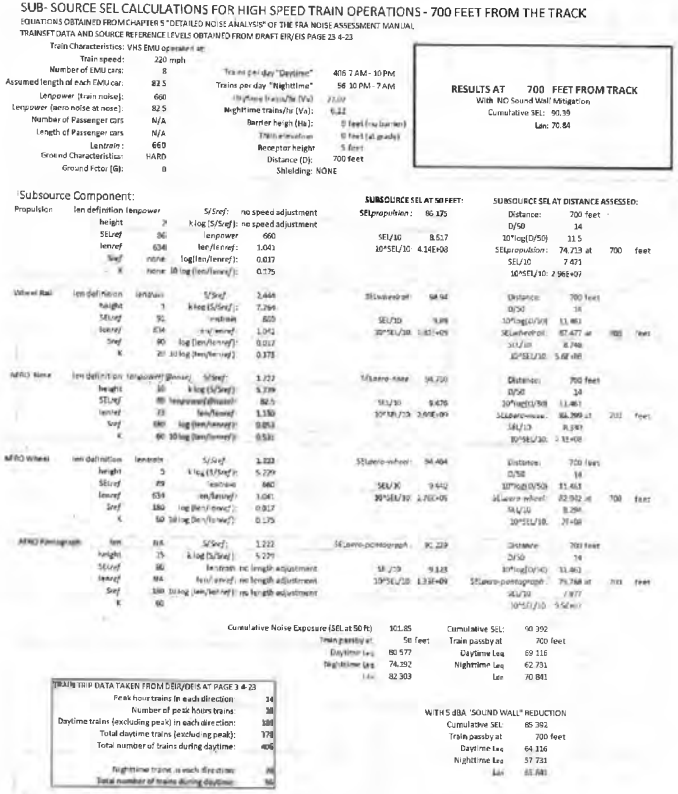
Cumulative Noise Exposure (SEL at 50 ft): 101.86
Train passby at: 50 feet
Daytime Leq: 80.577
Nighttime Leq: 74.392
Lde: 82.303

Cumulative SEL: 98.843
Train passby at: 100 feet
Daytime Leq: 77.567
Nighttime Leq: 71.187
Lde: 79.292

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3 4-23

Peak hour trains in each direction:	14
Number of peak hours trains:	28
Daytime trains (excluding peak) in each direction:	188
Total daytime trains (excluding peak):	376
Total number of trains during daytime:	406
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION
Cumulative SEL: 93.843
Train passby at: 100 feet
Daytime Leq: 72.567
Nighttime Leq: 66.182
Lde: 74.292



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 700 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23.4-23

Train Characteristics: VHS EMU operated at:

Train speed:	220 mph		
Number of EMU cars:	8	Trains per day "Daytime"	406 7 AM - 10 PM
Assumed length of each EMU car:	82.5	Trains per day "Nighttime"	56 10 PM - 7 AM
Lenpower (train noise):	660	Daytime trains/hr (Vd):	23.07
Lenpower (aero noise at nose):	82.5	Nighttime trains/hr (Vn):	6.22
Number of Passenger cars	N/A	Barrier height (Hb):	0 feet (no barrier)
Length of Passenger cars	N/A	Train elevation	0 feet (at grade)
Lentrain:	660	Receptor height	5 feet
Ground Characteristics:	HARD	Distance (D):	700 feet
Ground Fctor (G):	0	Shielding:	NONE

RESULTS AT 700 FEET FROM TRACK
With NO Sound Wall Mitigation
Cumulative SEL: 90.39
Lde: 70.84

Subsource Component:

Propulsion	len definition	lenpower	S/Sref:	no speed adjustment	SELpropulsion:	86.175	Distance:	700 feet
	height	3	K log (S/Sref):	no speed adjustment			D/50	14
	SELref	86	lenpower	660	SEL/10	8.617	10*log(D/50)	11.5
	lenref	634	len/lenref:	1.041	10^SEL/10:	4.14E+08	SELpropulsion:	74.713 at 700 feet
	Sref	none	log(len/lenref):	0.017			SEL/10	7.471
	K	none	10 log (len/lenref):	0.175			10^SEL/10:	2.96E+07

Wheel Rail	len definition	lentrain	S/Sref:	2.444	SELwheel rail:	98.94	Distance:	700 feet
	height	1	K log (S/Sref):	7.294			D/50	14
	SELref	91	lentrain	660	SEL/10	9.89	10*log(D/50)	11.461
	lenref	634	len/lenref:	1.041	10^SEL/10:	7.83E+09	SELwheel rail:	87.477 at 700 feet
	Sref	90	log (len/lenref):	0.017			SEL/10	8.748
	K	20	10 log (len/lenref):	0.175			10^SEL/10:	5.6E+08

AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222	SELaero nose:	84.780	Distance:	700 feet
	height	10	K log (S/Sref):	5.229			D/50	14
	SELref	89	lenpower(@nose):	82.5	SEL/10	9.478	10*log(D/50)	11.461
	lenref	73	len/lenref:	1.130	10^SEL/10:	2.99E+09	SELaero nose:	86.299 at 700 feet
	Sref	100	log (len/lenref):	0.053			SEL/10	8.630
	K	80	10 log (len/lenref):	0.531			10^SEL/10:	4.31E+08

AERO Wheel	len definition	lentrain	S/Sref:	1.222	SELaero wheel:	94.404	Distance:	700 feet
	height	5	K log (S/Sref):	5.229			D/50	14
	SELref	89	lentrain	660	SEL/10	9.440	10*log(D/50)	11.461
	lenref	634	len/lenref:	1.041	10^SEL/10:	2.76E+09	SELaero wheel:	82.942 at 700 feet
	Sref	180	log (len/lenref):	0.017			SEL/10	8.294
	K	60	10 log (len/lenref):	0.175			10^SEL/10:	2E+08

AERO Pantograph	len	NA	S/Sref:	1.222	SELaero pantograph:	91.229	Distance:	700 feet
	height	15	K log (S/Sref):	5.229			D/50	14
	SELref	86	lentrain	no length adjustment	SEL/10	9.123	10*log(D/50)	11.461
	lenref	NA	len/lenref:	no length adjustment	10^SEL/10:	1.33E+09	SELaero pantograph:	79.768 at 700 feet
	Sref	180	10 log (len/lenref):	no length adjustment			SEL/10	7.977
	K	60					10^SEL/10:	9.5E+07

Cumulative Noise Exposure (SEL at 50 ft): 101.86
Train passby at: 50 feet
Daytime Leq: 80.577
Nighttime Leq: 74.392
Lde: 82.303

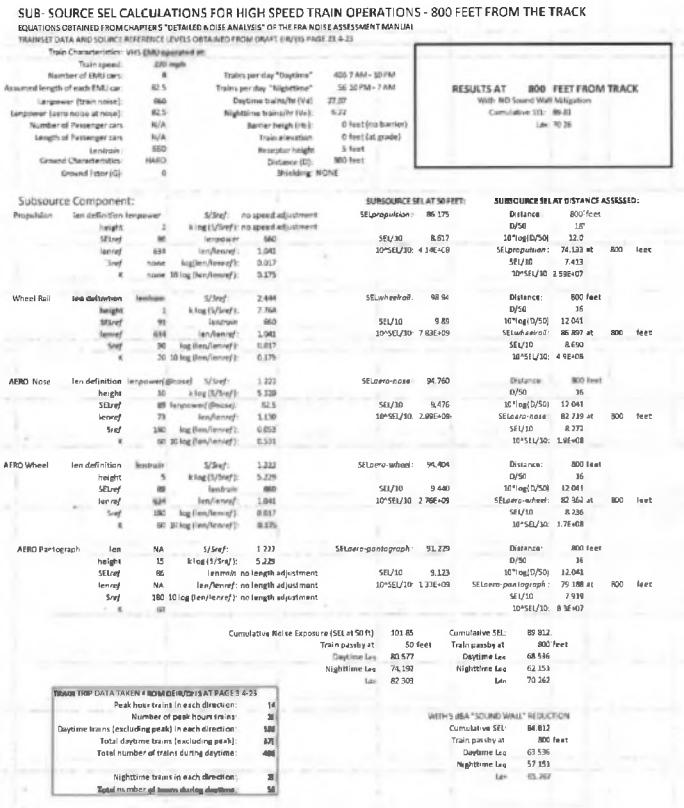
Cumulative SEL: 90.392
Train passby at: 700 feet
Daytime Leq: 69.116
Nighttime Leq: 62.731
Lde: 70.841

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3 4-23

Peak hour trains in each direction:	14
Number of peak hours trains:	28
Daytime trains (excluding peak) in each direction:	188
Total daytime trains (excluding peak):	378
Total number of trains during daytime:	406
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION
Cumulative SEL: 85.392
Train passby at: 700 feet
Daytime Leq: 64.116
Nighttime Leq: 57.731
Lde: 65.841

Submission 4518 (Don Henry, Acton Town Council, December 1, 2022) - Continued



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 800 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23 4-23

Train Characteristics: VHS EMU operated at:

Train speed: 220 mph

Number of EMU cars: 8

Assumed length of each EMU car: 82.5

Lenpower (train noise): 660

Lenpower (zero noise at nose): 82.5

Number of Passenger cars: N/A

Length of Passenger cars: N/A

Lentrain: 660

Ground Characteristics: HARD

Ground Factor (G): 0

Trains per day "Daytime": 406 7 AM - 10 PM

Trains per day "Nighttime": 56 10 PM - 7 AM

Daytime trains/hr (Ve): 27.07

Nighttime trains/hr (Ve): 6.22

Barrier heigh (Ha): 0 feet (no barrier)

Train elevation: 0 feet (at grade)

Receptor height: 5 feet

Distance (D): 800 feet

Shielding: NONE

RESULTS AT 800 FEET FROM TRACK

With NO Sound Wall Mitigation

Cumulative SEL: 89.81

Lde: 70.26

Subsource Component:

						SUBSOURCE SEL AT 50 FEET:		SUBSOURCE SEL AT DISTANCE ASSESSED:		
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment	SELpropulsion:	86.175	Distance:	800 feet		
	height	2	K log (S/Sref):	no speed adjustment			D/50	16		
	SEL ref	86	lenpower	660	SEL/10	8.617	10*log(D/50)	12.0		
	lenref	634	len/lenref:	1.041	10^SEL/10:	4.14E+08	SELpropulsion:	74.133 at	800	feet
	Sref	none	log(len/lenref):	0.017			SEL/10	7.413		
	K	none	10 log (len/lenref):	0.175			10^SEL/10	2.59E+07		
Wheel Rail	len definition	lentrain	S/Sref:	2.444	SELwheelrail:	98.94	Distance:	800 feet		
	height	1	K log (S/Sref):	7.764			D/50	16		
	SEL ref	93	lentrain	660	SEL/10	9.89	10*log(D/50)	12.041		
	lenref	634	len/lenref:	1.041	10^SEL/10:	7.83E+09	SELwheelrail:	86.897 at	800	feet
	Sref	90	log (len/lenref):	0.017			SEL/10	8.690		
	K	20	10 log (len/lenref):	0.175			10^SEL/10:	4.9E+08		
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222	SELaero-nose:	94.760	Distance:	800 feet		
	height	10	K log (S/Sref):	5.229			D/50	16		
	SEL ref	89	lenpower(@nose):	82.5	SEL/10	9.476	10*log(D/50)	12.041		
	lenref	73	len/lenref:	1.130	10^SEL/10:	2.98E+09	SELaero-nose:	82.739 at	800	feet
	Sref	180	log (len/lenref):	0.053			SEL/10	8.272		
	K	60	10 log (len/lenref):	0.531			10^SEL/10:	1.6E+08		
AERO Wheel	len definition	lentrain	S/Sref:	1.222	SELaero-wheel:	94.404	Distance:	800 feet		
	height	5	K log (S/Sref):	5.229			D/50	16		
	SEL ref	89	lentrain	660	SEL/10	9.440	10*log(D/50)	12.041		
	lenref	634	len/lenref:	1.041	10^SEL/10:	2.76E+09	SELaero-wheel:	82.362 at	800	feet
	Sref	180	log (len/lenref):	0.017			SEL/10	8.236		
	K	60	10 log (len/lenref):	0.175			10^SEL/10:	1.7E+08		
AERO Pantograph	len	NA	S/Sref:	1.222	SELaero-pantograph:	91.229	Distance:	800 feet		
	height	15	K log (S/Sref):	5.229			D/50	16		
	SEL ref	86	lentrain	no length adjustment	SEL/10	9.123	10*log(D/50)	12.041		
	lenref	NA	len/lenref:	no length adjustment	10^SEL/10:	1.31E+09	SELaero-pantograph:	79.188 at	800	feet
	Sref	180	10 log (len/lenref):	no length adjustment			SEL/10	7.919		
	K	60					10^SEL/10:	8.3E+07		

Cumulative Noise Exposure (SEL at 50 ft): 101.85

Train passby at: 50 feet

Daytime Leq: 80.577

Nighttime Leq: 74.193

Ldn: 82.303

Cumulative SEL: 89.812

Train passby at: 800 feet

Daytime Leq: 68.536

Nighttime Leq: 62.153

Ldn: 70.262

TRAIN TRIP DATA TAKEN FROM DEIR/EIS AT PAGE 3.4-23

Peak hour trains in each direction:	14
Number of peak hours trains:	28
Daytime trains (excluding peak) in each direction:	180
Total daytime trains (excluding peak):	870
Total number of trains during daytime:	400
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION

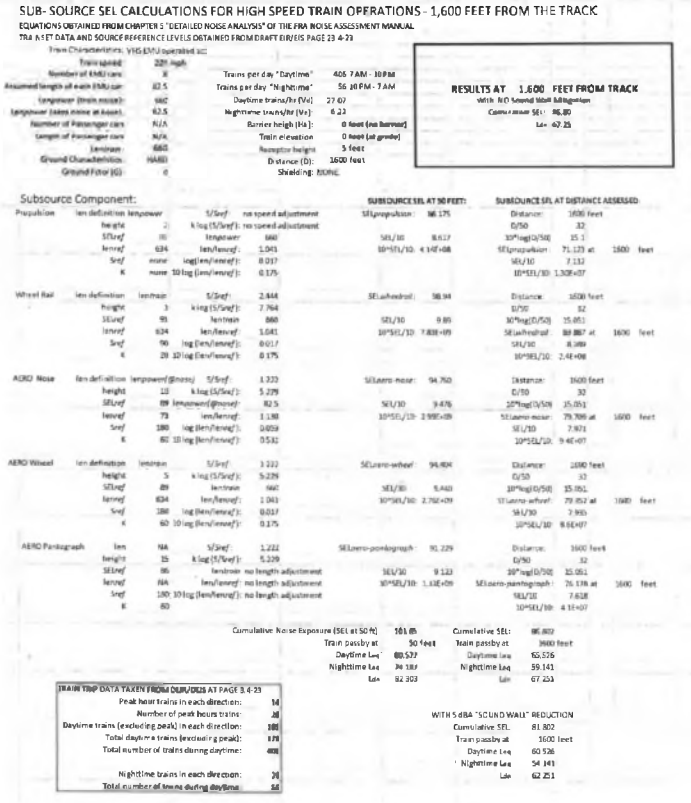
Cumulative SEL: 84.812

Train passby at: 800 feet

Daytime Leq: 63.536

Nighttime Leq: 57.153

Ldn: 65.262



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 1,600 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23 4-23

Train Characteristics: VHS EMU operated at:

Train speed: 220 mph

Number of EMU cars: 8

Assumed length of each EMU car: 82.5

Lenpower (train noise): 660

Lenpower (zero noise at nose): 82.5

Number of Passenger cars: N/A

Length of Passenger cars: N/A

Lenstrain: 660

Ground Characteristics: HARD

Ground Factor (G): 0

Trains per day "Daytime": 406 7 AM - 10 PM

Trains per day "Nighttime": 56 10 PM - 7 AM

Daytime trains/hr (Ve): 27.07

Nighttime trains/hr (Ve): 6.22

Barrier heigh (Ha): 0 feet (no barrier)

Train elevation: 0 feet (at grade)

Receptor height: 5 feet

Distance (D): 1600 feet

Shielding: NONE

RESULTS AT 1,600 FEET FROM TRACK

With NO Sound Wall Mitigation

Cumulative SEL: 86.80

Lde: 67.25

Subsource Component:

						SUBSOURCE SEL AT 50 FEET:		SUBSOURCE SEL AT DISTANCE ASSESSED:		
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment	SELpropulsion:	86.175	Distance:	1600 feet		
	height	2	K log (S/Sref):	no speed adjustment			D/50	32		
	SEL ref	86	lenpower	660	SEL/10	8.617	10*log(D/50)	15.1		
	lenref	634	len/lenref:	1.041	10^SEL/10:	4.14E+08	SELpropulsion:	71.123 at	1600	feet
	Sref	none	log(len/lenref):	0.017			SEL/10	7.112		
	K	none	10 log (len/lenref):	0.175			10^SEL/10:	1.30E+07		
Wheel Rail	len definition	lentrain	S/Sref:	2.444	SELwheelrail:	98.94	Distance:	1600 feet		
	height	3	K log (S/Sref):	7.764			D/50	32		
	SEL ref	93	lentrain	660	SEL/10	9.89	10*log(D/50)	15.051		
	lenref	634	len/lenref:	1.041	10^SEL/10:	7.83E+09	SELwheelrail:	80.867 at	1600	feet
	Sref	90	log (len/lenref):	0.017			SEL/10	8.087		
	K	20	10 log (len/lenref):	0.175			10^SEL/10:	2.4E+08		
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222	SELaero-nose:	94.760	Distance:	1600 feet		
	height	10	K log (S/Sref):	5.229			D/50	32		
	SEL ref	89	lenpower(@nose):	82.5	SEL/10	9.476	10*log(D/50)	15.051		
	lenref	73	len/lenref:	1.130	10^SEL/10:	2.98E+09	SELaero-nose:	79.709 at	1600	feet
	Sref	180	log (len/lenref):	0.053			SEL/10	7.971		
	K	60	10 log (len/lenref):	0.531			10^SEL/10:	9.4E+07		
AERO Wheel	len definition	lentrain	S/Sref:	1.222	SELaero-wheel:	94.404	Distance:	1600 feet		
	height	5	K log (S/Sref):	5.229			D/50	32		
	SEL ref	89	lentrain	660	SEL/10	9.440	10*log(D/50)	15.051		
	lenref	634	len/lenref:	1.041	10^SEL/10:	2.76E+09	SELaero-wheel:	79.452 at	1600	feet
	Sref	180	log (len/lenref):	0.017			SEL/10	7.945		
	K	60	10 log (len/lenref):	0.175			10^SEL/10:	8.8E+07		
AERO Pantograph	len	NA	S/Sref:	1.222	SELaero-pantograph:	91.229	Distance:	1600 feet		
	height	15	K log (S/Sref):	5.229			D/50	32		
	SEL ref	86	lentrain	no length adjustment	SEL/10	9.123	10*log(D/50)	15.051		
	lenref	NA	len/lenref:	no length adjustment	10^SEL/10:	1.31E+09	SELaero-pantograph:	76.176 at	1600	feet
	Sref	180	10 log (len/lenref):	no length adjustment			SEL/10	7.618		
	K	60					10^SEL/10:	4.3E+07		

Cumulative Noise Exposure (SEL at 50 ft): 101.85

Train passby at: 50 feet

Daytime Leq: 80.577

Nighttime Leq: 74.193

Ldn: 82.303

Cumulative SEL: 86.802

Train passby at: 1600 feet

Daytime Leq: 65.526

Nighttime Leq: 59.141

Ldn: 67.251

TRAIN TRIP DATA TAKEN FROM DEIR/EIS AT PAGE 3.4-23

Peak hour trains in each direction:	14
Number of peak hours trains:	28
Daytime trains (excluding peak) in each direction:	180
Total daytime trains (excluding peak):	870
Total number of trains during daytime:	400
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION

Cumulative SEL: 81.802

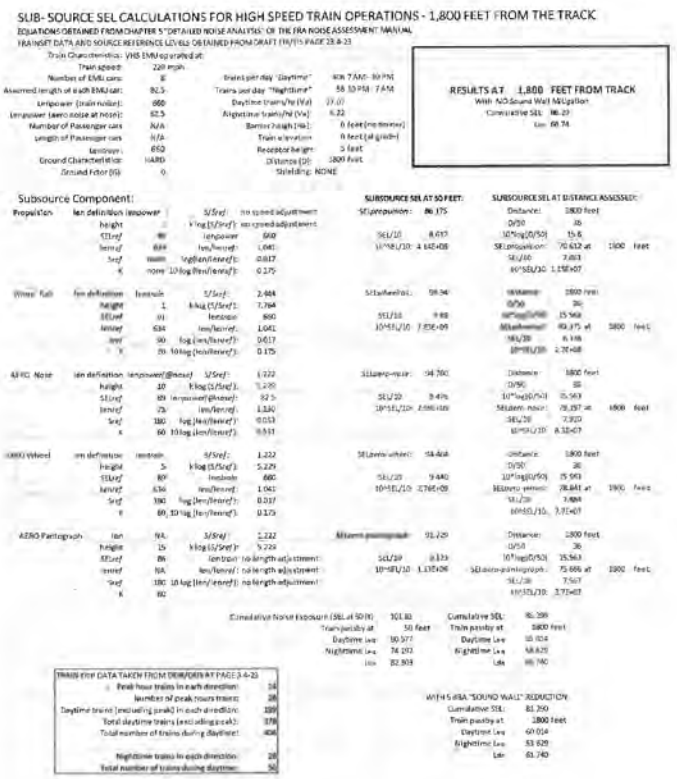
Train passby at: 1600 feet

Daytime Leq: 60.526

Nighttime Leq: 54.141

Ldn: 62.251

Submission 4518 (Don Henry, Acton Town Council, December 1, 2022) - Continued



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 1,800 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRANSIT DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 2.8-23

RESULTS AT 1,800 FEET FROM TRACK

With NO Sound Wall Mitigation

Cumulative SEL: 86.27

Ldn: 69.74

Subsource Component:

SUBSOURCE SEL AT 50 FEET:

SUBSOURCE SEL AT DISTANCE ASSESSED:

Propulsion

Wheel Rail

AERO Nose

AERO Wheel

AERO Pantograph

Cumulative Noise Exposure (SEL at 50 ft): 101.80

Train passby at: 50 feet

Daytime Leq: 90.577

Nighttime Leq: 74.193

Ldn: 82.903

Cumulative SEL: 86.266

Train passby at: 1800 feet

Daytime Leq: 69.014

Nighttime Leq: 58.629

Ldn: 66.740

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3.4-23

Peak hour trains in each direction: 14

Number of peak hours trains: 28

Daytime trains (excluding peak) in each direction: 189

Total daytime trains (excluding peak): 378

Total number of trains during daytime: 406

Nighttime trains in each direction: 28

Total number of trains during daytime: 56

WITH 5 dBA "SOUND WALL" REDUCTION

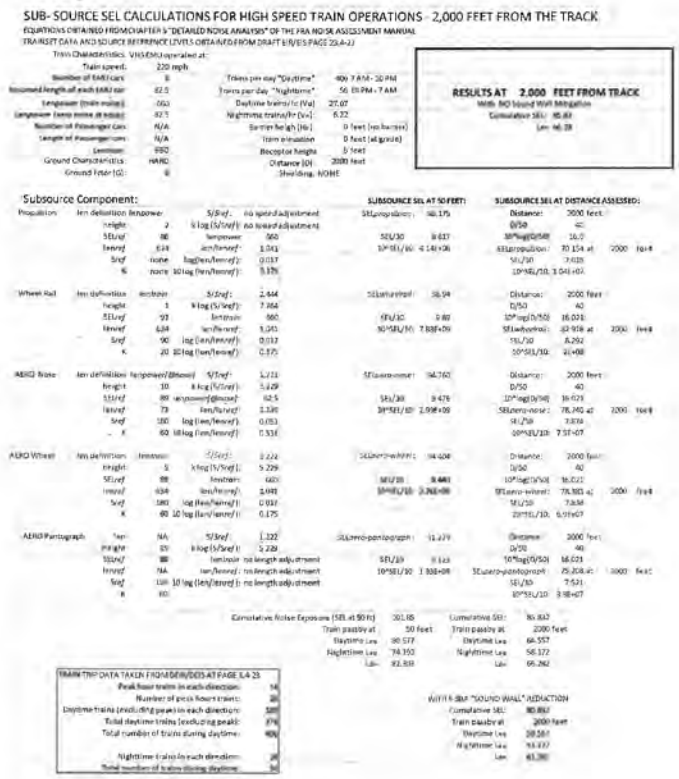
Cumulative SEL: 81.266

Train passby at: 1800 feet

Daytime Leq: 69.014

Nighttime Leq: 53.629

Ldn: 61.740



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 2,000 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRANSIT DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 2.8-23

RESULTS AT 2,000 FEET FROM TRACK

With NO Sound Wall Mitigation

Cumulative SEL: 85.84

Ldn: 68.28

Subsource Component:

SUBSOURCE SEL AT 50 FEET:

SUBSOURCE SEL AT DISTANCE ASSESSED:

Propulsion

Wheel Rail

AERO Nose

AERO Wheel

AERO Pantograph

Cumulative Noise Exposure (SEL at 50 ft): 101.85

Train passby at: 50 feet

Daytime Leq: 90.577

Nighttime Leq: 74.193

Ldn: 82.939

Cumulative SEL: 86.842

Train passby at: 2000 feet

Daytime Leq: 66.557

Nighttime Leq: 56.172

Ldn: 65.262

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3.4-23

Peak hour trains in each direction: 14

Number of peak hours trains: 28

Daytime trains (excluding peak) in each direction: 189

Total daytime trains (excluding peak): 378

Total number of trains during daytime: 406

Nighttime trains in each direction: 28

Total number of trains during daytime: 56

WITH 5 dBA "SOUND WALL" REDUCTION

Cumulative SEL: 80.842

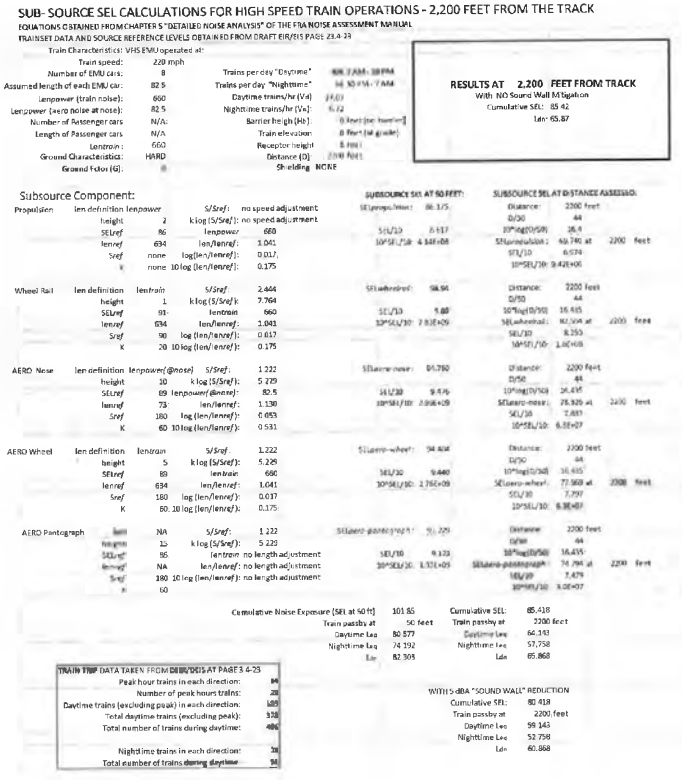
Train passby at: 2000 feet

Daytime Leq: 66.557

Nighttime Leq: 51.172

Ldn: 61.260

Submission 4518 (Don Henry, Acton Town Council, December 1, 2022) - Continued



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 2,200 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 2.4-23

Train Characteristics: VHS EMU operated at:

Train speed:	220 mph		
Number of EMU cars:	8	Trains per day "Daytime"	406 7 AM - 10 PM
Assumed length of each EMU car:	82.5	Trains per day "Nighttime"	56 10 PM - 7 AM
Lenpower (train noise):	660	Daytime trains/hr (Vd):	27.07
Lenpower (aero noise at nose):	82.5	Nighttime trains/hr (Vn):	8.22
Number of Passenger cars	N/A	Barrier height (Hb):	0 feet (no barrier)
Length of Passenger cars	N/A	Train elevation:	0 feet (at grade)
Lentrain:	660	Receptor height:	5 feet
Ground Characteristics:	HARD	Distance (D):	2200 feet
Ground Factor (G):	0	Shielding:	NONE

RESULTS AT 2,200 FEET FROM TRACK
With NO Sound Wall Mitigation
Cumulative SEL: 85.42
Ldn: 65.87

Subsource Component:

					SUBSOURCE SEL AT 50 FEET:	SUBSOURCE SEL AT DISTANCE ASSESSED:
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment	SELpropulsion: 86.375	Distance: 2200 feet
	height	2	k log (S/Sref):	no speed adjustment		D/50 44
	SELref	86	lenpower	660	SEL/10 8.637	10*log(D/50) 16.4
	lenref	634	len/lenref:	1.041	10^SEL/10: 4.34E+08	SELpropulsion: 69.740 at 2200 feet
	Sref	none	log(len/lenref):	0.017		SEL/10 8.674
	K	none	10 log (len/lenref):	0.175		10^SEL/10: 9.42E+06
Wheel Rail	len definition	lentrain	S/Sref:	2.444	SELwheelrail: 98.94	Distance: 2200 feet
	height	1	k log (S/Sref):	7.764		D/50 44
	SELref	93	lentrain	660	SEL/10 9.89	10*log(D/50) 16.415
	lenref	634	len/lenref:	1.041	10^SEL/10: 7.83E+09	SELwheelrail: 82.326 at 2200 feet
	Sref	90	log (len/lenref):	0.017		SEL/10 8.255
	K	20	10 log (len/lenref):	0.175		10^SEL/10: 1.6E+08
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222	SELaero-nose: 94.759	Distance: 2200 feet
	height	10	k log (S/Sref):	5.229		D/50 44
	SELref	89	lenpower(@nose):	82.5	SEL/10 9.476	10*log(D/50) 16.435
	lenref	73	len/lenref:	1.130	10^SEL/10: 2.99E+09	SELaero-nose: 76.925 at 2200 feet
	Sref	180	log (len/lenref):	0.053		SEL/10 7.693
	K	60	10 log (len/lenref):	0.531		10^SEL/10: 6.3E+07
AERO Wheel	len definition	lentrain	S/Sref:	1.222	SELaero-wheel: 94.404	Distance: 2200 feet
	height	5	k log (S/Sref):	5.229		D/50 44
	SELref	89	lentrain	660	SEL/10 9.440	10*log(D/50) 16.435
	lenref	634	len/lenref:	1.041	10^SEL/10: 2.75E+09	SELaero-wheel: 77.969 at 2200 feet
	Sref	180	log (len/lenref):	0.017		SEL/10 7.797
	K	60	10 log (len/lenref):	0.175		10^SEL/10: 6.0E+07
AERO Pantograph	len	NA	S/Sref:	1.222	SELaero-pantograph: 91.229	Distance: 2200 feet
	height	15	k log (S/Sref):	5.229		D/50 44
	SELref	86	lentrain	no length adjustment	SEL/10 9.123	10*log(D/50) 16.435
	lenref	NA	len/lenref:	no length adjustment	10^SEL/10: 1.32E+09	SELaero-pantograph: 74.794 at 2200 feet
	Sref	180	10 log (len/lenref):	no length adjustment		SEL/10 7.479
	K	60				10^SEL/10: 3.0E+07

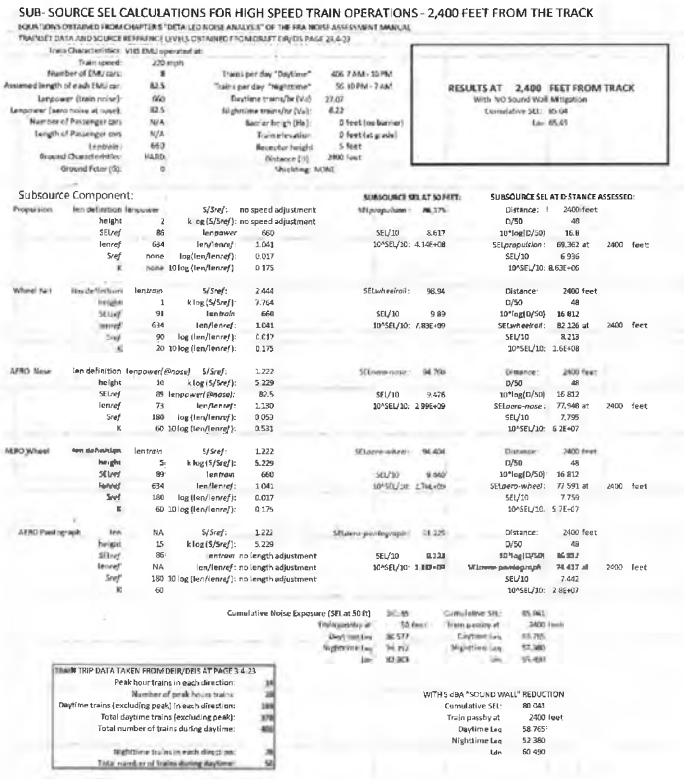
Cumulative Noise Exposure (SEL at 50 ft) 101.85
Train passby at 50 feet
Daytime Leq 80.577
Nighttime Leq 74.192
Ldn 82.369

Cumulative SEL: 85.418
Train passby at 2200 feet
Daytime Leq 64.193
Nighttime Leq 57.758
Ldn 65.868

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3.4-23

Peak hour trains in each direction:	14
Number of peak hours trains:	28
Daytime trains (excluding peak) in each direction:	185
Total daytime trains (excluding peak):	370
Total number of trains during daytime:	406
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION
Cumulative SEL: 80.418
Train passby at 2200 feet
Daytime Leq 59.143
Nighttime Leq 52.758
Ldn 60.868



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 2,400 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 2.4-23

Train Characteristics: VHS EMU operated at:

Train speed:	220 mph		
Number of EMU cars:	8	Trains per day "Daytime"	406 7 AM - 10 PM
Assumed length of each EMU car:	82.5	Trains per day "Nighttime"	56 10 PM - 7 AM
Lenpower (train noise):	660	Daytime trains/hr (Vd):	27.07
Lenpower (aero noise at nose):	82.5	Nighttime trains/hr (Vn):	8.22
Number of Passenger cars	N/A	Barrier height (Hb):	0 feet (no barrier)
Length of Passenger cars	N/A	Train elevation:	0 feet (at grade)
Lentrain:	660	Receptor height:	5 feet
Ground Characteristics:	HARD	Distance (D):	2400 feet
Ground Factor (G):	0	Shielding:	NONE

RESULTS AT 2,400 FEET FROM TRACK
With NO Sound Wall Mitigation
Cumulative SEL: 85.08
Ldn: 65.49

Subsource Component:

					SUBSOURCE SEL AT 50 FEET:	SUBSOURCE SEL AT DISTANCE ASSESSED:
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment	SELpropulsion: 86.375	Distance: 2400 feet
	height	2	k log (S/Sref):	no speed adjustment		D/50 48
	SELref	86	lenpower	660	SEL/10 8.617	10*log(D/50) 16.8
	lenref	634	len/lenref:	1.041	10^SEL/10: 4.14E+08	SELpropulsion: 69.362 at 2400 feet
	Sref	none	log(len/lenref):	0.017		SEL/10 8.936
	K	none	10 log (len/lenref):	0.175		10^SEL/10: 8.63E+06
Wheel Rail	len definition	lentrain	S/Sref:	2.444	SELwheelrail: 98.94	Distance: 2400 feet
	height	1	k log (S/Sref):	7.764		D/50 48
	SELref	93	lentrain	660	SEL/10 9.89	10*log(D/50) 16.812
	lenref	634	len/lenref:	1.041	10^SEL/10: 7.83E+09	SELwheelrail: 82.126 at 2400 feet
	Sref	90	log (len/lenref):	0.017		SEL/10 8.213
	K	20	10 log (len/lenref):	0.175		10^SEL/10: 1.6E+08
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222	SELaero-nose: 94.759	Distance: 2400 feet
	height	10	k log (S/Sref):	5.229		D/50 48
	SELref	89	lenpower(@nose):	82.5	SEL/10 9.476	10*log(D/50) 16.812
	lenref	73	len/lenref:	1.130	10^SEL/10: 2.99E+09	SELaero-nose: 77.948 at 2400 feet
	Sref	180	log (len/lenref):	0.053		SEL/10 7.795
	K	60	10 log (len/lenref):	0.531		10^SEL/10: 6.2E+07
AERO Wheel	len definition	lentrain	S/Sref:	1.222	SELaero-wheel: 94.404	Distance: 2400 feet
	height	5	k log (S/Sref):	5.229		D/50 48
	SELref	89	lentrain	660	SEL/10 9.440	10*log(D/50) 16.812
	lenref	634	len/lenref:	1.041	10^SEL/10: 2.76E+09	SELaero-wheel: 77.591 at 2400 feet
	Sref	180	log (len/lenref):	0.017		SEL/10 7.759
	K	60	10 log (len/lenref):	0.175		10^SEL/10: 5.7E+07
AERO Pantograph	len	NA	S/Sref:	1.222	SELaero-pantograph: 91.229	Distance: 2400 feet
	height	15	k log (S/Sref):	5.229		D/50 48
	SELref	86	lentrain	no length adjustment	SEL/10 9.123	10*log(D/50) 16.812
	lenref	NA	len/lenref:	no length adjustment	10^SEL/10: 1.32E+09	SELaero-pantograph: 74.417 at 2400 feet
	Sref	180	10 log (len/lenref):	no length adjustment		SEL/10 7.442
	K	60				10^SEL/10: 2.8E+07

Cumulative Noise Exposure (SEL at 50 ft) 101.85
Train passby at 50 feet
Daytime Leq 80.577
Nighttime Leq 74.192
Ldn 82.369

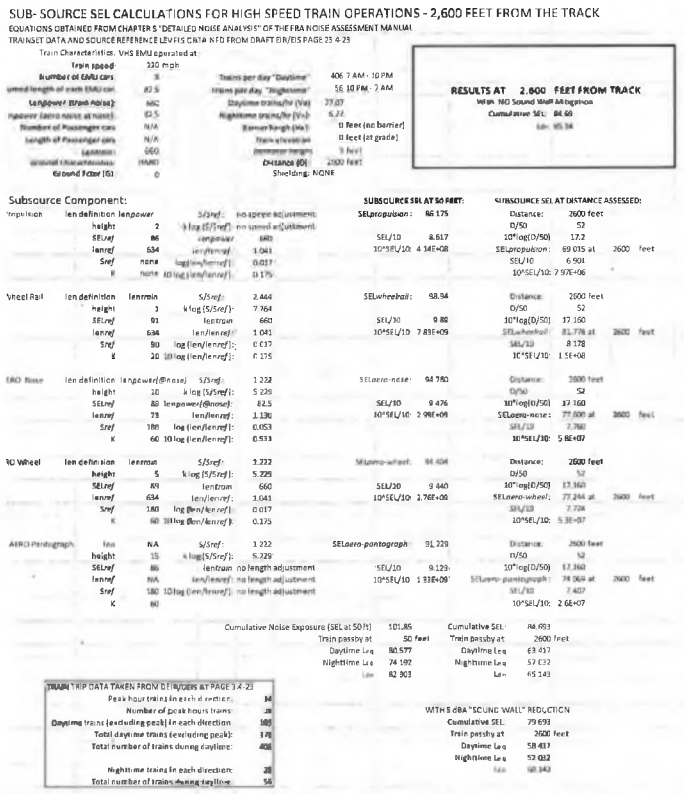
Cumulative SEL: 85.081
Train passby at 2400 feet
Daytime Leq 63.705
Nighttime Leq 57.380
Ldn 64.990

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3.4-23

Peak hour trains in each direction:	14
Number of peak hours trains:	28
Daytime trains (excluding peak) in each direction:	185
Total daytime trains (excluding peak):	370
Total number of trains during daytime:	406
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION
Cumulative SEL: 80.081
Train passby at 2400 feet
Daytime Leq 58.765
Nighttime Leq 52.380
Ldn 60.490

Submission 4518 (Don Henry, Acton Town Council, December 1, 2022) - Continued



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 2,600 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 3-4-23

Train Characteristics: VHS EMU operated at:

Train speed:	220 mph		
Number of EMU cars:	8	Trains per day "Daytime":	406 7 AM - 10 PM
Assumed length of each EMU car:	82.5	Trains per day "Nighttime":	56 10 PM - 7 AM
Lenpower (train noise):	660	Daytime trains/hr (Vd):	27.07
Lenpower (zero noise at nose):	82.5	Nighttime trains/hr (Vn):	6.22
Number of Passenger cars:	N/A	Barrier height (Hb):	0 feet (no barrier)
Length of Passenger cars:	N/A	Train elevation:	0 feet (at grade)
Lentrain:	660	Receptor height:	5 feet
Ground Characteristics:	HARD	Distance (D):	2600 feet
Ground Factor (G):	0	Shielding: NONE	

RESULTS AT 2,600 FEET FROM TRACK

With NO Sound Wall Mitigation

Cumulative SEL: 84.68

Ldn: 65.56

Subsource Component:

					SUBSOURCE SEL AT 50 FEET:	SUBSOURCE SEL AT DISTANCE ASSESSED:		
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment:	SELpropulsion: 86.175	Distance:	2600 feet	
	height	2	k log (S/Sref):	no speed adjustment		D/50	52	
	SELref	86	lenpower	660		SELref 86	10*log(D/50)	17.2
	lenref	634	len/lenref:	1.041		10^SEL/10: 4.14E+08	SELpropulsion:	69.015 at 2600 feet
	Sref	none	log(len/lenref):	0.017			SEL/10	6.901
	K	none	10 log (len/lenref):	0.175			10^SEL/10:	7.97E+06
Wheel Rail	len definition	lentrain	S/Sref:	2.448	SELwheelrail: 98.94	Distance:	2600 feet	
	height	1	k log (S/Sref):	7.764		D/50	52	
	SELref	91	lentrain	660		SEL/10 9.89	10*log(D/50)	17.160
	lenref	634	len/lenref:	1.041		10^SEL/10: 7.83E+09	SELwheelrail:	81.778 at 2600 feet
	Sref	90	log (len/lenref):	0.017			SEL/10	8.178
	K	20	10 log (len/lenref):	0.175			10^SEL/10:	1.5E+08
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222	SELaero-nose: 94.780	Distance:	3600 feet	
	height	10	k log (S/Sref):	5.229		D/50	72	
	SELref	89	lenpower(@nose):	82.5		SEL/10 9.478	10*log(D/50)	18.574
	lenref	73	len/lenref:	1.130		10^SEL/10: 2.98E+09	SELaero-nose:	77.800 at 3600 feet
	Sref	180	log (len/lenref):	0.053			SEL/10	7.760
	K	60	10 log (len/lenref):	0.533			10^SEL/10:	5.8E+07
AERO Wheel	len definition	lentrain	S/Sref:	1.222	SELaero-wheel: 94.404	Distance:	2600 feet	
	height	5	k log (S/Sref):	5.229		D/50	52	
	SELref	89	lentrain	660		SEL/10 9.440	10*log(D/50)	17.160
	lenref	634	len/lenref:	1.041		10^SEL/10: 2.76E+09	SELaero-wheel:	77.244 at 2600 feet
	Sref	180	log (len/lenref):	0.017			SEL/10	7.724
	K	60	10 log (len/lenref):	0.175			10^SEL/10:	5.3E+07
AERO Pantograph	len	NA	S/Sref:	1.222	SELaero-pantograph: 91.229	Distance:	2600 feet	
	height	15	k log (S/Sref):	5.229		D/50	52	
	SELref	86	lentrain	no length adjustment		SEL/10 9.123	10*log(D/50)	17.160
	lenref	NA	len/lenref:	no length adjustment		10^SEL/10: 1.31E+09	SELaero-pantograph:	74.064 at 2600 feet
	Sref	180	10 log (len/lenref):	no length adjustment			SEL/10	7.407
	K	60					10^SEL/10:	2.6E+07

Cumulative Noise Exposure (SEL at 50 ft): 101.85

Train passby at: 50 feet

Daytime Leq: 80.577

Nighttime Leq: 74.192

Ldn: 82.903

Cumulative SEL: 86.693

Train passby at: 2600 feet

Daytime Leq: 63.417

Nighttime Leq: 57.032

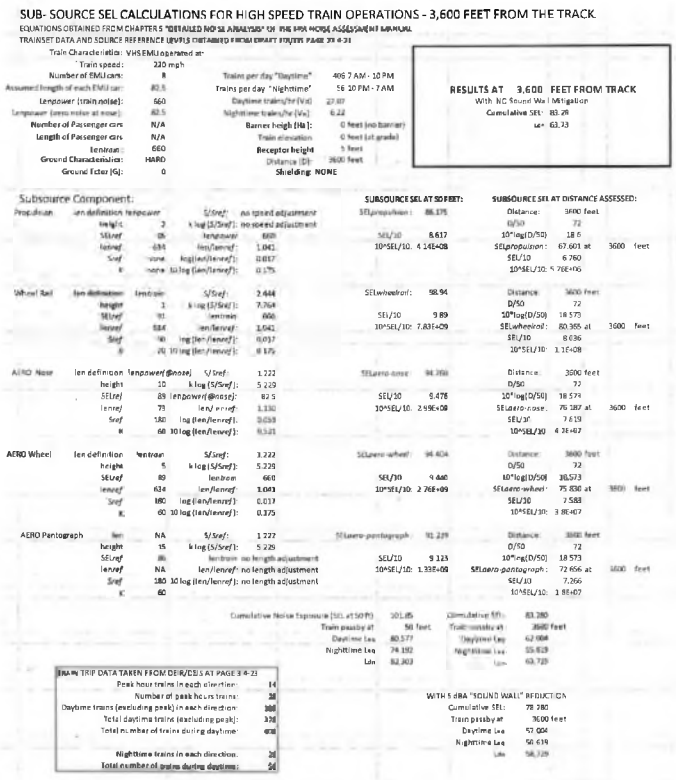
Ldn: 65.143

TRAIN TRIP DATA TAKEN FROM DEIR/EIS AT PAGE 3.4-23

Peak hour trains in each direction:	14
Number of peak hours trains:	28
Daytime trains (excluding peak) in each direction:	189
Total daytime trains (excluding peak):	378
Total number of trains during daytime:	406
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION

Cumulative SEL:	79.693
Train passby at	2600 feet
Daytime Leq	58.417
Nighttime Leq	52.032
Ldn	60.143



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 3,600 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 3-4-23

Train Characteristics: VHS EMU operated at:

Train speed:	220 mph		
Number of EMU cars:	8	Trains per day "Daytime":	406 7 AM - 10 PM
Assumed length of each EMU car:	82.5	Trains per day "Nighttime":	56 10 PM - 7 AM
Lenpower (train noise):	660	Daytime trains/hr (Vd):	27.07
Lenpower (zero noise at nose):	82.5	Nighttime trains/hr (Vn):	6.22
Number of Passenger cars:	N/A	Barrier height (Hb):	0 feet (no barrier)
Length of Passenger cars:	N/A	Train elevation:	0 feet (at grade)
Lentrain:	660	Receptor height:	5 feet
Ground Characteristics:	HARD	Distance (D):	3600 feet
Ground Factor (G):	0	Shielding: NONE	

RESULTS AT 3,600 FEET FROM TRACK

With NO Sound Wall Mitigation

Cumulative SEL: 83.28

Ldn: 63.33

Subsource Component:

					SUBSOURCE SEL AT 50 FEET:	SUBSOURCE SEL AT DISTANCE ASSESSED:		
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment	SELpropulsion: 86.175	Distance:	3600 feet	
	height	2	k log (S/Sref):	no speed adjustment		D/50	72	
	SELref	86	lenpower	660		SEL/10 8.617	10*log(D/50)	18.6
	lenref	634	len/lenref:	1.041		10^SEL/10: 4.14E+08	SELpropulsion:	67.601 at 3600 feet
	Sref	none	log(len/lenref):	0.017			SEL/10	6.760
	K	none	10 log (len/lenref):	0.175			10^SEL/10:	4.76E+06
Wheel Rail	len definition	lentrain	S/Sref:	2.448	SELwheelrail: 98.94	Distance:	3600 feet	
	height	1	k log (S/Sref):	7.764		D/50	72	
	SELref	91	lentrain	660		SEL/10 9.89	10*log(D/50)	18.573
	lenref	634	len/lenref:	1.041		10^SEL/10: 7.83E+09	SELwheelrail:	80.365 at 3600 feet
	Sref	90	log (len/lenref):	0.017			SEL/10	8.036
	K	20	10 log (len/lenref):	0.175			10^SEL/10:	1.1E+08
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222	SELaero-nose: 94.780	Distance:	3600 feet	
	height	10	k log (S/Sref):	5.229		D/50	72	
	SELref	89	lenpower(@nose):	82.5		SEL/10 9.478	10*log(D/50)	18.574
	lenref	73	len/lenref:	1.130		10^SEL/10: 2.98E+09	SELaero-nose:	76.187 at 3600 feet
	Sref	180	log (len/lenref):	0.053			SEL/10	7.619
	K	60	10 log (len/lenref):	0.533			10^SEL/10:	4.3E+07
AERO Wheel	len definition	lentrain	S/Sref:	1.222	SELaero-wheel: 94.404	Distance:	3600 feet	
	height	5	k log (S/Sref):	5.229		D/50	72	
	SELref	89	lentrain	660		SEL/10 9.440	10*log(D/50)	18.573
	lenref	634	len/lenref:	1.041		10^SEL/10: 2.76E+09	SELaero-wheel:	75.830 at 3600 feet
	Sref	180	log (len/lenref):	0.017			SEL/10	7.583
	K	60	10 log (len/lenref):	0.175			10^SEL/10:	3.8E+07
AERO Pantograph	len	NA	S/Sref:	1.222	SELaero-pantograph: 91.229	Distance:	3600 feet	
	height	15	k log (S/Sref):	5.229		D/50	72	
	SELref	86	lentrain	no length adjustment		SEL/10 9.123	10*log(D/50)	18.573
	lenref	NA	len/lenref:	no length adjustment		10^SEL/10: 1.31E+09	SELaero-pantograph:	72.656 at 3600 feet
	Sref	180	10 log (len/lenref):	no length adjustment			SEL/10	7.266
	K	60					10^SEL/10:	1.8E+07

Cumulative Noise Exposure (SEL at 50 ft): 101.85

Train passby at: 50 feet

Daytime Leq: 80.577

Nighttime Leq: 74.192

Ldn: 82.903

Cumulative SEL: 83.280

Train passby at: 3600 feet

Daytime Leq: 62.004

Nighttime Leq: 55.619

Ldn: 63.729

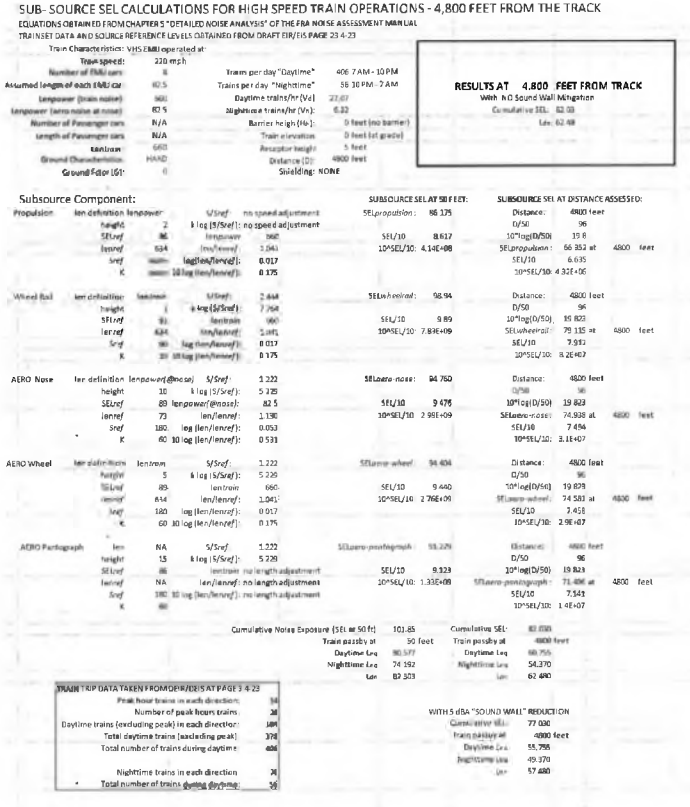
TRAIN TRIP DATA TAKEN FROM DEIR/EIS AT PAGE 3.4-23

Peak hour trains in each direction:	14
Number of peak hours trains:	28
Daytime trains (excluding peak) in each direction:	189
Total daytime trains (excluding peak):	378
Total number of trains during daytime:	406
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION

Cumulative SEL:	78.280
Train passby at	3600 feet
Daytime Leq	57.004
Nighttime Leq	50.619
Ldn	58.729

Submission 4518 (Don Henry, Acton Town Council, December 1, 2022) - Continued



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 4,800 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23 4-23

Train Characteristics: VHS EMU operated at:

Train speed:	220 mph		
Number of EMU cars:	8	Trains per day "Daytime"	406 7 AM - 10 PM
Assumed length of each EMU car:	82.5	Trains per day "Nighttime"	56 10 PM - 7 AM
Lenpower (train noise):	660	Daytime trains/hr (Vd):	27.07
Lenpower (aero noise at nose):	82.5	Nighttime trains/hr (Vn):	6.22
Number of Passenger cars:	N/A	Barrier heigh (Hb):	0 feet (no barrier)
Length of Passenger cars:	N/A	Train elevation:	0 feet (at grade)
Lentrain:	660	Receptor height:	5 feet
Ground Characteristics:	HARD	Distance (D):	4800 feet
Ground Fctor (G):	0	Shielding: NONE	

RESULTS AT 4,800 FEET FROM TRACK
With NO Sound Wall Mitigation
Cumulative SEL: 82.03
Leq: 62.48

Subsource Component:

					SUBSOURCE SEL AT 50 FEET:		SUBSOURCE SEL AT DISTANCE ASSESSED:		
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment	SELpropulsion:	86.175	Distance:	4800 feet	
	height	2	k log (S/Sref):	no speed adjustment			D/50	96	
	SELref	86	lenpower	660	SEL/10	8.617	10*log(D/50)	19.8	
	lenref	634	len/lenref:	1.041	10^SEL/10:	4.14E+08	SELpropulsion:	66.352 at	4800 feet
	Sref	none	log(len/lenref):	0.017			SEL/10	6.635	
	K	none	10 log (len/lenref):	0.175			10^SEL/10:	4.32E+06	
Wheel Rail	len definition	lentrain	S/Sref:	2.444	SELwheelrail:	98.94	Distance:	4800 feet	
	height	1	k log (S/Sref):	7.764			D/50	96	
	SELref	91	lentrain	660	SEL/10	9.89	10*log(D/50):	19.823	
	lenref	634	len/lenref:	1.041	10^SEL/10:	7.83E+09	SELwheelrail:	79.135 at	4800 feet
	Sref	90	log (len/lenref):	0.017			SEL/10	7.913	
	K	20	10 log (len/lenref):	0.175			10^SEL/10:	8.2E+07	
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222	SELaero-nose:	94.760	Distance:	4800 feet	
	height	10	k log (S/Sref):	5.229			D/50	96	
	SELref	89	lenpower(@nose):	82.5	SEL/10	9.476	10*log(D/50)	19.823	
	lenref	73	len/lenref:	1.130	10^SEL/10:	2.98E+09	SELaero-nose:	74.938 at	4800 feet
	Sref	180	log (len/lenref):	0.053			SEL/10	7.494	
	K	60	10 log (len/lenref):	0.531			10^SEL/10:	3.1E+07	
AERO Wheel	len definition	lentrain	S/Sref:	1.222	SELaero-wheel:	94.404	Distance:	4800 feet	
	height	5	k log (S/Sref):	5.229			D/50	96	
	SELref	89	lentrain	660	SEL/10	9.440	10*log(D/50)	19.823	
	lenref	634	len/lenref:	1.041	10^SEL/10:	2.76E+09	SELaero-wheel:	74.583 at	4800 feet
	Sref	180	log (len/lenref):	0.017			SEL/10	7.458	
	K	60	10 log (len/lenref):	0.175			10^SEL/10:	2.9E+07	
AERO Pantograph	len	NA	S/Sref:	1.222	SELaero-pantograph:	91.229	Distance:	4800 feet	
	height	15	k log (S/Sref):	5.229			D/50	96	
	SELref	86	lentrain: no length adjustment		SEL/10	9.123	10*log(D/50)	19.823	
	lenref	NA	len/lenref:	no length adjustment	10^SEL/10:	1.33E+09	SELaero-pantograph:	71.406 at	4800 feet
	Sref	180	10 log (len/lenref):	no length adjustment			SEL/10	7.143	
	K	60					10^SEL/10:	1.4E+07	

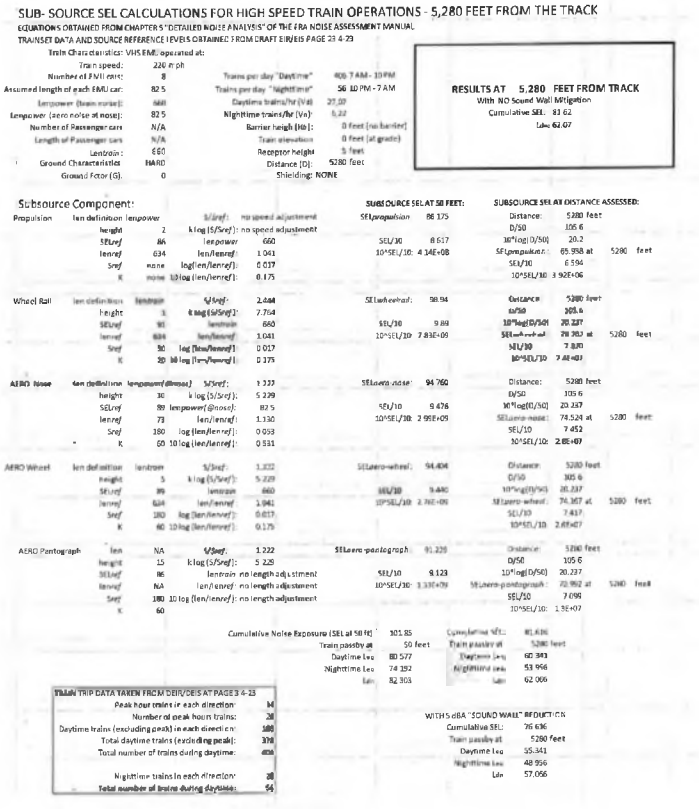
Cumulative Noise Exposure (SEL at 50 ft): 101.85
Train passby at: 50 feet
Daytime Leq: 80.577
Nighttime Leq: 74.192
Ldn: 82.303

Cumulative SEL: 82.030
Train passby at: 4800 feet
Daytime Leq: 60.795
Nighttime Leq: 54.370
Ldn: 62.490

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3 4-23

Peak hour trains in each direction:	14
Number of peak hours trains:	2
Daytime trains (excluding peak) in each direction:	188
Total daytime trains (excluding peak):	376
Total number of trains during daytime:	404
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION
Cumulative SEL: 77.030
Train passby at: 4800 feet
Daytime Leq: 55.795
Nighttime Leq: 49.370
Ldn: 57.490



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 5,280 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23 4-23

Train Characteristics: VHS EMU operated at:

Train speed:	220 mph		
Number of EMU cars:	8	Trains per day "Daytime"	406 7 AM - 10 PM
Assumed length of each EMU car:	82.5	Trains per day "Nighttime"	56 10 PM - 7 AM
Lenpower (train noise):	660	Daytime trains/hr (Vd):	27.07
Lenpower (aero noise at nose):	82.5	Nighttime trains/hr (Vn):	6.22
Number of Passenger cars:	N/A	Barrier heigh (Hb):	0 feet (no barrier)
Length of Passenger cars:	N/A	Train elevation:	0 feet (at grade)
Lentrain:	660	Receptor height:	5 feet
Ground Characteristics:	HARD	Distance (D):	5280 feet
Ground Fctor (G):	0	Shielding: NONE	

RESULTS AT 5,280 FEET FROM TRACK
With NO Sound Wall Mitigation
Cumulative SEL: 83.62
Leq: 62.07

Subsource Component:

					SUBSOURCE SEL AT 50 FEET:		SUBSOURCE SEL AT DISTANCE ASSESSED:		
Propulsion	len definition	lenpower	S/Sref:	no speed adjustment	SELpropulsion	86.175	Distance:	5280 feet	
	height	2	k log (S/Sref):	no speed adjustment			D/50	105.6	
	SELref	86	lenpower	660	SEL/10	8.617	10*log(D/50)	20.2	
	lenref	634	len/lenref:	1.041	10^SEL/10:	4.14E+08	SELpropulsion:	65.958 at	5280 feet
	Sref	none	log(len/lenref):	0.017			SEL/10	6.594	
	K	none	10 log (len/lenref):	0.175			10^SEL/10:	3.92E+06	
Wheel Rail	len definition	lentrain	S/Sref:	2.444	SELwheelrail:	98.94	Distance:	5280 feet	
	height	1	k log (S/Sref):	7.764			D/50	105.6	
	SELref	91	lentrain	660	SEL/10	9.89	10*log(D/50)	20.227	
	lenref	634	len/lenref:	1.041	10^SEL/10:	7.83E+09	SELwheelrail:	79.353 at	5280 feet
	Sref	90	log (len/lenref):	0.017			SEL/10	7.935	
	K	20	10 log (len/lenref):	0.175			10^SEL/10:	7.8E+07	
AERO Nose	len definition	lenpower(@nose)	S/Sref:	1.222	SELaero-nose:	94.760	Distance:	5280 feet	
	height	10	k log (S/Sref):	5.229			D/50	105.6	
	SELref	89	lenpower(@nose):	82.5	SEL/10	9.476	10*log(D/50)	20.237	
	lenref	73	len/lenref:	1.130	10^SEL/10:	2.98E+09	SELaero-nose:	74.524 at	5280 feet
	Sref	180	log (len/lenref):	0.053			SEL/10	7.452	
	K	60	10 log (len/lenref):	0.531			10^SEL/10:	2.8E+07	
AERO Wheel	len definition	lentrain	S/Sref:	1.222	SELaero-wheel:	94.404	Distance:	5280 feet	
	height	5	k log (S/Sref):	5.229			D/50	105.6	
	SELref	89	lentrain	660	SEL/10	9.440	10*log(D/50)	20.237	
	lenref	634	len/lenref:	1.041	10^SEL/10:	2.76E+09	SELaero-wheel:	74.367 at	5280 feet
	Sref	180	log (len/lenref):	0.017			SEL/10	7.417	
	K	60	10 log (len/lenref):	0.175			10^SEL/10:	2.6E+07	
AERO Pantograph	len	NA	S/Sref:	1.222	SELaero-pantograph:	91.229	Distance:	5280 feet	
	height	15	k log (S/Sref):	5.229			D/50	105.6	
	SELref	86	lentrain: no length adjustment		SEL/10	9.123	10*log(D/50)	20.237	
	lenref	NA	len/lenref:	no length adjustment	10^SEL/10:	1.33E+09	SELaero-pantograph:	70.992 at	5280 feet
	Sref	180	10 log (len/lenref):	no length adjustment			SEL/10	7.099	
	K	60					10^SEL/10:	1.3E+07	

Cumulative Noise Exposure (SEL at 50 ft): 101.85
Train passby at: 50 feet
Daytime Leq: 80.577
Nighttime Leq: 74.192
Ldn: 82.303

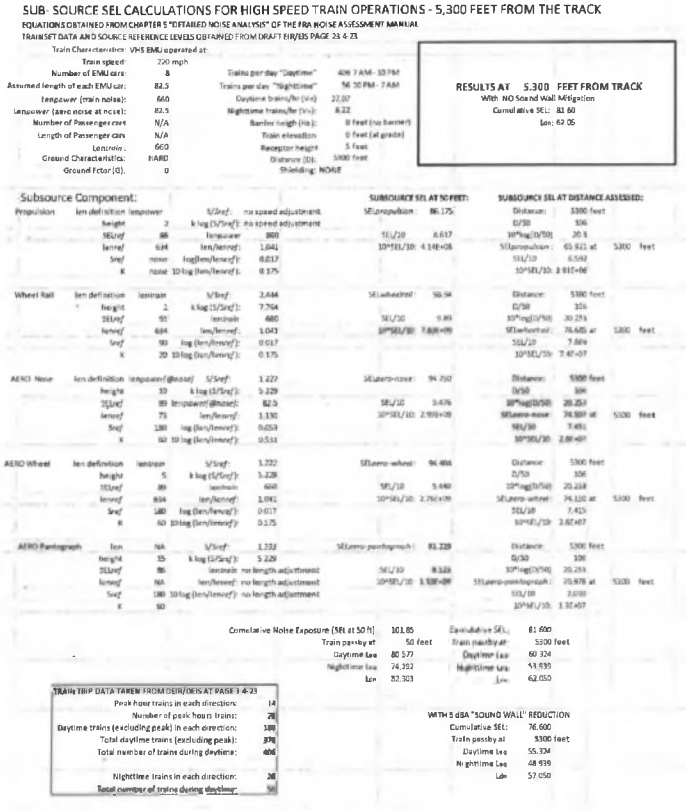
Cumulative SEL: 83.620
Train passby at: 5280 feet
Daytime Leq: 60.393
Nighttime Leq: 53.966
Ldn: 62.066

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3 4-23

Peak hour trains in each direction:	14
Number of peak hours trains:	2
Daytime trains (excluding peak) in each direction:	188
Total daytime trains (excluding peak):	376
Total number of trains during daytime:	404
Nighttime trains in each direction:	28
Total number of trains during daytime:	56

WITH 5 dBA "SOUND WALL" REDUCTION
Cumulative SEL: 76.636
Train passby at: 5280 feet
Daytime Leq: 55.341
Nighttime Leq: 48.916
Ldn: 57.066

Submission 4518 (Don Henry, Acton Town Council, December 1, 2022) - Continued



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 5,300 FEET FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23 4-23

RESULTS AT 5,300 FEET FROM TRACK
With NO Sound Wall Mitigation
Cumulative SEL: 81.60
Leq: 62.05

Subsource Component:

SUBSOURCE SEL AT 50 FEET:

SUBSOURCE SEL AT DISTANCE ASSESSED:

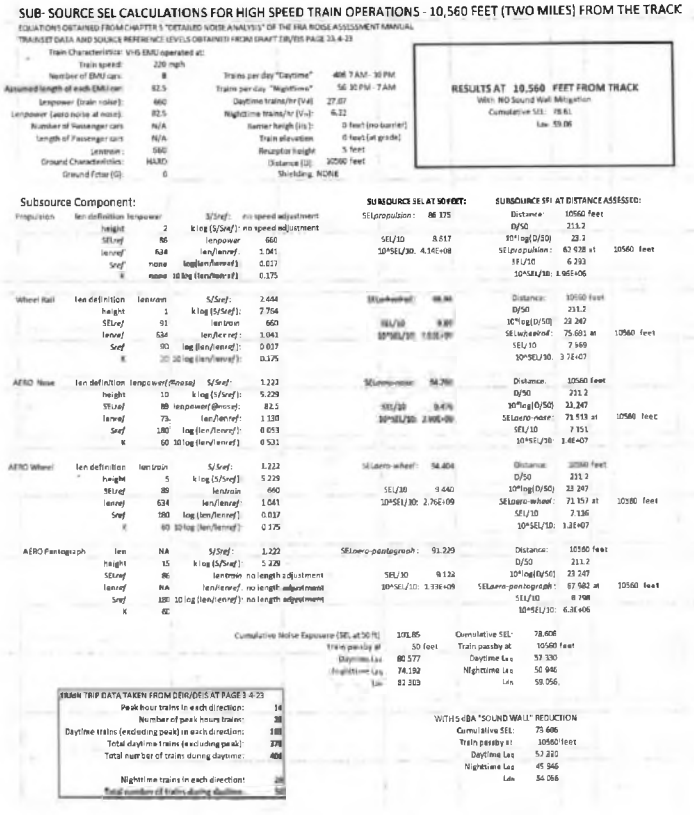
Cumulative Noise Exposure (SEL at 50 ft) 101.85
Train passby at 50 feet
Daytime Leq 80.577
Nighttime Leq 74.192
Ldn 82.303

Cumulative SEL: 81.600
Train passby at 5300 feet
Daytime Leq 60.324
Nighttime Leq 54.939
Ldn 62.050

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3 4-23

Peak hour trains in each direction: 14
Number of peak hours trains: 28
Daytime trains (excluding peak) in each direction: 188
Total daytime trains (excluding peak): 376
Total number of trains during daytime: 404
Nighttime trains in each direction: 28

WITH 5 dBA "SOUND WALL" REDUCTION
Cumulative SEL: 76.600
Train passby at 5300 feet
Daytime Leq 55.324
Nighttime Leq 48.939
Ldn 57.050



SUB- SOURCE SEL CALCULATIONS FOR HIGH SPEED TRAIN OPERATIONS - 10,560 FEET (TWO MILES) FROM THE TRACK

EQUATIONS OBTAINED FROM CHAPTER 5 "DETAILED NOISE ANALYSIS" OF THE FRA NOISE ASSESSMENT MANUAL

TRAINSET DATA AND SOURCE REFERENCE LEVELS OBTAINED FROM DRAFT EIR/EIS PAGE 23 4-23

RESULTS AT 10,560 FEET FROM TRACK
With NO Sound Wall Mitigation
Cumulative SEL: 78.61
Leq: 59.06

Subsource Component:

SUBSOURCE SEL AT 50 FEET:

SUBSOURCE SEL AT DISTANCE ASSESSED:

Cumulative Noise Exposure (SEL at 50 ft) 101.85
Train passby at 50 feet
Daytime Leq 80.577
Nighttime Leq 74.192
Ldn 82.303

Cumulative SEL: 78.608
Train passby at 10560 feet
Daytime Leq 57.330
Nighttime Leq 50.946
Ldn 59.056

TRAIN TRIP DATA TAKEN FROM DEIR/DEIS AT PAGE 3 4-23

Peak hour trains in each direction: 14
Number of peak hours trains: 28
Daytime trains (excluding peak) in each direction: 188
Total daytime trains (excluding peak): 376
Total number of trains during daytime: 404
Nighttime trains in each direction: 28

WITH 5 dBA "SOUND WALL" REDUCTION
Cumulative SEL: 73.606
Train passby at: 10560 feet
Daytime Leq 52.330
Nighttime Leq 45.946
Ldn 54.056

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ATTACHMENT 2

Brochure titled "How Do High-Speed Train Noise Levels Compare to Traditional Trains?"
(Source: California High Speed Rail Authority)

CALIFORNIA High-Speed Rail Authority

NOISE AND HIGH-SPEED RAIL • 2018

How Do High-Speed Train Noise Levels Compare to Traditional Trains?

Four major factors make high-speed trains operate at generally quieter levels than conventional passenger and freight rail services.

DURATION OF NOISE DISTURBANCE*



HIGH-SPEED TRAIN
TRAIN LENGTH: 1,300 FT.
SPEED: 220 MPH

FREIGHT TRAIN
TRAIN LENGTH: 1 MILE
SPEED: 50 MPH

*based on typical train-length and speed capabilities.

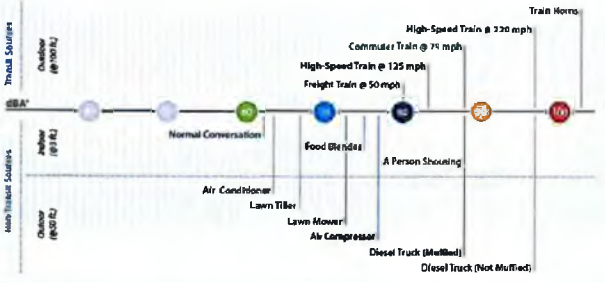
1. Train Speed
The duration of noise is brief for high-speed trains when compared to traditional train systems which take longer to pass.

2. Electric Trains
High-speed trains are powered by an electric propulsion system which, when compared to the more common diesel train engines, generate significantly less noise.

3. Auditory Warning Systems
Portions of high-speed train systems that operate on grade-separated track will not require sounding bells and warning horns that are necessary for traditional railroad crossings.

4. Hours of Operation
Unlike some passenger train services and many major freight routes which operate through the night, there will not be any high-speed rail service scheduled between the hours of midnight and 5 a.m. when people are most sensitive to noise.

THE SOUND OF HIGH-SPEED TRAIN TRAVEL
Typical Maximum Noise Levels Before Mitigation



*A-weighted decibels (dBA) are an expression of the relative loudness of sounds in air as perceived by the human ear.

ATTACHMENT 3

Excerpts From a Letter Submitted by the Acton Town Council to CHSRA in 2016 Analyzing the Efficacy of FRA "Noise Impact Criteria".
(Source: California High Speed Rail Authority)

FRA 's "Noise Impact Criteria" that will be Used in the Palmdale-Burbank DEIR Fail to Properly Consider Noise Impacts on Rural and other "Non-Urban" Areas.

The HSR "Noise Impact Criteria" which CHSRA intends to implement for the Palmdale-Burbank segment EIR are published in the FRA Manual [Figure 3-1] and they establish three impact categories: "no impact", "moderate impact", and "severe impact". It is understood that CHSRA will not consider project modifications or implement mitigation measures unless HSR noise impacts exceed the "severe" thresholds established by Figure 3-1, therefore, it is necessary to analyze these "severity" thresholds to ensure they properly consider the wide spectrum of existing ambient noise conditions that will be degraded by HSR operations. Because Acton is a relatively quiet rural community that has (on average) low ambient noise levels, the EIR will establish "severe" (aka "significant") impacts based on what Figure 3-1 identifies as low existing noise exposure levels (reported as 24 hour "average" L_{dn} noise values) Therefore it is this low noise interval (40-55 dBA) that is considered herein.

First, it is noted that neither CHSRA nor FRA consider it "significant" if the HSR project *triples* the average noise level in a quiet area. This is clearly depicted in Figure 3-1, which shows that a 15 dBA noise increase (or a tripling of noise "loudness"[1]) is not considered a "severe" impact in any quiet area that has an existing average noise level of 43 dBA. Even more surprising, Figure 3-1 establishes that no HSR noise impacts are ever deemed "severe" until they cause outdoor noise to ***exceed*** the 55 dBA "outdoor activity" protection level established by EPA and others (as discussed in more detail below). In other words, CHSRA and FRA consider it "insignificant" if the outdoor noise environment is degraded to such an extent that it impairs outdoor activities and even speech. Additionally, for rural areas that are currently at the 55 dBA limit for "acceptable" outdoor conditions, Figure 3-1 establishes that no significant degradation occurs even if the noise level increases above 61 dBA (which is higher than what is experienced by most urban dwellers[2]). It is clear that these "Noise Impact Criteria" are not intended to preserve the outdoor environment in quiet communities like Acton. To the contrary, they actively facilitate noise increases to such an extent that they successfully convert quiet rural environments into loud urban environments. To understand why these "Noise Impact Criteria" fail to prevent (or even consider) the degradation of rural outdoor environments, it becomes necessary to study how these criteria were developed.

According to Section A.3 of the FRA Manual, the "Noise Impact Criteria" thresholds were derived from "research" (in the form of the "Schultz Curve" depicted in Figure A-5), EPA findings, and "relevant literature" such as HUD standards and EPA publications. As set forth below, an analysis of these cited references reveals that the

[1] On average, each 10 dBA noise increase doubles the loudness of the noise [FRA Manual page 2-3]. Therefore a 10 dBA increase is generally perceived as doubling the "loudness", and a 15 dBA increase essentially triples the "loudness.

[2] See Figure 4 from the EPA "Levels Document" – Condensed version found cited on Page A-13 of the FRA Manual.

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FRA "Noise Impact Criteria" only reflect circumstances which occur in the urban environment and do not take into account any of the cited research addressing quiet rural (non-urban) areas. In other words, the "research" cited by the FRA Manual *does not support* the application of FRA's "Noise Impact Criteria" to non-urban areas (like Acton) which have existing ambient noise exposure levels at or below 55 dBA. Indeed, the "research" papers and reports cited in the FRA Manual draw a clear distinction between "significant" noise impacts in "quiet" environments and "significant" noise impacts in "loud" environments. These distinctions are completely obliterated by the FRA "Noise Impact Criteria", which were derived solely from an "urban platform" and without consideration for the rural environment. These facts are set forth in detail over the following paragraphs, which carefully consider each and every "research" element cited as justification for the FRA "Noise Impact Criteria" in Sections A.2 and A.3 of the FRA Manual.

The "Schultz Curve": The "Schultz Curve" (depicted in Figure A-5) was derived from a technical paper titled "Synthesis of Social Surveys on Annoyance" authored by T.J. Schultz and published in 1978 by the "Journal of the Acoustical Society of America" ("JASA"). The "Schultz Paper" was actually a compilation of 11 urban noise studies that measured human "annoyance" as a function of noise level. It considered noise profiles along urban streets in Paris, London, and elsewhere, and it also considered noise levels in urban areas surrounding airports in England, Switzerland, and various Scandinavian countries. Based on the urban research presented in the Schultz paper, the FRA Manual concludes that "very few people are highly annoyed when the L_{dn} is 50 dBA" and "an increase in L_{dn} from 50 to 55 dBA results in an average of 2 percent more people highly annoyed" [See Page A-14; bullet item 3]. These conclusions form the foundation of FRA's "Noise Impact Criteria" (depicted in Figure 3-1) yet they are entirely unsupported by the Schultz Paper, and are completely erroneous:

- These conclusions are derived from the "low end" of the fitted "Schultz Curve" published in the JASA paper and depicted in Figure A-5 of the FRA Manual. However, the author (T.J. Schultz) himself admits that the "Schultz Curve" does not properly address the data collected "at the low end", and he suggests various solutions to achieve a better "curve fit" which would (in some cases) be completely arbitrary (see JASA Vol 64 No. 2 page 391). Moreover, Mr. Schultz clearly identifies the 50 dBA L_{dn} noise level as being "outside the data range" anyway, and he explicitly argues against "extrapolating the fitted curve beyond the range of the given data set" [see page 391, column 1]. Therefore, the author's own words explicitly contradict FRA's conclusion that "very few people are highly annoyed when the L_{dn} is 50 dBA"
- The Schultz paper explicitly demonstrates that more than 10% of urban populations are so significantly disturbed by an average ("L_{dn}") noise level of 55 dBA that it interrupts conversation, disturbs sleep, and interferes with conversation [see Figure 23]. This fact unequivocally controverts FRA's assertion that "an increase in L_{dn} from 50 to 55 dBA results in an average of 2 percent more people highly annoyed." More importantly, there is no doubt that these

substantial adverse impacts on more than 10% of the population constitute a "significant effect on the environment" as that phrase is contemplated in CEQA. Therefore, and according to the Schultz Paper itself, projects which increase ambient noise levels to 55 dBA do indeed create "severe impacts" in every sense of the word. The FRA Manual ignores all of this, and it incorrectly concludes that the Schultz Paper somehow supports a conclusion that increasing noise levels to 55 dBA is not "significant". This conclusion is abjectly false and is entirely repudiated by very same Schultz "research" that it purports to reflect.

- Figure A-5 shows very clearly that the fitted curve does not accurately represent the data points plotted for noise values below 55 dBA; all but one of the data points lie *well above the curve*. As Figure A-5 shows, four times more people are "highly annoyed" by noise levels approaching 55 dBA than what the "Schultz Curve" predicts. What this means is that the "Schultz Curve" demonstrably under-predicts human "annoyance" at noise levels below 55 dBA and *provides no basis* for FRA's conclusion that "an increase in L_{dn} from 50 to 55 dBA results in an average of 2 percent more people highly annoyed".
- With regard to what constitutes an "acceptable environmental noise exposure", the Schultz paper explicitly clarifies that achieving and maintaining a Noise Standard of 55 dBA ***is the desired condition*** [see page 389 column 1]. Under no circumstance does the Schultz paper state (or even suggest) that it is reasonable to exceed the 55 dBA noise standard in areas that already meet the 55 dBA standard, and it certainly does not in any way advocate or support FRA's contention (embodied in Figure 3-1) that areas which already meet the 55 dBA standard will not be "severely impacted" if ambient noise levels increase significantly and even exceed 61 dBA. Moreover, there is nothing in the Schultz Paper that supports FRA's contention (reflected in Figure 3-1) that 55 dBA is merely the "lower bound" limit for determining the "significance" of noise impacts; to the contrary, the Schultz Paper affirmatively establishes 55 dBA as the "upper bound" limit for such determinations, and in fact it limits the consideration of increases beyond the 55 dBA standard only in those urban areas where existing conditions already exceed the 55 dBA standard.
- The Schultz Paper is essentially a compilation of urban noise studies addressing the "annoyance" responses of urban residents to different urban noise levels occurring within urban communities (such as Paris, London, Vienna, Copenhagen, Basel, Brussels, and 7 unnamed US cities) and adjacent to large urban airports (such as Heathrow and Munich). The Schultz Paper makes it clear that these studies assessed noise impacts exclusively in the urban environment, and measured human "annoyance" only in urban areas. Therefore, the Schultz Paper is narrowly constrained to consider human noise "reactions" only in urban areas where high noise profiles are already "woven into" the fabric of the community. It does not consider rural environments, and it certainly does not assess human "annoyance" to increased sound levels in essentially quite areas (like Acton) where ambient L_{dn} noise levels are less than 50 dBA. The Schultz Paper clearly indicates 1) That its scope is constrained only to urban environments; and 2) That its conclusions regarding increases in "acceptable"

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noise limits beyond 55 dBA ONLY APPLY to urban environments where the 55 dBA noise limit is already exceeded [see page 389]. The FRA Manual ***ignores*** all of these constraints that are clearly stated in the Schultz paper. Worse yet, the FRA Manual uses the urban data from the Schultz Paper to derive "noise impact criteria" which are applied uniformly to all environments (including rural and wilderness areas). The FRA Manual fails to consider that people living in quiet rural areas respond differently to increased noise levels than people living in urban areas where existing ambient noise levels are already quite high (see for example the "FPA Levels Document" discussed below). Moreover, the FRA Manual fails to cite *any* noise studies that address human noise "annoyance" response in areas where ambient noise levels are 50 dBA or less. Therefore, FRA has absolutely no basis for imposing on rural communities the urban-based "Noise Impact Criteria" that are depicted in Figure 3-1, and it certainly lacks any justification for the standard imposed by Figure 3-1 that rural areas with an ambient L_{dn} noise level of only 43 dBA are not "severely impacted" by a nearly threefold increase in ambient noise to 58 dBA.

- The "annoyance" reactions addressed in the Schultz Paper are demonstrably biased low because (as the paper itself admits) "annoyance" response data were often collected from people located **indoors** who were responding to noise events **outdoors** [page 378] Because these people hardly heard the noise, they provide a "low annoyance" response (which skews the results with a low bias). The Schultz paper found very poor correlation between noise levels and "annoyance" response when the respondents were located indoors with their windows closed. This seems like an obvious thing which should have been accounted for in the studies that were "synthesized" in the Schultz Paper, but apparently it was not. Schultz actually makes the following recommendation: "If one wishes to increase dramatically the correlation between the measured noise and the subjective response of the subjects, one should open the windows so that the official survey microphone and the noise to which the subjects are actually exposed are the same" [page 378]. The author also posits the argument that half of the sample population at each noise exposure who respond below the median may "have simply not heard the noise measured in the survey". The "biasing" elements of the Schultz study (such as the fact that only indoor annoyance responses were addressed) are even more troubling when they are considered against the urban backdrop where these studies were conducted. Why? Because it renders them even more inapplicable to Acton's quiet, rural environment where residents spend much of their time "outdoors". It is flat out **impossible** to infer or predict the extent to which an Acton resident will be "annoyed" by an 85 dBA HSR noise event occurring every 3 minutes based on noise reactions from people sitting indoors who occasionally react to urban street noises outside their windows. Such an idea is absurd, yet, that is precisely what CHSRA and FRA are doing when they assess HSR noise impacts on Acton based on the "Noise Impact Criteria" set forth in Figure 3-1 of the FRA Manual.
- The FRA Manual considers all noise impacts through the "urban lens" of the Schultz Paper, and because it uses this "urban lens" to assess noise impacts on rural areas, it draws conclusions which utterly contradict the Schultz Paper itself.

For instance, the Schultz Paper states categorically that the standard for an "acceptable" environmental noise exposure is 55 dBA (L_{dn}), and it does not under any circumstance recommend increasing this 55 dBA "acceptability" limit in any area where it is already met. Yet, incredibly, FRA's "Noise Impact Criteria" deems an increase in ambient noise levels from 55 dBA to 61 dBA to be "insignificant". In other words, the FRA Manual uses the urban studies considered in the Schultz Paper to shift the "acceptability" baseline from 55 dBA to 61 dBA for all areas (both rural and urban) in a manner that is utterly contrary to the foundational principals upon which the entire Schultz Paper is based. Worse yet, the "Noise Impact Criteria" (provided by Figure 3-1 of the FRA Manual and derived from the urban-based Schulz Paper) clearly establish that no area (whether it be a monument, a cemetery, or a wilderness) is considered "severely impacted" by a project unless the project results in ambient noise levels ***exceed*** the 55 dBA urban baseline!!! Clearly, the "low end of the FRA "Noise Impact Criteria" is utter nonsense because it *contradicts in every way possible* the very same "Schultz paper" that it purports to reflect.

- The Schultz paper designates the 55 dBA noise exposure level as not only an "acceptable" standard, but also a "desirable" standard for areas where existing ambient noise levels do not exceed 55 dBA [see page 389 column 1]. The Schultz Paper also expressly limits its consideration of the circumstances under which the 55 dBA noise standard could be exceeded to only those urban areas where the ambient noise level already exceeds 55 dBA. Yet incredibly, the FRA Manual ***flat out ignores*** all of Schultz's research establishing 55 dBA as the acceptable and desirable standard for non-urban areas where ambient noise levels are at or below 55 dBA. Instead, it arbitrarily establishes 61 dBA as the "threshold of significance" for areas that meet the 55 dBA standard, and it declares that project noise levels below this 61 dBA threshold constitute "less than significant" impacts. In other words, the FRA Manual establishes that non-urban areas which already meet the 55 dBA standard (and therefore have an "acceptable environmental noise exposure") are not "severely impacted" by any project unless noise levels rise above 61 dBA. The FRA "Noise Impact Criteria" essentially turned the Schultz Paper on its head by establishing that projects impacts are not "significant" even if they generate noise levels which exceed Schultz's "desired and acceptable" 55 dBA standard! Nothing about the Noise Impact Criteria established by the FRA Manual for "quiet" (<55 dBA) areas is supported by the Schultz Paper. Indeed, the manner in which the FRA Manual incrementally increases the "acceptable noise threshold" in areas which meet the 55 dBA standard is entirely inconsistent with, and wholly unsupported by, the very Schultz study it purports to reflect.
- The Schultz Paper was published nearly 40 years ago before 'high speed" trains exceeding 180 mph were developed, and it considered historic urban noise profiles predominated by mid- and high-frequency noise sources. It is firmly established that noise profiles of high speed trains traveling in excess of 200 mph differ significantly from slower trains, and that the noise profiles of faster trainsets include substantial low-frequency components [http://www.uic.org/cdrom/2008/11_wcrr2008/pdf/S.1.1.4.4.pdf]. The Schultz paper never

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considered low-frequency noise levels introduced into the urban environment by 220 mph HSR trains, and it certainly never accounted for significant low-frequency aerodynamic noise elements introduced by HSR projects into rural areas like Acton. This further repudiates FRA's reliance on the Schulz paper to establish appropriate HSR "Noise Impact Criteria" for rural communities like Acton.

The US. EPA "Levels Document" establishes that, to protect the "health and welfare" of farming and residential areas (like Acton) where people spend considerable amounts of time in the outdoors, the average noise levels (both "L_{dn}" and "L_{eq}") *should remain below 55 dBA* [Table VII in the "EPA Levels Document – Condensed Version" at https://nepis.epa.gov/]. This is utterly contradicted by the FRA "noise impact criteria", which *unequivocally* establish that it is "insignificant" if a project causes outdoor noise levels to exceed this 55 dBA "health and welfare" threshold (see FRA Figure 3-1). In fact, Figure 3-1 clearly establishes that FRA deems it acceptable to nearly the double the noise in areas that meet (or nearly meet) EPA's recommended 55 dBA level. Moreover, the FRA "Noise Impact Criteria" also completely ignore the EPA's explicit warning that urban community noise response factors should not be applied to non-urban areas (like Acton) which have a significantly quieter ambient environment [page 21 of "Levels Document" – condensed version]. There is no doubt that applying the urban-based FRA "Noise Impact Criteria" to Acton is utterly contradictory to the EPA's "Levels Document" in every way possible. The only way to render FRA's "Noise Impact Criteria" in a manner that is consistent with the EPA "Levels Document" is to revise the "Severe Impact" curve to intersect the point where the "Existing Noise Level" [x axis] value is 55 dBA and the "Project Noise Exposure" [y axis] is also 55 dBA.

HUD Standards are intended to achieve the goal of providing a suitable living environment. HUD has established that outdoor L_{dn} noise levels which exceed 75 dBA provide an unacceptable living environment, and does not authorize HUD development in such areas. HUD has also established that outdoor L_{dn} noise levels which exceed 65 dBA provide a *normally* unacceptable living environment, and requires that all new HUD construction in such areas include noise attenuation features to mitigate outdoor noise impacts. Yet, in a number of scenarios, the FRA "Noise Impact Criteria" do not consider project impacts to be "significant" even when they increase noise levels beyond the 65 dBA HUD threshold[3]. In fact, the FRA "Noise Impact Criteria" do not even consider the noise degradation impacts of HSR operation until the ambient noise level is 68 dBA as evidenced by Figure 3-1 (which deems moderate noise increases to be "insignificant" up until existing noise levels reach 68 dBA.) For all these reasons it is clear that FRA's "Noise Impact Criteria" are patently inconsistent with adopted HUD standards.

[3] As clearly shown in Table 3-1 of the FRA Manual, an area with an existing average ambient noise level of 64 is not deemed significantly impacted until the average noise level exceeds 65.5 dBA, and an area with an average noise level of 65 dBA is not deemed significantly impacted until the project noise increase exceeds 66 dBA.

CHABA Guidelines: Address the "Health and Welfare" effects of noise in *urban and suburban* environments [page 33 paragraph 2 accessed via https://nepis.epa.gov/]. Regarding the "Health and Welfare" effects of noise on *urban/suburban* areas, the CHABA Guidelines advocate a "single indicator" method (page 34 para 2) that is based on the "Schultz Curve", and calculated based on the 1978 Schultz Paper [Page 37 equation 2a]. The "Single Indicator" method recommended by the CHABA Guidelines for urban/suburban environmental is clearly embodied in the FRA "Noise Impact Criteria". ***However***, the CHABA Guidelines *do not recommend* the use of the "single indicator" method for assessing noise impacts on rural areas (see page 64 paragraph 2) or where "environmental degradation" can occur due to new noise sources being introduced in quiet areas (like Acton). In fact, the CHABA Guidelines clearly draw a "bright line" distinction between the assessment of noise impacts on urban/suburban areas (addressed in Section 2.2) and the assessment of noise impacts on rural and other areas that will experience "environmental degradation" due to project noise impacts (addressed in Section 2.4). CHSRA *completely ignores this distinction*, and it blindly applies the "single indicator" method to ***all*** environments by slapping the urban-based "Noise Impact Criteria" depicted in Figure 3-1 onto every single impact assessment that it prepares. For instance, CHSRA does not consider a serenely quiet areas with an existing ambient noise level of only 43 dBA to be "significantly impacted" by a project even if the average noise level is tripled! Equally important, the CHABA Guidelines explicitly identify the 55 dBA threshold as the "point of significant adverse noise effects" (page 31 paragraph 1). *This assertion is completely ignored by the FRA Manual*, which establishes that "significant adverse noise effects" do not occur until noise levels substantially ***exceed*** 55 dBA [Table 3-1]. There is no doubt that the FRA "Noise Impact Criteria" fail to comport with the CHABA Guidelines and in fact they explicitly contradict these guidelines in the manner in which they address "Environmental Degradation" and noise impacts on quiet rural areas like Acton.

DOT Report No UMTA-MA-06-0099-79-3: This document is cited in footnote 74 of the FRA Manual, and it considers urban noise impacts of conventional trainsets traveling through urban and suburban Paris and London, and slightly faster trainsets (126 mph) traveling through various Japanese communities. The urban study portions of this DOT report are not particularly relevant to the matters raised herein (which consider only impacts on rural areas). However, the portions of the DOT report that address the Japanese study are perhaps relevant because they appear to consider receptors outside of an urban environment. The DOT report notes that the receptor "annoyance" is driven by 2 independent factors: the peak noise exposure (SEL) and the train frequency (trips per day). According to the DOT report, the Japanese study indicates that high annoyance occurs even with relatively slow (126 mph) trains and at relatively low peak (SEL) sound levels (less than 75 dBA as shown in Table I). These results demonstrate that high annoyance will occur at receptors located more than 11,000 feet (or 2 miles) from a 220 mph train traveling on flat ground at grade in areas (like Acton) where there is little ground attenuation and receptors have a "direct line of site" to the HSR tracks (see attached calculation sheet marked Exhibit A). The Japanese data also shows that "startle" occurs even with slow (126 mph) trains and at peak sound levels (SEL) as low as 80 dBA [see Table I]. These results demonstrate that human "startle" reactions will occur at receptors located more than 5000 feet from a 220 mph train traveling on flat

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ground at grade in areas (like Acton) where there is little ground attenuation and most receptors will have a "direct line of site" to the HSR tracks (see attached calculation sheet marked Exhibit B). Remarkably, none of this information is reflected *anywhere* in the FRA Manual. To the contrary, the FRA Manual categorically refuses to consider receptor noise impacts based on peak (SEL) noise levels, and instead considers only 24 hour "average" (L_{dn}) noise levels (see Sections 3, 4 and 5 of the FRA Manual). The FRA Manual also refuses to acknowledge that "startle" effects can and will occur on receptors located more than 50 feet from a high speed train traveling at 220 mph (see Figure 4-2).

Other Publications: The FRA Manual cites two additional studies as justification for the "Noise Impact Criteria" that it adopts. One study is a 1991 paper that "updates" the original Schultz paper published in 1978 by the JASA, and the other is a "French High Speed Rail Noise Survey" of the TGV-Atlantique line published in 1993. The latter does not consider noise impacts of train speeds that exceed 180 mph, and merely points out that nighttime noise impacts should be factored into any "noise impact criteria" that are developed. This is not in dispute; therefore, the "French High Speed Rail Noise Survey" is not addressed further. However, the "Shultz Update" paper is foundationally important, and is therefore addressed in detail here. The "Schultz Update" considers 15 additional urban noise studies, and combines data from these additional urban noise studies with the urban noise data presented in the original "Schultz Paper" published in 1978. Like the original "Schultz Paper", the "Schultz Update" Paper focusses exclusively on urban noise profiles, and it does not controvert any of the points addressed in the "bullet item" discussion presented above. However, the "Schultz Update" Paper does call into substantial question whether the "Original Schultz Curve" accurately represents "annoyance" response at noise levels below 60 dBA. First, the "Schultz Update" paper clarifies that, when a "Revised Schultz Curve" is fitted to the new data, it reveals that "annoyance" on the low-end of the noise range (below 60 dBA) is significantly higher than what was predicted by the "Original Schultz Curve" [see page 229 column 2]. For instance, it is noted that annoyance levels at a 57.5 dBA noise level are nearly twice as high as what is predicted by the "Original Schultz Curve" [See Figure 14]. The "Schultz Update" paper also includes a "95% confidence interval" analysis of the combined datasets [plotted in Figure 15] and the "annoyance response" [tabulated in Table III]. These "95% confidence interval" analyses reveal "considerable uncertainty" regarding "percentages of respondents highly annoyed" [page 231 column 2]. The "Schultz Update" paper does not attempt to reconcile the differences between the "Original Schultz Curve" and the "Revised Schultz Curve"; to the contrary, the "Schultz Update" Paper states categorically that these curves are "simply convenient data fitting functions, devoid of physical meaning" [page 233]. This statement is *simply extraordinary*, given the extent to which FRA and CHSRA have relied on the "Schultz Curve" to determine whether or not California citizens are "severely impacted" by the HSR Project. Not only does the "Schultz Update" Paper abjectly confirm each and every criticism levied previously herein (see the "bullet item" discussion above); but it also invalidates the FRA "Noise Impact Criteria" because it relegates the "Schultz Curve" upon which these criteria are based to nothing more than a "data fitted function" that is "devoid of meaning"! Above all, the "Schultz Update" Paper demonstrates that, in the ambient noise range applicable to quiet rural areas like Acton (<55 dBA) actual human "annoyance" response levels are *significantly higher* than what is predicted by the

urban-based "Schultz Curve". The exceedingly high "error margin" embodied in the "Schultz Curve" at low ambient noise levels proves beyond the shadow of a doubt that the "Schultz Curve" is entirely unreliable in this "low noise" regime, and that both FRA and CHSRA grievously err in their reliance on the "Schultz Curve" to establish "noise impact criteria" for quiet rural areas like Acton.

All of the shortcomings of FRA's adopted urban-based "Noise Impact Criteria" can only be corrected by developing Non-Urban "Noise Impact Criteria" based on "annoyance" studies conducted in areas that have ambient noise conditions below 60 dBA. Neither FRA nor CHSRA have taken these simple steps to ensure appropriate noise impact criteria are relied upon in the Palmdale-Burbank Segment EIR. Instead, they intend to (wrongly) apply the urban-based noise impact criteria established in Figure 3-1 of the FRA manual; thereby providing fertile ground for any number of successful CEQA and NEPA lawsuits.

FRA's HSR "Noise Exposure Assessment" Methodology Fails to Correctly Address Rural Community Noise Impacts

To truly understand the extent to which FRA's high speed rail "noise exposure" assessment methodology fails to properly address rural "community impacts", it is useful to look at the results derived from FRA's methodology through the lens of FRA's "Noise Impact Criteria" set forth in Figure 3-1 of the FRA Manual. This is accomplished by a "scenario" analysis which considers various HSR operations in different "quiet" zones within a rural community like Acton:

Scenario 1: Existing noise levels is 56 dBA: A relatively quiet residential area that has an existing average ("L_{dn}") noise level of 56 dBA and is nearly a mile from the train with a "line of sight" view of the tracks will experience an 82 dBA noise event every 2.7 minutes starting at 6 AM according to CHSRA's proposed operating schedule (Exhibit B). To be clear, an 82 dBA noise event is equivalent to a metro train traveling at 50 mph just 50 feet away. Nonetheless, according to the FRA" Noise Exposure Assessment" methodology, this noise impact is not deemed "significant". The notion that a project does not pose "significant adverse impacts" on a quiet residential area when it clearly introduces noise levels equivalent to a metro train running by at least three minutes is ***absurd on its face.*** Yet, that is precisely what FRA's methodology and "Noise Impact Criteria" conclude.

Scenario 2: Existing noise levels is 50 dBA: A very quiet residential area that has an existing average noise level of 50 dBA and is nearly two miles from the HSR train with a "line of sight" view of the tracks will experience a 79 dBA noise event every 2.7 minutes starting at 6 AM (Exhibit D). Though a 79 dBA noise event is louder than a blender operating just 3 feet away, the FRA's "Noise Exposure Assessment" methodology does not deem this impact to be "significant". The notion that a project does not pose a

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"significant adverse impact" on a very quiet residential area when it continually introduces noise levels equivalent to a kitchen blender is ***absurd on its face.*** Yet, that is precisely what FRA's methodology concludes.

Scenario 3: Existing noise levels is 45 dBA: A serenely quiet residential area that has an existing average noise level of 45 dBA and is more than 3 miles from the HSR with a "line of sight" view of the tracks train will experience 77 dBA noise events every 2.7 minutes starting at 6 AM (Exhibit E). A 77 dBA noise event is louder than a kitchen blender, yet this is not deemed to pose any nose impact on this serenely quiet area. The notion that a project does not pose a significant impact on such a quiet place when it clearly introduces noises that are louder than a kitchen blender on at least once every 3 minutes is ***absurd on its face.*** Yet, that is precisely what FRA's methodology and "Noise Impact Criteria" conclude.

CHSRA has not Developed Technically Credible or Legally Defensible "Noise Impact Criteria" for Assessing HSR Impacts on Animals

The community of Acton is an equestrian community, but it is also a community that is home to a wide assortment of animal facilities and rescue operations. Animals that are cared for and housed in Acton facilities include llamas, emus, lions, cattle, pigs, ducks, cats, sheep, tigers, dogs, goats, chickens, turkeys, geese, doves, rabbits and donkeys. ALL of the proposed HSR alignments in Acton travel above ground through and over such facilities, and will generate significant low- and mid- frequency sound levels exceeding 100 dBA outside of the HSR "right of way" areas. CHSRA 's treatment of noise impacts across this wide spectrum of animal types is the same: no significant noise impacts are deemed to occur if the noise level in the vicinity of any animal is less than 100 dBA. CHSRA has absolutely no data to support this 100 dBA "animal impact criteria"; as FRA points out: "There are no established criteria relating high-speed train noise and animal behavior" [page 3-2 of the FRA Manual]. In fact, tabulated data provided by the FRA Manual clearly show that animal "disturbance" response thresholds can be as low as 77 dBA [Table A-1 in the FRA Manual]. What is most remarkable is that CHSRA has relied on this "interim" threshold for more than 8 years and has employed it *in every single project EIR/EIS that it has certified,* and in all that time, it has never done any studies or taken any steps to establish the efficacy or assess the reasonableness of this assumption. For all intents and purposes, CHSRA has implemented this "interim" threshold as if it had the full weight and authority of a formally adopted standard, and it has done so with impunity and without regard for whether it is reasonable or appropriate. *This is not acceptable for the Community of Acton, where noise levels exceeding 90 dBA will occur more than 600 feet from the tracks.* Prior to commencing any noise assessment of the Acton area, CHSRA must develop reasoned and defensible "animal response" thresholds that properly address the wide range of animals that call Acton "home".

The Community of Acton is also home to a number of wild animals (both large and small), and it is the primary linkage between the Sierra Pelona range and the San Gabriel Mountains. Acton's large wildlife includes mountain lions, coyotes, deer, bobcats, and raptors such as red tailed and cooper's hawks. Acton is also home to a number of protected species such as the red legged frog and the San Diego coast horned lizard. ALL of the proposed HSR alignments in Acton travel above ground through and over habitat where these species are found, and all of the proposed alignments will create low frequency sound levels exceeding 100 dBA outside the HSR track "right of way". CHSRA has established a 100 dBA "interim" threshold to evaluate wildlife noise impacts, and has implemented this "interim" threshold for more than 8 years. In all that time, it had never conducted any studies to determine whether it reasonably represents an appropriate noise response indicator for the wide spectrum of wildlife that are present in all of the HSR corridors in Acton. In other words, CHSRA utterly lacks the information necessary to establish the technical credibility or legal sufficiency of this 100 dBA "interim" wildlife impact criteria, therefore it has no basis for relying on this "interim" criteria for assessing wildlife impacts in Acton.

CHSRA and FRA are Required to Provide Noise Contour Maps (or Equivalent) of Predicted Sound Exposure Levels in Acton.

CHSRA's "Environmental Methodology Guidelines" state (on page 3.4-14) that the EIR "shall conform to the requirements and topics set forth in Section 11.1 (The Technical Report on Noise and Vibration) and Section 11.1.1 (Organization of Technical Report) of the FRA 2012 guidance manual". Section 11.1.1 of the FRA Manual specifies that the computed noise levels predicted by the noise assessment model must be "tabulated AND illustrated by contours, cross sections, or shaded mapping" [page 11-2]. Despite these clearly stated reporting requirements, neither FRA nor CHSRA have ever provided any noise level illustrations in any of the HSR EIR/EIS documents certified to date. At most, CHSRA has reported a "range of noise levels" applicable to an entire segment, and it has mapped points of "severe" impact and "less than severe" impact without indicating any actual noise levels. Because of this, the public has been unable to analyze CHSRA's calculated results to confirm their accuracy or completeness. *This is unacceptable.* The DEIR/DEIS that is issued by FRA and CHSRA for the Palmdale Burbank segment must comply with CHSRA's and FRA's reporting standards, and include noise contour (or equivalent) illustrations which clearly establish the peak noise levels that Acton residents are projected to experience with and without mitigation. Consistent with DOT's *Railroad Noise Emission Compliance Regulations,* these illustrations must depict noise levels extending from the 100+ dBA level occurring at the HSR track right-of-way out to either the 73 dBA noise level (if $L_{max/fast}$ data are plotted), or out to 73 dBA (if $L_{max/slow}$ data are plotted).

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Moreover, both CEQA and NEPA demand that actual noise projections be provided in the DEIR/DEIS because both require the environmental document to clearly identify the "effects" of a project on the environment[6] And, both CEQA and NEPA define "effects" to include "direct effects" which "are caused by the project and occur at the same time and place[7]" In other words, the only way that CHSRA and FRA can comply with CEQA and NEPA regulations is to include in the DEIR/DEIS the peak noise levels that will be created within Acton at the time that the HSR passes through Acton. These state- and federally-imposed requirements are not met by simply plotting "L_{dn}" values because "L_{dn}" values merely reflect "bulk" noise levels averaged over a 24 hour period; they do not in any way reflect actual noise levels occurring "at the time and place" of an HSR passby event. This has been pointed out time and again in writing and verbally at public meetings and stakeholder meetings with CHSRA and FRA staff. It is now pointed out again with this submittal and in a manner which makes clear that all administrative remedies regarding this issue have been exhausted.

6 NEPA - 1502.16(a) of the CEQ Regulations for Implementing NEPA. CEQA – Guidelines Section 15126.2(a).

7 NEPA – 1508.8 of the CEQ Regulations for Implementing NEP. CEQA – Guidelines Section 15358. 19.

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Response to Submission 4518 (Don Henry, Acton Town Council, December 1, 2022)

4518-10278

The comment is a duplicate of Comment PB-4413. Refer to previously provided responses to submission 4413, Responses to Comments #10244 through #10277.

Submission 4519 (Don Henry, Acton Town Council, December 1, 2022)

Palmdale - Burbank - RECORD #4519 DETAIL	
Status :	Delimited
Record Date :	12/7/2022
Interest As :	Business and/or Organization
First Name :	Don
Last Name :	Henry
Attachments :	2022-1201 Acton Town Council_Public Utilities.pdf (8 mb)

Stakeholder Comments/Issues :

Attached please find comments submitted jointly by the Acton Town Council and Agua Dule Town Council.

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AGUA DULCE TOWN COUNCIL
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ACTON, CA
93510

CALIFORNIA HIGH SPEED RAIL AUTHORITY
SOUTHERN CALIFORNIA REGIONAL OFFICE
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Submission 4519 (Don Henry, Acton Town Council, December 1, 2022) - Continued

4519-10279

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December 1, 2022

California High Speed Rail Authority
Southern California Regional Office
355 S. Grand Avenue, Suite 2050
Los Angeles, CA 90071
Electronic Transmission of 119 pages to
Palmdale_Burbank@hsr.ca.gov

Subject: Acton Town Council and Agua Dulce Town Council Joint Comments on Section 3.6 of the Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement.

Reference: Notice of Notice of Availability/Notice of Public Hearing for the California High-Speed Rail – Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement Issued September 2, 2022.

To the California High Speed Rail Authority;

Attached please find comments submitted jointly by the Acton Town Council and the Agua Dulce Town Council on Section 3.6 of the Draft Environmental Impact Report/Environmental Impact Statement prepared for the Palmdale to Burbank Project Section of the California High Speed Rail Project. If you have any questions or require further information, please contact the Acton Town Council at atc@actontowncouncil.org.

Sincerely,

Jeremiah Owen, President
The Acton Town Council

Don Henry

Don Henry, President
Agua Dulce Town Council – 2022

Hardcopy sent via USPS

cc: Rick Simon, Engineering Manager, Palmdale-Burbank Section [Rick.Simon@hsr.ca.gov]
Genoveva Arellano, Principal; Arellano & Associates [GArellano@arellanoassociates.com]

"Our lives begin to end the day we become silent about things that matter" Martin Luther King, Jr.

ANALYSIS OF THE "PUBLIC UTILITIES AND ENERGY" SECTION PRESENTED IN THE PALMDALE-BURBANK DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT.

1.0 INTRODUCTION

The utilities and energy impact assessment presented in Chapter 3.6 of the Draft Environmental Impact Report/Environmental Impact Statement (hereafter referred to as "the Draft") that was prepared by California High Speed Rail Authority ("CHSRA") and the Federal Railway Administration ("FRA") for the Palmdale-Burbank Segment of the High Speed Rail Project ("Project") has been evaluated and numerous material deficiencies, factual errors and other substantial insufficiencies have been identified. These deficiencies, errors, and insufficiencies are set forth in the comments provided below; they demonstrate that the Draft does not comply with either the California Environmental Quality Act ("CEQA") or the National Environmental Protection Act ("NEPA"). Please note: These comments were prepared by a competent engineer with more than 35 years of environmental engineering experience and they present expert opinion supported by fact pertaining to the significant environmental effects that will be caused by the Project and which must be mitigated. Accordingly, the comments provided herein constitute "substantial evidence" as that term is defined by the CEQA Statute [California Public Resources Code §21080(e)(1)] and Guidelines [California Code of Regulations Section 15064(f)(5)]. These comments also demonstrate that CHSRA/FRA have failed to conduct a substantive 'hard look' review of the Project's environmental impacts as required by NEPA.

2.0 MAJOR DEFICIENCIES NOTED IN THE DRAFT

2.1 The Draft Fails to Properly Account for Project Water Sources and Water Supply.

All of the alternative routes proposed for the Project will involve extensive tunnel construction and require significant volumes of water to cool the drill heads, transport "spoils", and maintain necessary equipment operations. Construction at each tunnel portal will require two Tunnel Boring Machines ("TBMs") operating in parallel to produce the twin tunnels that are necessary to accommodate the 462 train trips per day that are projected to occur between Palmdale and Burbank[1], and according to Page 3.6-78 of the Draft, each TBM will require 366 acre-feet per year (approximately 1 acre-foot per day). The SR14A and Refined SR14 route alternatives will involve four TBMs operating simultaneously in Acton and Agua Dulce and all the "E-Route" alternatives will involve two TBMs operating simultaneously from Acton[2]; accordingly, Project water demand during construction in Acton and Agua Dulce will be at least 732 acre-feet per year, and could be as much as 1,464 acre-feet per year. Both NEPA and CEQA

[1] Page 3.4-23 states (with emphasis added) "For the Palmdale to Burbank Project Section, it is assumed that there would be 189 trains per day *in each direction* during the daytime hours (7:00 a.m. to 10:00 p.m.), 28 trains per day *in each direction* during the nighttime hours (10:00 p.m. to 7:00 a.m.), and 14 trains *in each direction* during the peak hours"; these data indicate that 231 daily train trips are projected to occur *in each direction*. Therefore, the Project will result in 462 train trips through Acton each day.

[2] The SR14A alternative and the Refined SR14 alternative will have two TBMS drilling from Acton towards Palmdale and two TBMs drilling from Agua Dulce towards Acton; all the "E-Route" alternatives will have two TBMs drilling from Acton towards Burbank.

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require that CHSRA properly account for all the water resources needed for the Project and address the environmental impacts resulting from obtaining these water resources and distributing them throughout the project area; unfortunately, the Draft does not meet this requirement.

2.1.1 *The Draft Incorrectly Presumes that Sufficient Water Resources will be Available from the State Water Project for Tunnel Construction in Acton and Agua Dulce.*

Table 3.6-21 of the Draft asserts that project construction on the Central section (where the Communities of Acton and Agua Dulce are located) will rely on water resources supplied by the Antelope Valley-East Kern Water Agency ("AVEK") and according to Table 3.6-10, AVEK obtains water allocations from the State Water Project ("SWP") to serve an average annual water demand of 56,400 acre-feet per year. Additionally, Table 3.6-21 asserts that AVEK can supply its customers with 46,750 acre-feet of water under "Single Dry Year" circumstances and 74,350 acre-feet under "Multiple Dry Year" circumstances; these data suggest that it is reasonable to infer that AVEK is capable of supplying all the water required for project construction activities in Acton and Agua Dulce. However, the data presented in Tables 3.6-10 and 3.6-21 are incorrect; in fact, for the last several years, AVEK has only received 7,242 acre feet per year from the SWP, which is only 5% of the allocation it is supposed to receive[3]. Furthermore, the meager allocation that AVEK receives each year is already largely subscribed by the hundreds of thousands of customers in East Kern County and North Los Angeles County that AVEK already serves. In other words, the AVEK water resources which the Draft asserts will be available for Project construction do not actually exist and, contrary to what is presumed in Tables 3.6-10 and 3.6-21, AVEK does not demonstrably have the water resource capacity required to supply the nearly 1,500 acre-feet per year needed to construct the preferred SR14A Alternative.

Page 3.6-77 presents conclusions regarding water supply impacts created by the Project which suggest that CHSRA appears to understand that AVEK does not reliably receive water allocations from the SWP and that AVEK may not have water resources that are sufficient to serve CHSRA's construction needs (particularly during "dry years") because it states "the impact from construction water demand is conservatively assumed to result in a significant impact under CEQA". Unfortunately, the mitigation measure that addresses this significant impact (which is referred to as PUE MM#1 and merely consists of developing a plan after the Project is approved and securing additional water allocations from water agencies[4]) is completely infeasible and therefore deficient. For instance, SWP allocations are restricted by State Law and are based on extant environmental circumstances in the Sacramento Delta; thus, it is impossible for CHSRA to unilaterally obtain additional water supply allocations from the SWP. PUE MM#1

[3] https://www.avek.org/dwr-announces-5-allocation-for-swp-contractors. AVEK does not have higher water allocations during "Multiple Dry Years" than "Single Dry Year"; Department of Water Resources cuts water allocations with successive "Dry Years". Accordingly, Table 3.6-21 can be accorded no weight.

[4] PUE MM#1 states "The Authority will prepare an updated water supply analysis for the selected Build Alternative that identifies the detailed water supply needs for construction. Based on the results of this water supply analysis, the Authority would coordinate with relevant water agencies to determine if allocations for additional water supply are needed for construction. In the event that additional water supply is needed from the State Water Project, the Authority shall pay the water agencies its fair share of the State Water Project fees (per acre-foot of their allocations), which are used for constructing and operating the State Water Project conveyance facilities. In addition, the Authority will be required to utilize non-potable water during construction, to the extent feasible." (Page 3.6-90).

also presumes without basis that the SWP has excess water resources which will be made immediately available to CHSRA upon request, when in fact nothing could be further from the truth. In other words, *CHSRA cannot purchase water allocations that do not exist*. Moreover, if CHSRA uses some sort of preemptive power to force water agencies to sell water which is intended for residential and municipal purposes, this will produce profound water shortages on the communities that have had their water "co-opted" for Project construction purposes. In short, implementing mitigation measure PUE-MM#1 by compelling AVEK to provide water for Project construction will result in significant environmental impacts on the municipal water customers who will have their water service cut by AVEK; these impacts are completely ignored by the Draft, therefore PUE-MM#1 is deficient and does not comply with CEQA or NEPA.

PUE-MM#1 also establishes that CHSRA will be ***required*** to utilize non-potable water for tunnel construction "to the extent feasible"; this means that AVEK water will not be used for tunnel construction in Acton and Agua Dulce. The Draft fails to explain the contradictions this mitigation measure contains (stating on the one hand that AVEK water will be used, and on the other, that groundwater will be used). It also does not describe what these non-potable water sources are and it certainly provides no indication of what factors will be considered in determining the "feasibility" of using non-potable water resources. Non-potable water generally comes from two sources: partially treated municipal (sewage) wastewater or untreated groundwater extracted from local groundwater basins. If the former is used for tunnel construction, it will result in the direct injection of partially treated sewage water into the ground where it will contaminate (and thus have significant adverse impacts on) all the aquifers, perched water, and other groundwater resources that the tunnel passes through. The Draft is substantially deficient because it fails to address the significant environmental impacts that this would have on local groundwater quality and the rural residents with residential wells who rely on these groundwater resources for drinking water. Notably, there are no municipal wastewater facilities located in Acton or Agua Dulce or anywhere else in the vicinity of the 20+ mile long HSR routes proposed between Palmdale and Santa Clarita; so, there are no sources of partially treated municipal wastewater available for most of the Central section of the Project. Accordingly, it can only be concluded that local groundwater resources will be tapped to supply the non-potable water that is referenced in PUE-MM#1 for tunnel construction in Acton and Agua Dulce; this will involve constructing new groundwater extraction facilities and increasing groundwater extraction rates in the communities of Acton and Agua Dulce which, as discussed below, will introduce new and significant stresses on local groundwater supplies and directly affect well yields in rural communities where residents rely on individual domestic wells. Moreover, the groundwater quality in certain areas of Acton and Agua Dulce is highly variable and several areas experience high nitrate and arsenic levels which exceed adopted water quality standards[5]; if groundwater containing high nitrate or arsenic levels is utilized for tunnel construction, then nitrate contamination will occur in all the aquifers, perched water, and other groundwater resources through which the tunnels pass. Furthermore, using local groundwater resources to construct the E1, E1A, E2, and E2A routes at the "window" proposed on property owned by The Nature Conservancy in Soledad Canyon will have a profound effect on riparian

[5] Nitrate concentrations extracted from local municipal wells in Acton are reported in Attachment 1. Also, arsenic is found in Agua Dulce groundwater (in fact, "Agua Dulce" or "sweet water" in Spanish is an historic term for water contaminated with arsenic. A study conducted by the Los Angeles County Health Department indicates many wells in Agua Dulce have detectible levels of arsenic and in some wells, the presence of Arsenic exceeds the MCL of 10 ppb [http://file.lacounty.gov/SDSInter/bos/supdocs/65110.pdf].

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habitat and vernal pools in the Santa Clara River. In other words, mitigation measure MM PUE#1 is both impractical and infeasible because it 1) Relies on AVEK water resources that do not exist; and 2) it will result in significantly adverse environmental impacts to local groundwater levels, groundwater quality, and rural drinking water resources. Moreover, none of these impacts are even mentioned in the Draft and they are certainly not addressed as required by CEQA and NEPA. The only way to avoid these impacts is to adopt a mitigation measure which asserts that Project construction will not rely on local groundwater resources and that tunneling will only be conducted using AVEK water resources during years when AVEK has water allocations which exceed their customer demand.

2.1.2 *The "Utilities Relocation Plans" Provided by the Draft Contradicts the Draft's Claim that AVEK Water Will be Used for Tunnel Construction in Acton and Agua Dulce.*

The intention expressed in Table 3.6-21 that construction on the Central section of the Project (where the Communities of Acton and Agua Dulce are located) will rely on AVEK water resources is utterly controverted by the "Utility Relocation Plans" presented in Volume 3 of the Draft which clearly demonstrate that CHSRA does not intent to utilize AVEK's water resources for constructing the central portion of the Project. Specifically, the "Utility Relocation Plans" definitively establish that CHSRA does not plan to connect to any AVEK facilities; they further indicate that local groundwater resources will be used for constructing all the Route Alternatives in Acton and Agua Dulce. For instance, Sheet UT-C4024-14A and Sheets UT-C4066-14A through UT-C4068-14A of the "Utility Relocation Plan" indicate that the water line serving the "Acton Window" construction site for the SR14A Alternative will originate in downtown Acton near an existing small waterline operated by Waterworks District 37 that connects to a local municipal well in the floodplain; there is no AVEK connection in downtown Acton. In fact, the nearest AVEK connection is located approximately 5 miles northwest of downtown Acton, and according to Sheet UT-C4013-14A, CHSRA does not intend to construct any water connections at that location. Similarly, Sheet UT-C4039-14A and Sheets UT-C4084-14A through UT-C4088-14A demonstrate that the water line that will serve the TBMs operating from the portal east of Agua Dulce Canyon Road to construct the SR14A and Refined SR14 Route alternatives will not connect to AVEK either; instead, the water line originates in the middle of Agua Dulce along Escondido Canyon Road. Sheets UT-C4031-E2, UT-C4032-E2, and UT-C4543-E2 through UT-C4547-E2 demonstrate that the water that will be used to operate the TBMs at the "Arrastre Canyon Window" location in South Acton for constructing all the "E" Route Alternatives will not come from AVEK either; instead, CHSRA will construct two new 16 inch water lines that originate at a location adjacent to the Santa Clara River floodplain near the intersection of Crown Valley Road and Arrastre Canyon Road where Waterworks District 37 has a small 12 inch water line that connects to a local municipal well to serve its customers. In other words, all of the "Utility Relocation Plans" presented in the Draft demonstrate that project tunneling and construction in Acton and Agua Dulce will rely on local groundwater resources either directly (by extracting water from the local basin) or indirectly (by connecting to Waterworks District 37 facilities that extract water from the local basin); this blatantly contradicts all the assurances provided in Section 3.6 that AVEK water resources will be used for tunnel construction in Acton and Agua Dulce. These contradictions provide abundant basis for legal challenge. It is not clear why Section 3.6 of the EIR/EIS substantially misrepresents material facts regarding the water resources that will be used for Project construction; the subterfuge is far too substantial to be a mere error. What is certain is that, the Draft neatly sidesteps the obligation imposed by CEQA and NEPA to assess potential environmental impacts

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on local groundwater quality, groundwater basins, and riparian habitat by declaring that Project construction along the Central section will rely on AVEK resources. This deception is unacceptable and substantial revisions are required to bring the Draft into compliance with CEQA and NEPA; the revisions must properly address the following significant environmental impacts that will result from using local groundwater for tunnel construction in Acton and Agua Dulce:

Impacts to groundwater levels: Many domestic well yields in Acton and Agua Dulce have been reduced over the last few years because of persistent drought conditions, thus extracting an additional 1,500 acre feet per year from local basins will further exacerbate these problems. This constitutes a significant environmental impact on all residents of Acton who rely on domestic residential wells for drinking water. The most recent complete hydrology study of the Acton groundwater basin is provided in Attachment 2 and is referred to hereafter as the "Slade Report"; it was conducted decades ago and thus does not reflect the severe drought conditions that Acton has experienced since 2008. According to the Slade Report, during years when precipitation occurs, the Acton drainage area can provide a groundwater recharge rate of 5,200 acre-feet per year or more. Unfortunately however, much of this groundwater recharge is already fully subscribed. For instance, and as indicated in Attachment 3: Waterworks District 37 has historically extracted up to 2,000 Acre-feet per year; it has also informed the community that it wishes to extract an additional 1,000 acre-feet pe year. Our local water hauling businesses that supply drinking water to residents who have dry or inoperable wells extract approximately than 400 acre-feet per year[6]. According to data obtained from the Los Angeles Regional Water Quality Control Board, the local "1000 Trails Campground" extracted approximately 400 acre-feet during 2020 when it was operating at only 25% because of COVID; at full operation, this campground (which is authorized to accommodate more than 10,000 campers[7]) will easily extract more than 1,200 acre-feet per year. Several thousand Acton residents rely on private domestic well that also pull from the Acton groundwater basin; these users are estimated to extract an additional 1,000 acre-feet per year. In total, these existing users in Acton's groundwater basin already use at least 5,100 acre-feet per year (2,000 from WWD37, 400 from the water haulers, 1200 from "1000 Trails" and 1,000 from domestic residential wells); thus, there is little excess capacity in the local groundwater basin to serve the Project's construction needs even during years when precipitation occurs. These statistics clearly demonstrate that there will be insufficient groundwater available to sustainably provide the water resources required for tunnel construction in Acton even during years when precipitation occurs; they also demonstrate that, under the drought conditions that Los Angeles County has experienced for the last 10 years[8], there is not even sufficient groundwater recharge to sustain existing uses. Accordingly, if the Project that CHSRA advances does rely on groundwater extraction to support tunnel construction in Acton and Agua Dulce, the EIR/EIS must be revised to include 1) a complete and accurate hydrology study of the Acton basin and

[6] The Conditional Use Permits ("CUPs") Issued to the Acton Water Company and the Lunde Water Company in 2021 limit each water hauler's extraction rate to 133 acre-feet per year. The Carson Water Company CUP is still pending, but it is assumed that it will also be limited to 133 acre-feet per year. Thus, the water haulers are presumed to collectively extract no more than 399 acre-feet per year from Acton.

[7] The CUP issued for the "1000 Trails" Campground authorizes more than 1,100 campsites and permits 10 campers per site.

[8] See the "U.S. Drought Monitor Map" for Los Angeles County provided in Attachment 4.

the Agua Dulce basin that is based on projected drought conditions resulting from climate change and accounts for all existing uses in these basins; and 2) a detailed assessment of the effects that Project construction will have on groundwater levels in the Acton basin and the Agua Dulce basin.

Impacts to Residential and Municipal Wells in Acton and Agua Dulce: The results of the hydrology study described above must be used to assess the significant environmental impacts that the Project will have on residential and municipal well operations and local groundwater quality profiles. For instance, according to the statistics presented above, the Project will adversely impact local well yields because it will extract an unsustainable amount of groundwater from the basin; this concern must be addressed. Also, because the Project will essentially "compete" with domestic and municipal wells for scarce groundwater resources, it could result in contaminant migration within the basin which may cause local wells that currently produce relatively clean and potable groundwater to produce less clean (and perhaps even undrinkable) water. Also, the Project could introduce new contaminants into new locations where contaminants currently do not exist; this circumstance would result from tunnel construction using non-potable groundwater extracted from areas that have high levels of nitrates, arsenic, or other contaminants. All of these impacts must be fully and properly addressed and mitigation measures offered.

Impacts to Perennial Streams and Riparian Habitat: Because the Project will re-locate groundwater from the extraction location to a tunneling location far downgradient, it has the potential to significantly impact ephemeral and perennial streams in the Acton-Agua Dulce area which will in turn affect riparian habitat and the endangered Unarmored Three Spine Stickleback in Arrastre Canyon and the threatened Red-Legged Frog in Aliso Canyon [50 CFR § 17.11]. All of these impacts must be fully addressed and proper mitigation measures offered.

Avoiding These Impacts: It would be preferable for the Project to simply avoid all the impacts described above rather than develop strategies to mitigate them. This can be easily achieved by 1) Revising PUE-MM#1 to preclude the use of local ground water and non-potable water resources for tunnel construction in Acton and Agua Dulce; and 2) by revising all the "Utility Relocation Plans" to show that the water lines constructed to serve all tunnel portals in Acton and Agua Dulce are connected exclusively to AVEK facilities.

2.1.3 *Recent Statements by CHSRA Staff Assert that Local Groundwater will be Used Instead of AVEK Water Resources for Tunnel Construction in Acton and Agua Dulce.*

At a meeting that occurred on November 4, 2022 between members of The Nature Conservancy, local landowners, and CHSRA engineers and representatives, it was announced that CHSRA will ***not*** rely on AVEK water for constructing the tunnels in Acton and Agua Dulce and that local groundwater resources will be utilized instead. This was a shocking announcement which utterly contradicts the analysis presented in Section 3.6 of the Draft; it was apparently motivated by the belief that it would be a "waste" to use clean water to operate the TBMs and that local residents do not wish CHSRA to use AVEK water for tunnel construction. CHSRA's announcement that tunnel construction in Acton and Agua Dulce will rely on groundwater resources also appears to have been made without regard for, or an understanding of, the impacts to local groundwater basins that will result from extracting nearly 1,500 acre-feet of groundwater per year (as described above). This is all exceedingly untenable,

and contradictions between CHSRA's statements and the Draft must be resolved in the Final EIR/EIS in a manner which affirms without equivocation that only AVEK water resources will be used for tunnel construction in Acton and Agua Dulce. The Final EIR/EIS must also address the impacts that this will have on AVEK's customers if AVEK's allocation of SWP water resources is insufficient to serve the Project and all of AVEK's existing customers.

2.1.4 *The Draft Fails to Address the Growth Inducing Impacts of the Extensive Water Distribution Facilities that will be Extended into Undeveloped Areas.*

The Project will result in the construction of extensive new water distribution facilities and water infrastructure throughout numerous undeveloped and underdeveloped areas in the Communities of Acton and Agua Dulce, and CHSRA has asserted publicly that these facilities would be made available to the County Waterworks District to supply water for development projects. For instance, the two 16-inch water lines that are proposed for construction of all the "E" Route Alternatives in Acton will have the capacity to carry more than 3 million gallons of water per day through an area that has remained largely undeveloped due to limited water supplies. If these water lines are turned over to the local waterworks district after Project construction, they can (and will) be used to support new development. Accordingly, the water infrastructure required for Project construction will have growth inducing impacts in the rural communities of Acton and Agua Dulce; CEQA and NEPA demand that these growth inducing impacts be addressed, but they are completely ignored by the Draft. This deficiency must be corrected and the Draft revised to address these impacts.

2.2 The Draft Fails to Consider Project Impacts to Private Water Systems.

The Draft fails to adequately address potential impacts to private drinking water systems or residential well facilities[9] *even though* CHSRA received hundreds of public comments at public workshops, meetings, and in written scoping comments which expressed concerns regarding impacts to private well systems and requesting that these impacts be addressed. The Project threatens private water systems in three different ways: 1) it will result in reduced groundwater levels if Project construction relies on local groundwater resources; 2) tunnel construction can actually destroy a well shaft and well infrastructure and render a domestic well inoperable; and 3) tunnel construction can alter the configuration of groundwater and perched water resources and in turn cause a domestic well to "dry up". It is *astonishing* that the Draft does not properly consider the domestic well concerns that were clearly expressed in extensive public comments made by many Acton and Agua Dulce residents and does not offer any mitigation measures to address them. These deficiencies are also discussed in detail in comments we have submitted in response to Section 3.8 "Hydrology and Water Resources" (which are hereby incorporated herein by reference and made a part hereof[10]). The Draft must be revised to incorporate the following elements to address the significant environmental impacts that the Project will have on private water systems and residential wells: 1) A clear

[9] The impacts contemplated by the Draft are summarized on pages S-58 through S-82 of the Executive Summary; none of the impacts address private water systems or residential wells.

[10] Comments titled "ANALYSIS OF THE "HYDROLOGY AND WATER RESOURCES" SECTION PRESENTED IN THE PALMDALE-BURBANK DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT", pages 5-8.

statement that there is insufficient evidence to conclude that the impacts of tunnel construction on private water systems, residential wells, and groundwater resources in Acton and Agua Dulce will be less than significant; and 2) A mitigate measure to address the impacts of tunnel construction on private water systems, residential wells, and groundwater resources in Acton and Agua Dulce which includes an "Adaptive Management and Monitoring Plan" ("AMMP") that establishes protocols to determine baseline conditions of ground water levels at all wells in Acton and Agua Dulce that are located within ½ mile of any tunnel and detects changes in groundwater conditions at these locations which are related to tunnel construction to ensure timely implementation of remedial measures; these remedial measures must include supplying supplemental water to all affected well owners until baseline levels are restored or drilling new wells that comply with all applicable local and state requirements.

The primary purpose of "Scoping" in both CEQA and NEPA is to inform the Lead Agency regarding significant impacts of a Proposed Project that are not addressed or set forth in the Notice of Intent; accordingly, the Lead Agency is supposed to identify these impacts in the environmental review, assess their significance, and mitigate them. The Draft makes no mention of the residential well impact concerns raised by the public during Project Scoping and it certainly does not offer any mitigation measures. The Final EIR must correct these substantial CEQA and NEPA violations by 1) clearly identifying the adverse impacts that Project construction will have on residential wells; 2) establishing a "threshold of significance" in which the impact is considered significant if a single well is affected by project construction; and 3) adopting the mitigation measure described to groundwater levels and well yields and for all wells within 1/mile of reduce impacts on private water systems, residential wells, and groundwater resources in Acton and Agua Dulce to a level that is less than significant.

2.3 The Draft Improperly Directs the Project's Stormwater Runoff Facilities to be Used for Wastewater Treatment.

The Draft address wastewater impacts during construction on pages 3.6-78 to 3.6-79, and it concludes that wastewater impacts will be less than significant because two "impact avoidance and minimization features" (HYD-IAMF#1 and HYD-IAMF#3) will be implemented and because the project will adhere to applicable dewatering regulation permitting requirements; this will ensure that "dewatering discharges during construction would not contribute to exceedances of water quality standards". This conclusion is erroneous for several reasons. First, HYD-IAMF#1 and HYD-IAMF#3 apply to stormwater runoff and require the development of stormwater management facilities and the implementation of a "Stormwater Pollution Prevention Plan" (SWPPP)[11]; they are not relevant to, and have nothing to do with, wastewater treatment. Stormwater is merely rainwater that lands on the earth and flows downhill, and in rural communities like Acton where there are few impervious areas, stormwater is generally clean with few contaminants other than sediment. Wastewater on the other hand is process water that is contaminated with oils, chemicals, and other constituents

[11] HYD-IAMF#1 is "Stormwater Management—This IAMF describes the Authority's commitment to coordinate with the contractor to prepare a stormwater management and treatment plan, prior to construction" and HYD-IAMF#3 is "Prepare and Implement a Construction Stormwater Pollution Prevention Plan—This IAMF describes the Authority's commitment to coordinate with the contractor to comply with the SWRCB Construction General Permit requiring preparation and implementation of a SWPPP, prior to construction (ground disturbing activities). See page 3.8-11.

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and it generally requires substantially more processing that rainwater to render it clean. In other words, "wastewater" and "stormwater" are two very different and completely unrelated project impacts that the Draft has improperly conflated; CHSRA cannot rely on the relatively small capacity of, and the limited treatment capabilities provided by, the Project's stormwater management facilities or its SWPPP to treat the significant wastewater volumes that will be generated at each tunnel portal location. For example, consider the "Acton Window" location that will occupy approximately 330,000 square feet; the capacity of the stormwater runoff facilities that will be required to accommodate a "1 inch" rain event at this location is only 27,500 cubic feet; this is a small fraction of the 130,000 gallons of wastewater that will be generated every day during tunnel construction at the "Acton Window"[12]. In other words, stormwater treatment facilities do not have either the capacity or the infrastructure required to properly clean the significant volumes of process wastewater that will be generated during construction; accordingly, the Draft errs in presuming that stormwater treatment facilities will mitigate wastewater impacts to a level that is "less than significant".

Second, meeting water quality standards is not the only factor that is relevant to determining whether wastewater impacts during construction will be less than significant; this is particularly true in rural areas where adverse impacts on downstream properties can be significant if the character, location, or flowrate of either stormwater or wastewater discharges result in new runoff patterns/conditions. The "Best Management Practices" (BMPs) and SWPPP measures that are described on page 3.6-79 may be perfectly reasonable for treating stormwater runoff in urban areas where the land surface is almost completely impervious and where extensive concrete drainage facilities capture and divert stormwater to large concrete-lined channels which carry the water to the ocean, but they are entirely inappropriate in rural communities like Acton where nearly all the roads are dirt and where natural drainage courses are relied upon almost exclusively because runoff infrastructure is virtually non-existent (as discussed in more detail below). The BMP described on page 3.6-78 is particularly alarming because it states that CHSRA will "minimize discharges of sediment" from all the tunnel construction sites; this means that CHSRA will discharge clean, "sediment free" wastewater and stormwater into the natural drainages surrounding the construction sites in Acton and Agua Dulce. These "sediment free" discharges will flow into the adjacent natural drainage courses and pick up sediment as they gain speed and flow toward the Santa Clara River[13]. Because this "sediment free" water will pick up sediment as it flows, it will cause significant erosion on the properties that are downstream of all tunnel portal and "window" construction locations. This will pose significant adverse erosion impacts on structures and residences located downstream of Project construction sites. For example, and as indicated on Sheets UT-C44023-14A and UT-C44024-14A, the "Acton Window" construction site is adjacent to, and immediately uphill from, an entire residential neighborhood and, as indicated in the drainage map provided in Attachment 5, there are several drainages across the "Acton Window" site that pass very close to the homes that are immediately south of, and downhill from. the construction site. If the BMPs

[12] Two TBMs will be operating from the "Acton Window", and according to page 3.6-78, each TBM will require 366 acre-feet per year; this will result in 653,500 gallons per day used at the "Acton Window". According to page 12 of Appendix 3.8-D, 20 percent of this water (or 130,700 gallons per day) will flow back and require treatment as contaminated wastewater.

[13] This is the principal characteristic of "two phase flow" conditions: clean water flowing over a natural surface will pick up sediment from the surface until an equilibrium is reached; the equilibrium is a measure of the sediment transport capacity of the flow.

and SWPPPs described in the Draft are employed at the "Acton Window" site, then the drainage channels adjacent to these homes will be widened by erosion to such an extent that these homes will be substantially damaged. Similar problems are likely to occur at other tunnel and "window" construction sites located in rural residential areas. Accordingly, CHSRA must not utilize the BMPs and SWPPP measures that are described in the Draft in rural communities like Acton; instead, they must devise new BMPs for rural areas which provide discharges with sediment levels that are at equilibrium to prevent erosion on downstream properties.

2.4 The Draft Does Not Properly Describe Stormwater Runoff Characteristics in Rural Areas or Accurately Portray Conditions in Acton and Agua Dulce.

The Draft asserts on page 3.6-51 that "Generally, storm drain systems are more prominent in developed urban areas. In rural areas, roadside ditches, irrigation canals, and natural drainages convey stormwater runoff." This description of storm runoff characteristics in rural areas does not clearly reflect circumstances in most of Acton. Runoff patterns in much of Acton have remained unchanged for millennia; stormwater is typically sediment laden (because Acton is surrounded by mountains and most roads are dirt, thus rainwater runoff picks up and carries sediment down the hillsides to the Santa Clara River), it is generally not "conveyed" anywhere (because it flows naturally toward the Santa Clara River) and drainage paths in Acton are not irrigation canals or roadside ditches (though in some places the flood plain and drainage paths are adjacent to paved roadways). In a few areas, concrete v ditches have been installed to direct stormwater flows, but such facilities have caused terrible erosion problems on downhill properties because they remove sediment from the runoff and release "clean" water which picks up sediment as it flows downhill and thus erodes downhill properties (the Forecast Home development along Desert Road is an area where this is a particular problem).

Drainage patterns have generally dictated where development has occurred in Acton over the last 135 years; thus, to protect existing developments, it is critical that drainage patterns and characteristics remain unchanged. This, coupled with the fact that the only forces which alter drainage patterns in Acton are development and earthquakes, is why the community generally opposes stormwater "conveyance" facilities and works diligently to ensure that developments do not alter runoff patterns or characteristics. There are culverts under a few paved roads (the 14 Freeway, Escondido Canyon Road, Sierra Highway, and Soledad Canyon Road) but these culverts are located where natural flows occurred before the roads were built and they do not have sediment removal facilities; they simply carry sediment laden flows from one side of the road to the other and do not cause erosion or generally alter flow patterns. It is particularly important that the Final EIR clearly assert that the Project will not alter any stormwater runoff patterns or characteristics in Acton because of the devastating impact that such alterations would have on downstream properties. This is particularly true for the "Acton Window" location that will be constructed under the "preferred" SR14 A alternative because the residential neighborhood located just south of, and downhill from, the location has been configured with dirt roads and designed to accommodate existing flow patterns and characteristics. Any increase in flowrate or change in flow pattern will threaten these homes with inundation, and any decrease in sediment levels will threaten these homes with erosion. As indicated in the drainage map for this location provided in Attachment 5, homes are located near natural drainage swales that have not changed in many decades; the EIR must clarify that these drainage patterns and characteristics will be preserved.

2.5 The Energy Impact Analysis Provided by the Draft is Substantially Deficient and Violates Both CEQA and NEPA.

Various statements and conclusions regarding electrical generation capacities, transmission capacities, natural gas capacities, and other "energy issues" are spread throughout Section 3.6 of the Draft, but they are internally inconsistent, rambling, and fail to address salient issues required by CEQA. For instance, the section titled "Existing Electric Power Generation Capacity" states that, as of 2017, California had an installed in-state generation capacity of 292,039 GWhr. However, this is contradicted by the paragraph above this section which indicates that, in 2016, California's in state generation capacity was only 195,027 GWhr (70,857 GWh from governmental and utility-owned in-state facilities and 124,170 GWh from commercial in-state generation facilities). It is known with certainty that the State of California did not add more than 100,000 GWhr of generation capacity between 2016 and 2017, so one of the values reported by the Draft is erroneous. It is assumed that the error is in the 292,039 figure which appears to represent "Nameplate" generation capacity rather than *actual* generation capacity. CEQA requires that a discussion of the energy demand and energy resources that are required to support a Project be realistic and "actual"; thus, CEQA conclusions pertaining to energy issues should never be based on "nameplate" generation capacity. This is particularly true for renewable resources which typically have "nameplate" generation capacities that are much higher than their *actual* generation capacities[14].

Section 3.6 also fails to provide the information required to conduct a thorough CEQA and NEPA energy impact analysis; it also fails to assess whether Project operations can be accommodated by existing and planned generation resources or whether it will affect statewide electricity reserves and transmission capacity or whether Project operation will require the addition of more generation and transmission capacities than what is already planned. This is particularly important given that CHSRA has stated that the Project will operate using 100% renewable energy; this will be very challenging given that there are insufficient renewable resources available to serve existing and projected energy demand (let alone satisfy the Project's energy requirements). The Draft must be revised to include a renewable energy assessment that complies with CEQA and NEPA; this will require an analysis of the following factors: 1) A realistic assessment of what the projected "non-Project" electrical generation capacity will be when the Project comes on line and when it is operating at "full buildout"; 2) A realistic assessment of what the projected "non-Project" electrical demand will be when the Project comes on line and when it is operating at "full buildout"; and 3) A realistic assessment of the Project's electrical demand when it comes on line and when it achieves full buildout. These factors must be reconciled to assess whether Project operations will require additional renewable generation beyond what is planned. It is likely that this analysis (if properly conducted[15]) will reveal that there will not be sufficient renewable generation capacity available

[14] A 1 MW wind turbine can theoretically generate 8,760 MWhr/year; thus, it has a very high "nameplate" generation capacity. However, high winds do not always blow and mechanical equipment is not always efficient; so the *actual* generation capacity of a wind turbine is much lower than the nameplate capacity. Many windturbines have capacity factors < 30% [https://windexchange.energy.gov/maps-data/332].

[15] Specifically, the "non Project" electrical demand (factor 2) should be added to the Project's expected electrical demand (factor 3) and this sum should be compared to the projected "non-Project" electrical demand (factor 1); if the sum exceeds factor 3, then there will not be sufficient renewable generation capacity available to serve the Project when it comes online.

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to serve the Project when it comes online, and if so, the Final EIR must assess the environmental impacts that will result from creating the additional renewable generation capacity required for Project operation. This number will not be small: as indicated above, the Project is anticipated to result in more than 462 trips per day between Palmdale and Burbank. Unfortunately, the Draft fails to provide a CEQA/NEPA-compliant energy analysis; it also fails to provide the information necessary to perform such an analysis. Instead, the Draft simply declares (without basis or quantitative justification) that the Project will "not affect statewide electricity reserves or transmission capacity" because the will just "obtain electricity from the statewide grid" (page 3.6-86). Merely stating that the Project will not impact the State's electrical system does not meet CHSRA's burden to *demonstrate* that it will not. And, given that California's current energy landscape is so anemic and so inadequate that it is demonstrably incapable of reliably serving Californians today[16] it is profoundly likely that the substantial amounts of renewable electricity which will be required to operate the Project will indeed worsen California's electrical grid problems.

The Draft ignores all of this, and instead merely contends that the Project will "not affect statewide electricity reserves or transmission capacity" because "An industry survey in April 2013 indicated that there is sufficient renewable energy capacity to meet the system demand" (page 3.6-86). Notably, this "industry survey" is not included in the studies posted with the Draft, so the claim that the Project will "not affect statewide electricity reserves or transmission capacity" is unverifiable. Furthermore, in 2013, California only required 20% of electricity retail sales to be served by renewable resources; thus, any survey conducted in 2013 would reflect this low renewable energy target, and at that time, it could reasonably conclude that there would be sufficient renewable capacity to serve the Project. Now however, California has much more aggressive renewable energy goals[17] which the state is struggling to meet[18]; accordingly, there will be no surplus renewable generation capacity available to serve the Project and the Draft errs substantially in assuming that there will be. In other words, CHSRA's obligation to address the Project's impacts on local, regional, and statewide grid operations is not satisfied by a mere citation to some vague "industrial survey" conducted a decade ago that is not even available to the public and which presumes an energy landscape that simply does not exist. Oddly enough, the Draft obliquely admits that Project operations will require the development of significant amounts of new renewable energy resources because it states on page 3.6-86 that CHSRA is developing an entire "renewable energy procurement plan" requiring "extensive collaboration" to ensure sufficient power procurement. This suggests that Project operations will require the development of extensive new renewable resources; thus, CEQA and NEPA demand that impacts resulting from these renewable energy developments be assessed and mitigated.

This is no small thing; because the State of California has chosen to achieve its renewable goals via energy procurements from remote, utility-scale renewable energy farms rather than relying on more reliable, more resilient, and more environmentally responsible distributed generation facilities, hundreds of thousands of acres of desertland has already been decimated

[16] For several years now, brownouts and blackouts are routinely threatened during the summer because California has insufficient generation resources to meet energy demand. These facts must be represented in the Final EIR.

[17] SB100 (adopted 2018) requires 100 percent of electric retail sales be renewable/zero-carbon in 2045.

[18] Because electrical supply does not meet demand, Californians are threatened with Summer blackouts.

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and massive new transmission facilities have already been constructed through high fire hazard areas[19]. This is an ongoing trend which will eventually eliminate millions of acres of desertland. Accordingly, and given CHSRA's stated intent to develop a renewable energy procurement plan in order to secure sufficient renewable energy to operate the Project, it is certain that the Project will result in substantial decimation of desert resources. Both CEQA and NEPA require that the Project EIR address and mitigate the impacts associated with developing the utility scale renewable energy resources required to serve the Project.

3.0 ADDITIONAL SUBSTANTIVE DEFICIENCIES NOTED IN THE DRAFT

For simplicity and to facilitate review, additional deficiencies and factual errors noted in the Draft are presented sequentially by page number below.

Page 3.6-10 identifies the Los Angeles County General Plan as a community plan that is pertinent to public utility issues addressed in the Draft, but it only identifies the "Public Services and Facilities Element" of the General Plan as being relevant; it fails to consider other equally important plan elements that pertain to utility issues (particularly in regards to water uses). For instance, and as indicated above, CHSRA has evinced a clear intent to substantially rely on local groundwater resources to construct all the tunnels for all 6 proposed routes through Acton and Agua Dulce; CEQA demands that CHSRA's plan to utilize local groundwater resources be evaluated through the lens of applicable goals and policies that have been adopted by the County but are omitted from consideration on Page 3.6-10. For example, Goal C/NR 6 (Protected and usable local groundwater resources) and Policy C/NR 5.6 (Minimize point and non-point source water pollution) should both be considered; they are from the Conservation and Natural Resources Element of the County General Plan. Goal C/NR 6 is relevant because the residents of Acton and Agua Dulce rely on local groundwater resources for their water supply; thus, protecting local groundwater resources in a sustainable manner is critical to our communities. Over the years, the "depth to groundwater" measured by the local waterworks district in Acton has increased and Acton and Agua Dulce residents have experienced reduced well yields and been forced to supplement their water supply by purchasing water from licensed water haulers; CHSRA's plan to utilize local groundwater for Project construction will further strain local groundwater resources and thus exacerbate this already significant problem. Accordingly, the Final EIR must address Goal C/NR 6 and assess Project impacts resulting from the use of local groundwater supplies to operate the TBMs. Additionally, General Plan Policy C/NR 5.6 pertaining to the minimization of point and non-point source water pollution is also relevant because contaminants will be distributed throughout the project area if groundwater containing excessive with nitrates or arsenic concentrations are utilized for TBM operations because the TBMs will pierce water channels and aquifers that serve as both public and private drinking water sources and inject unclean water directly into these groundwater sources. Accordingly, the Final EIR must address Policy C/NR 5.6 in assessing the impacts of TBM operation on

[19] The State of California intends to achieve its renewable energy goals via utility scale generation rather than distributed generation. For example, consider the map prepared by the California Energy Commission ("CEC") [Attachment 6] showing where streamlined approvals for renewable energy development is expressly encouraged; the map demonstrates that the CEC recommends that virtually all of unincorporated Antelope Valley be converted to renewable energy purposes. The lands earmarked for renewable projects currently support thriving wildlife and numerous rural communities; the CEC did not assess the impacts that these massive industrial energy projects will have on rural residents or the extent to which the stripping and fencing of huge tracts of land will decimate habitat and wildlife corridors.

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drinking water systems. Finally, the Draft fails to identify the Antelope Valley Area Plan or discuss its relevance to the Public Utilities section of the Draft; the policies that are particularly relevant include Policy COS 2.7 (Limit use of groundwater sources to their safe yield limits) and Policy COS 3.5 (Protect underground water supplies by enforcing controls on sources of pollutants); the relevance of these policies to the public utility issues related to the Project is self-evident. Accordingly, the Draft must be expanded to address Antelope Valley Area Policies.

Page 3.6-10 discusses the Los Angeles County General Plan but it does not specifically identify Policy PS/F 6.6 pertaining to the undergrounding of new utilities; in fact, the Draft only addresses this Policy in a very rudimentary and cursory manner because it only commits to undergrounding *relocated* utilities to the extent feasible [20] and makes no commitment to underground any *new* utility infrastructure that will be constructed for the Project. This is a substantial deficiency that is of particular concern to the Communities of Acton and Agua Dulce which are located in Very High Fire Hazard Severity Zones (VHFHSZs) and experience frequent and lengthy power shutoffs by Southern California Edison. The Project must not result in the construction of new electrical facilities in the Communities of Acton and Agua Dulce that are located above ground for two critical reasons: 1) above ground electrical utilities pose a very real and significant fire risk in VHFHSZs; and 2) above ground electrical utilities are susceptible to frequent power shutoffs that can last for days[21] and which will cause extensive service interruptions on HSR lines. Accordingly, the Final EIR must adopt a mitigation measure stating definitively that any above ground electrical facilities that are constructed in the Communities of Acton and Agua Dulce as part of the Project shall be installed underground. The new 230 kV line that is proposed in Northeast Acton is of particular concern because it will be constructed in a new "right of way" and it introduces a new ignition source within the Community of Acton. To ensure consistency with Policy PS/F 6.6, this new 230 kV line must be undergrounded.

Page 3.6-13 addresses Project consistency with adopted County and local plans, and it defers to a "consistency analysis" presented in Appendix 2-H which concludes that the Project is consistent planning documents pertaining to the County of Los Angeles [pages 2.0-H-10 to 2.0-H-12]. However, the consistency analysis presented in Appendix 2-H is deficient. First, it does not even mention Goal C/NR 6 from the County General Plan or Policy COS 2.7 from the Antelope Valley Area Plan pertaining to protected and usable local groundwater resources which (as discussed above) are particularly relevant to Acton and Agua Dulce. Using local groundwater resources in Acton and Agua Dulce to operate the TBMs will conflict with Goal C/NR 6 and Policy COS 2.7; accordingly, these conflicts must be addressed and mitigation measures must be developed to resolve them. Second, Appendix 2-H does not even mention Policy C/NR 5.6 from the County General Plan or and Policy COS 3.5 from the Antelope Valley Area Plan pertaining to the protection of water supplies from pollution. Using non potable water for TBM operation will conflict with Policy C/NR 5.6 and Policy COS 3.5; accordingly, these conflicts must be addressed and mitigation measures must be developed to resolve them.

Page 3.6-14 asserts that the goals and policies enumerated in various county and city General Plans which apply to the Draft's discussion of "Public Utilities and Energy" relate to "reducing demands for natural resources, ensuring that public infrastructure is developed so that sufficient

[20] Appendix 2.0-H-12.

[21] Most power shutoffs in Acton last more than 20 hours and often range from 36-48 hours.

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utilities are provided for the regional growth anticipated, and conserving energy". This statement is incorrect. As indicated above, there are a number of goals and policies in planning documents that have been adopted for unincorporated Los Angeles County which address protection of drinking water source, groundwater supplies, fire hazards, and electrical reliability and thus are directly applicable to "Public Utilities and Energy" matters. Page 3.6-14 must be revised to address these goals and policies which are entirely unrelated to "reducing demands for natural resources, ensuring that public infrastructure is developed so that sufficient utilities are provided for the regional growth anticipated, and conserving energy".

Page 3.6-14 asserts that "the project is consistent with the majority of regional and local policies and plans" and that "IAMFs (Impact Avoidance and Minimization Features) and mitigation measures will generally minimize utilities impacts and would ultimately meet the overall objectives of the local policies". This statement is incorrect. If CHSRA uses local groundwater supplies in Acton and Agua Dulce to supply water for TBM operation or if CHSRA does not underground all new and relocated utilities in Acton and Agua Dulce, the Project *will not* "meet the overall objectives of the local policies"; to the contrary, it will actively controvert such policies. Such circumstances would constitute a significant impact under CEQA and would require mitigation to render the project consistent with adopted "local policies".

Page 3.6-18 addresses "Utility Demands for Project Construction" and asserts that water supply estimates are compared to water supply forecasts from Urban Water Management Plans ("UWMPs). However, no UWMP has ever been prepared for the communities of Acton and Agua Dulce, therefore CHSRA lacks the information it requires to accurately assess water supply estimates for approximately half of all the route alternatives. This deficiency must be corrected and the Final EIR must property assess utility demands for project construction and compare it to accurate and representative data pertaining to water resource availability.

Page 3.6-19 presents Table 3.6-4 which asserts each TBM will require 55,000–105,000 gallons/day per tunnel boring machine; this equates to 0.17 - 0.32 acre feet per day or 61 – 117 acre feet per year. These values are inconsistent with the values reported on page 3.6-78 which states that "each TBM operating from each twin tunnel portal would require a total of 1,829 acre-feet (366 acre-feet per year)". There is an enormous discrepancy between the TBM water requirements described on page 3.6-19 and the TBM water requirements described on page 3.6-78; this discrepancy must be explained and corrected.

Page 3.6-21 addresses "Construction Energy Uses" and though it describes how construction energy usage was estimated, it does not assert what the construction energy usage will actually be or whether local infrastructure in rural areas like Acton are sufficiently robust to serve the Project's energy demand during construction. Acton is served by a very small electrical substation that is fed by two 66 kV subtransmission lines; power is distributed from this substation via three distribution circuits (<16 kV) which traverse Acton's 100 square mile area; power service is not always reliable and power shutoffs lasting 20 hours to 48 hours or more are common (particularly in the Fall and Winter). The Draft does not address these concerns, and it does not assess whether the capacity of the local Acton distribution station is sufficient to serve electrical demand for Project construction. Thus, the Draft fails to assess whether electrical service to Acton residents will be interrupted to maintain CHSRA's construction activities (particularly during peak demand); it also fails to identify mitigation measures to address such impacts. These deficiencies must be addressed in the Final EIR/EIS.

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Page 3.6-21 also addresses "Operation Energy Uses" but it does not actually identify the amount of energy required to support high speed train operation (particularly given the projected 162 trips per day operating schedule between Palmdale and Burbank); it also fails to address whether the capacities of existing local and regional electrical facilities are sufficient to maintain Project operations. The CEQA Guidelines establish that EIRs are supposed to discuss the potential energy impacts of proposed project operations and, in particular, address whether the project will place a substantial demand on energy supplies or require additional capacity or increase peak electricity demand; as indicated above, the Draft fails to discuss any of these concerns and does not even identify an impact associated with such concerns. This deficiency must be corrected in the Final EIR/EIS.

Page 3.6-30 reports that Los Angeles County Waterworks District 37 (the local waterworks district in Acton that serves less than half of Acton residents) is supplied by the Metropolitan Water District, it is 473 square miles in area, and it has an annual average water demand of 659,000 acre feet. None of this is correct. Waterworks District 37 obtains its water from AVEK and from local municipal water wells, it serves an area that is less than 50 square miles and its annual water demand is approximately 2,000 acre feet. The Draft must be revised to reflect these facts.

Page 3.6-31 indicates that much of Central and North Acton does not have a natural gas pipeline; this is incorrect. Many areas in North, East, Central, and South Acton are served by a natural gas pipeline.

Page 3.6-41 indicates that much of Central and North Acton is not served by a water pipeline; this is incorrect. Numerous areas in North, East, Central, and South Acton are served by a water pipeline.

Page 3.6-45 asserts "The Acton Water Treatment Plant is a water treatment facility owned by AVEK. After treatment, the Acton Water Treatment Plant pumps about 4 million gallons of water per day from the plant site into a Los Angeles County Waterworks pipeline". This is incorrect. While the capacity of the Acton Water Treatment Plant is 4 million gallons per day, it does not operate at this rate; to the contrary, it pumps approximately 1 million gallons per day.

Pages 3.6-52 to 3.6-53 provide figures of "stormwater facilities" in Acton in the vicinity of all the proposed routes. Unfortunately, these figures fail to show most of the culverts in Acton which, as described above, release sediment-laden stormwater flows onto downstream properties. It is particularly worrisome that the figure provided on page 3.6-53 does not show the numerous culverts under the 14 Freeway that discharge sediment flows unto the property where the "Acton Window" is proposed for construction under the "preferred" SR14A Alternative; this suggests that CHSRA is unaware of these culverts. These figures must be revised to properly show the location of these culverts and the Final EIR must evince a clear plan which demonstrates that the Project will not alter any runoff flow patterns or flow rates or flow characteristics at any location in Acton.

Pages 3.6-58 to 3.6-59 provide figures of "electrical lines" in Acton in the vicinity of all the proposed routes. These figures show the location of high voltage transmission lines but they omit all the 66 kV subtransmission lines that serve the Acton substation and most of the 12 kV distribution lines in Acton. To ensure that CHSRA is aware of these facilities, they are indicated

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in the figure provided below. The Draft must be revised to properly show the location of electrical facilities in the vicinity of all proposed route alternatives in the Community of Acton.



Subtransmission and Distribution Circuits in Acton

Page 3.6-63 discusses "Existing Electricity Demand" in California. Much of the information presented does not reflect current conditions and some of it is simply incorrect. For example, and contrary to what the Draft asserts, Statewide electrical consumption has actually dropped in recent years and was 277,764 GWhr in 2021[22]; this is approximately the same demand experienced in in 2010. There are many reasons for this reduction: more "behind the meter" distributed generation resources have been installed, the California population has dropped, and skyrocketing electrical costs are forcing people to use less electricity. Furthermore, the Draft reports that the highest recorded peak demand (which it describes as "the amount of generation needed to keep electrons flowing in the electricity system at any given moment of peak demand") was 60,713 MW in 2016; this is incorrect. The California Independent System Operator (CAISO) is responsible for keeping "electrons flowing in the electricity system" and according to CAISO, the highest peak demand on the California grid was 52,061 MW[23] recorded on September 6, 2022. There are no definitive citations provided in the draft for the 60,713 MW value that it reports, however it appears to have been obtained from a forecast study prepared by the California Energy Commission which made significant "adjustments" to historic data to project possible non-coincident peak loads under a variety of possible scenarios; such forecasts do not report actual peak demand and they cannot be relied upon for such information.

[22] https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2021-total-system-electric-generation

[23] https://www.caiso.com/documents/californiaisopeakloadhistory.pdf

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Page 3.6-64 provides a Section titled "Existing Electricity Generation Capacity", but the associated paragraph merely describes the sources of electrical generation and does not materially address electrical generation capacity.

Pages 3.6-85 to 3.6-90 address the impacts of Project operations on energy demand. As discussed above, the impact analysis of project operation on energy resources presented in the Draft is substantially deficient; instead of analyzing the extent to which the electrical demand of Project operation will impact the local, regional, and national electrical system (as required by CEQA), the Draft presents a completely erroneous "net change in energy use" in which the Project's electrical usage is compared to hypothetical projections of fossil fuel reductions that could accrue from reduced vehicle and airline trips. The comparison is ludicrous and it fails to address the salient issue in CEQA; namely: will High Speed Rail operations adversely affect local, regional, or national electrical grids by drawing more electricity than the grids can provide? And if so, what measures has CHSRA developed to mitigate this significant adverse impact and what further impacts will result from implementing these mitigation measures? Answering these questions require CHSRA to look at Project energy demand and local and regional power systems. For example, the "Utility Relocation Plan" indicates that CHSRA intends to construct a new 33 kV power line along Aliso Canyon for all the "E" routes and a new powerline of unknown voltage and ampacity along Crown Valley Road for the SR14A routes; yet, the Draft fails to even consider whether the local electrical facilities in Acton are even sufficiently robust to serve these new powerlines, and it certainly does not provide any mitigation measures if the electrical facilities in Acton are insufficient for CHSRA's purposes. Insofar as the Community of Acton is aware, there are no 33kV service facilities anywhere near Acton; therefore, substantial substation modifications and transformer additions will be required to provide the 33 kV power that the Project construction apparently requires. These are the issues that must be analyzed pursuant to CEQA, not whether the Project will result in a "net change in energy use".

Furthermore, it is certain that the Project *will* adversely impact the electrical grid and the availability of renewable resources because CHSRA is apparently making plans to procure sufficient renewable resources to operate the High Speed Rail system (as discussed above). CHSRA's procurement of additional renewable resources will result in the development of thousands of acres of utility scale solar and wind farms which, in turn, will result in the destruction and fencing of thousands of acres of pristine desert habitats and the elimination of extensive wildlife corridors. The Draft fails to account for any of these impacts; in fact, it does not even report how much electricity is required to operate the Project. These are all substantial deficiencies which must be corrected. Specifically, the Final EIR/EIS must report the Project's construction energy demand and the Project's operating peak demand and total annual power demand at full buildout and reconcile these values with credible engineering factors to 1) determine what new electrical infrastructure will be required in Acton to supply electrical demand for both Project construction and Project operation; and 2) determine how much desertland will be converted to renewable energy farms to generate sufficient renewable energy for Project operation. For example, the Institute of Electrical and Electronics Engineers ("IEEE") estimates that 2.2 acres of solar panels are required to generate 1 GWh per year[24] (though this estimate does not account for the transmission lines and the battery storage

[24] https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9676427

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that will be required to make energy continually available to the Project, therefore it is biased low). Additionally, the Final EIR must include measures to mitigate the significant impacts created by these utility scale generation, storage, and transmission projects (such as the ambient dust that these projects will create, elimination of habitat and wildlife corridors, etc.). Alternatively, the Final EIR can incorporate a mitigation measure that commits CHSRA to using distributed generation to supply electricity for the project rather than utility scale generation; this will eliminate all desertland and transmission impacts.

Page 3.6-91 through 3.6.97 present NEPA and CEQA significance conclusions which assert that the Project will "avoid, minimize, reduce, or compensate for all impacts on utilities and energy" (page 3.6-91) and that "Public utilities and energy impacts would be reduced to a less than significant level under CEQA with the implementation of the mitigation measures identified in this section". These statements are incorrect for the reasons set forth above and because:

- It is highly likely that sufficient water supplies will be unavailable from AVEK to construct the all the route alternatives within Acton and Agua Dulce. This is a significant environmental impact that is not addressed by the IAMFs or mitigation measures offered by the Draft; instead, the IAMFs and mitigation measures assume (wrongly) that AVEK will have excess water resources to sell to CHSRA when construction is initiated. If CHSRA uses its authority to compel AVEK to sell water for project construction, then AVEK's customers will be severely impacted; yet, the Draft fails to address these impacts.
- The use of local groundwater extracted from Acton and Agua Dulce for Project construction will severely impact local groundwater levels, local groundwater quality, and both municipal and residential well yields. These impacts are completely ignored by the Draft.
- Section 3.6 of the Draft states explicitly that AVEK water resources will be used for Project construction in Acton and Agua Dulce. Yet, the Project's "Utility Relocation Plans" indicate that the Project will not connect to AVEK facilities or use AVEK resources for Project construction in Acton and Agua Dulce; this has been confirmed by recent public statements made by CHSRA officials. These glaring inconsistencies demonstrate that the Project is neither stable nor finite; this, combined with the paltry environmental impact analysis provided by the Draft, this makes it impossible for the public to provide meaningful comment and it will prevent the decisionmakers from properly contemplating the Project and its associated impacts.
- The Draft fails to address the hundreds of scoping comments submitted by the public that expressed concerns regarding Project impacts on local well facilities.
- The Draft fails to assess the impacts of Project operation on local and regional electrical grids and the impacts of all the new utility scale generation projects that will be required to supply electricity for Project Operations.
- The Draft improperly relies on stormwater treatment facilities to treat the significant wastewater flows that will be generated during project construction.
- The Draft adopts BMPs and SWPPP measures that are entirely inappropriate for rural areas and which, if implemented, will result in significant erosion on downhill properties.

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Sheet UT-C4537-E1 indicates that the water needed to construct the tunnel portals adjacent to Aliso Canyon Road for all the "E" route alternatives will not come from AVEK and will instead be supplied by a 16-inch water main that is supposedly proposed by Waterworks District 37 and which will extend from Avenue Y-8 out to Aliso Canyon; however, no such water line has been proposed insofar as the Community of Acton is aware.

Sheet UT-C4028-S14 indicates that the water needed to construct the tunnel portal adjacent to Red Rover Mine Road for the SR14A Route Alternative will not come from AVEK and will instead be supplied by a 16-inch water main adjacent to Hypotenuse Road that is supposedly proposed by Waterworks District 37; however, no such water line has been proposed insofar as the Community of Acton is aware.

Sheet UT-C4026-14A has mislabeled Hisey Ranch Road as Salty Dog Road; the house under which the 14A tunnel is located on the west side of this Sheet is on Hisey Ranch Road and not Salty Dog Road.

4.0 CONCLUSION

For the reasons set forth above, the Draft EIR/EIS prepared for the Palmdale to Burbank section is deficient and does not comply with CEQA or NEPA; these deficiencies must be addressed and the impacts identified herein must be fully mitigated in the Final EIR issued for the Project.

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ATTACHMENT 1

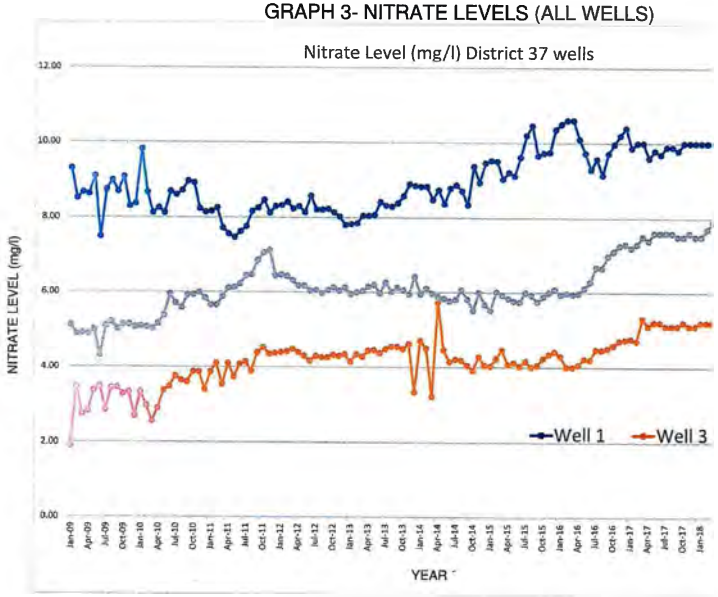
Nitrate levels measured in local groundwater in Acton (Source: Waterworks District 37).

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GRAPH 3- NITRATE LEVELS (ALL WELLS)



ATTACHMENT 2

Hydrology Report of the Groundwater Basin under the Community of Acton ("The Slade Report").

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RCS
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ASSESSMENT OF HYDROGEOLOGIC CONDITIONS
Within
ALLUVIAL AND STREAM TERRACE DEPOSITS
ACTON AREA, LOS ANGELES COUNTY

For
County of Los Angeles
Department of Public Works
And
ASL Consulting Engineers

October 1990

Our Job 88931

Richard C. Slade
Registered Professional Hydrogeologist

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INTRODUCTION

GENERAL STATEMENT

Presented in this report are the findings, conclusions and recommendations regarding our assessment of the hydrogeologic conditions within the alluvial and stream terrace deposits along the upper reaches of the Santa Clara River in the Acton area, Los Angeles County, California. Particular regard is given in this report to the groundwater storage capacity within the alluvial and terrace deposits and to potential locations for new wells.

As depicted on Figure 1 - Location Map - the approximately 80-square-mile, rectangular-shaped mapped area includes a main study region centered around the community of Acton. This latter area consists of approximately 16 square miles enclosed within the boundaries of the service area of Los Angeles County Waterworks District No. 37-Acton. The mapped area is located between the narrows within Soledad Canyon on the southwest and the San Andreas fault on the northeast, and between the Sierra Pelona on the north and the western San Gabriel Mountains on the south.

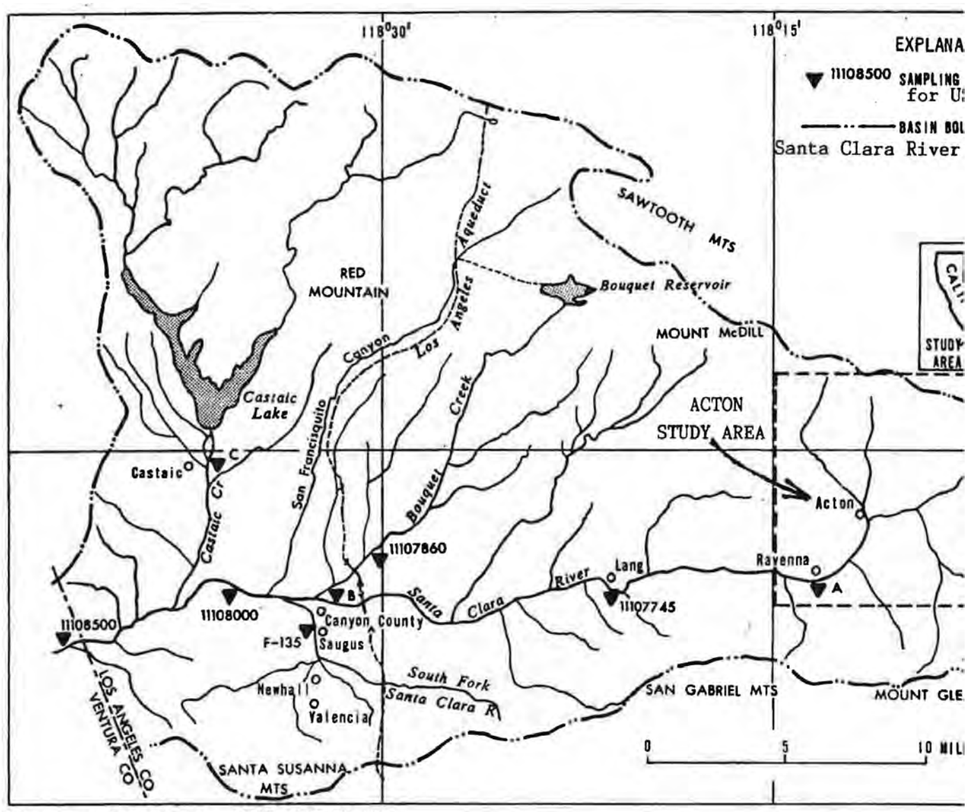
This report has been provided with a list of references which have been specifically reviewed and/or cited during the course of this study. Plates which accompany this report are bound at the end of this text.

PURPOSE AND SCOPE

This hydrogeologic study has been undertaken to evaluate the alluvial and terrace aquifer system underlying Soledad Canyon and its tributaries in the Acton area with particular regard to: determining the surface boundaries and three-dimensional configuration of the local groundwater basin; assessing local hydrogeologic conditions within these deposits; determining their groundwater storage capacity; assessing general water quality conditions; and identifying regions for possible future groundwater development.

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Figure 1 - Location Map



(figure adapted from USGS,WRI 77-99)

S8931 - Acton Report 2

RCS

This project has been conducted for the Los Angeles County Department of Public Works and for ASL Consulting Engineers. The scope of work was outlined as five tasks in our letter of proposal dated October 27, 1989, to Mr. Thomas O'Laughlin of ASL Consulting Engineers. A summary of the five work tasks performed for this investigation is as follows:

Task 1 - Acquisition of Available Basic Data

- Collect basic geologic, hydrogeologic, land use, rainfall and water-well records and data.
- Develop a screened mylar, topographic base map for all proposed plates in the final report.

Task 2 - Field Reconnaissance

- Conduct field visits to assess locations of active and inactive water wells and to validate topographic and geologic conditions.
- Review and verify geologic exposures and rock types, and observe local topography and watersheds.
- Obtain non-pumping water levels in active water wells, if possible.
- Collect water samples from active wells, if necessary.

Task 3 - Hydrogeologic Conditions

- Hydrogeologically analyze all available data.
- Prepare hydrogeologic maps and cross-sections.
- Prepare maps showing current and historic water level elevations.
- Assess general water quality, quality problems and problem areas in the region.
- Prepare hydrographs from selected water wells.
- Correlate electric logs of recently-drilled test holes in the region, if possible.

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- Assess the three-dimensional configuration of the local groundwater basin.
- Identify the surface boundaries of the local groundwater basin.
- Assess the quantity of groundwater in storage for current conditions and for basin-high and basin-low conditions.
- Identify potential sites for new water wells.

Task 4 - Analyses and Reports

- Write and prepare our report with conclusions and recommendations regarding historic and current groundwater conditions in the basin.
- Provide supporting maps, figures and tables to document our findings.

Task 5 - Meetings and Consultation

- Provide hydrogeologic consultation during the project to ASL and to the Los Angeles County Department of Public Works via meetings, telephone communications, etc.

Analyses for this project relied solely on available background data and reports. No subsurface exploration or well testing was conducted for this study. Reports specifically reviewed for this project are shown on the list of References Reviewed.

Field work consisted solely of field meetings with County and Acton-Camp staff, and of reconnaissance geologic field mapping to more accurately define the surface boundaries of alluvial and terrace deposits in the project area. The field meetings occurred in December 1989, while the field mapping took place on January 12, 1990. On this latter date, which was prior to any significant rainfall in the area, we also made estimates of subsurface water runoff, if any, in various creeks in the region.

Throughout the remainder of this report, there will be numerous discussions of water wells in the region. The major purveyor in the region, the Los Angeles County Waterworks District No. 37-Acton is a public agency, and it uses its wells to meet local

domestic water needs. In addition, Acton-Camp, which is located on the east side of Soledad Canyon approximately two miles south of Acton, uses a few wells to meet the domestic and irrigation needs of the Camp. The Big Dipper Water Delivery and Carson Brothers are local purveyors which each operate at least one well along Soledad Canyon south of Acton. These purveyors do not provide water for municipal purposes through a distribution system. Instead, both companies haul or provide bulk water for grading and individual home tanks which are used for domestic, irrigation and fire protection purposes.

In addition to the wells discussed above, there are an unknown number of wells used by private homeowners, ranches, new housing tracts, and/or commercial establishments in the area. For the purposes of this report, wells owned by this group of users will be called privately-owned wells.

This report has been written for the Los Angeles County Department of Public Works and for ASL Consulting Engineers with specific application to the hydrogeologic assessment of the alluvial and terrace deposits aquifer systems in the Acton area. This report has been prepared in accordance with the care and skill generally exercised by reputable professionals, under similar circumstances, in this or similar localities. No other warranty, either expressed or implied, is made as to the professional opinions presented herein.

AVAILABILITY OF BASIC DATA

Previous studies. Because the study area does not overlie any major oilfields and/or ore deposits, there has not been an extensive history of published and unpublished geologic reports and maps dealing with surface and subsurface geologic conditions. Other than a driller's log and well history from a wildcat oil well drilled to a depth of 1650 ft in 1926, there are no subsurface data for the area available from oil industry sources. This well

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predates geophysical electric logs, therefore, no electric log is available to serve as control for correlation with the few available electric logs for shallower water wells in the area.

The earliest significant literature, dating from the 1920s and 1930s, addresses the petrography and relationships of the crystalline and metamorphic rocks in the western San Gabriel Mountains, immediately south of the study area (Miller, 1934). These rocks also occur in the Acton area and were the focus for reports which describe placer and gold mining operations that occurred north and south of Acton during the late 1800s and early 1900s (Simpson, 1934).

Investigations during the 1930s and 1940s provided the initial efforts at naming and mapping the surface exposures of the stratigraphic units and structure in the eastern part of the Ventura basin. The eastern Ventura basin is also referred to as the Soledad basin in reports prepared for the comprehensive geology of California presented in Bulletin 170 by the California Division of Mines and Geology (Jahns, 1954).

Adaptation of the geologic maps provided in Bulletin 170 and from investigations conducted by Noble (1953) and Dibblee (1960, 1967) permitted the preparation of Plate 1 - Geologic Map - in this report. Portions of the geologic conditions shown on Plate 1 were modified and updated from work recently available as a university thesis (Hendrix, 1986).

Published hydrogeologic and hydrologic information for the region is similarly limited. There have been essentially no previously-published studies detailing aquifer characteristics, well testing, water level fluctuation or groundwater variations in water wells in the Acton area.

The few hydrologic studies of the region that were reviewed for this project included a report published in 1967 by the United States Geological Survey in conjunction with the Antelope Valley-East Kern Water Agency (Bloyd, 1967) which included the Acton area

in the extreme southwest portion of their study area. Generalized geology and water-level contours in the Acton area for the period 1958-1965 are shown on maps included with that study, but data were insufficient for the Acton area to permit that investigator to prepare maps showing average specific yield of sediments and specific capacity of wells in our study area. That report itself focuses on the region northeast of the San Andreas fault so there is little information specifically applicable to the Acton area.

Previous assessments of hydrogeologic conditions in the region are limited to those by: the Regional Water Quality Control Board for the Los Angeles Region (1975) in preparing the water quality control plan for the Santa Clara River basin; Williams (1979) which provided an evaluation of sediment discharge in the Santa Clara River basin for Ventura and Los Angeles Counties; and Bowers and Irwin (1978) which summarized water-quality data collected during a reconnaissance study in the upper Santa Clara River basin during August 1974 through June 1976.

A groundwater report on current water quality and the effects of private sewage disposal systems on that quality within the Acton area has recently been prepared for Acton Builders by Brockmeier Consulting Engineers, Inc. (Feb. 1990).

Water Well logs. Historically available records reveal that at least 90 water wells have been drilled in the basemap area for domestic, agricultural, and stock-watering purposes. As seen on Plate 2 - Basin and Water Agency Boundaries and Well Location Map - most of these wells have been drilled within the area of the alluvial or stream terrace deposits which underlie the channels of the upper reaches of the Santa Clara River and its major tributaries. It should be noted that well locations illustrated on Plate 2 are those adopted from maps on file at the Department of Water Resources (DWR) and the Los Angeles County Flood Control District (LACFCD). In addition to these, there is also a small

number of monitoring holes and/or test holes drilled for water well tests or other study purposes.

Most of the 90 wells are shallow (less than 200 to 250 feet) and are probably completed solely in alluvial and/or terrace deposits. Of these wells, about 26 drillers' logs and only two geophysical electric logs are available for analysis of subsurface conditions. Electric logs are available for Acton Camp Test Hole No. 4, which was completed into Los Angeles Co. Waterworks District (LACWWD) Well No. 37-3, and for Griffin Homes Test Hole No. 2, approximately located in the area of Township 4 North, Range 12 West, Section 32F.

The electric log below 110 ft for LACWWD No. 37-3 appears to show the extremely high resistivity characteristic of crystalline rocks. The sedimentary section in this well is too thin to correlate with any degree of certainty to the electric log for Griffin Homes Test Hole No. 2, which is located several miles to the northeast. Therefore, for the Acton area there is no geophysical data control on the subsurface configuration of sediments, and all lithologic assessments have to rely on interpretation of surface geology using drillers' logs.

Water Level and Water Quality Data. The historic collection and filing of basic hydrogeologic data for the study area has been sporadic and random in terms of the date and location of well monitoring. There is no comprehensive basin-wide program to provide consistent and periodic monitoring of water levels, quality, specific capacity and/or well efficiency on an on-going basis. In general, data are not available prior to about 1950. Most well records of water levels have a ten-year gap in data from roughly 1965 to 1975, with additional shorter data gaps during other time intervals. Water levels and pumping rates are obtained on a more or less monthly basis in LACWWD Well 37-1, and date from about 1970.

Scrutiny of the water level data record for the area reveals occasional measurements which are anomalously low; these anomalously low water levels are considered to not be directly related to climatological fluctuations. Such anomalies are considered to relate to either monitoring error, the reporting of pumping levels or partial recovery levels instead of true static (non-pumping levels), or the monitoring of a water level in a well affected by mutual drawdown interference from another, nearby well.

For our assessment of water levels, we have plotted nine hydrographs, three of which consist of two nearby wells (one of which is LACWWD Well 37-1) each with pre-1965 and late-1960s/early-1970s to recent data in order to span the large data gaps found so consistently throughout the Acton area. Water-level contours from monitoring data on file with the LACFCD were independently prepared for water level high and low periods as identified by the hydrographs. For our assessment of water quality, we have relied on recent State data for nine wells, plotted on a trilinear analysis diagram later in this text. The only surface water data available, at Lang along the Santa Clara River downstream from Acton-Camp dates from January, 1969, and is also included on the trilinear diagram.

Agencies Contacted. Data repositories and persons contacted during this investigation included the following:

1. Los Angeles County Waterworks Districts - Department of Public Works: Mssrs. Gary Hartley, Joe Aja, and Ken Roseander. Data collected here included drillers' logs, water levels and water quality for wells owned by the Waterworks District and by Acton-Camp.

2. Los Angeles County, Flood Control District: Mr. George Farag for drillers logs, for historic water level data, for recently monitored water levels in the area, for possible surface water quality data, and for precipitation data from long-term rainfall stations.

3. California Department of Water Resources: Mr. Ed Lowe, for historic water level and water quality data, and for water well location maps.

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4. California Division of Oil and Gas: office staff. Data collected included information on wildcat oil well (drillers' log and well history), wildcat well location map and reports published on various oil fields in the surrounding region.

5. California Division of Mines and Geology: Mr. Bob Hill, for published and unpublished geologic reports and maps for the various rock types in the mapped area.

6. United States Geological Survey: office staff. Basic data relating to any possible geologic and hydrogeologic maps and reports for the region.

7. University of California at Los Angeles Geology Library: office staff. Basic data relating to geologic maps and reports, and for any geologic theses for the region.

AREA OF INVESTIGATION

PROJECT LOCATION AND PHYSICAL FEATURES

As shown on Figure 1 - Location Map - the rectangular-shaped mapped area encompasses approximately 80 square miles along the upper reaches of the Santa Clara River within Soledad Canyon in north-central Los Angeles County. The mapped area includes the alluvial and stream terrace deposits within the nearby reach of the Santa Clara River and its tributaries, as well as a portion of the hills to the north and south of the river itself.

The Soledad basin is a topographic low as well as a basin of deposition. It lies north of the San Gabriel Mountains, south of the Sierra Pelona, and is bounded by the San Gabriel and San Andreas faults on the southwest and northeast, respectively. The Acton study area is located in the eastern portion of the Soledad basin (Muehlberger, 1958).

Geomorphically, the study area consists of the relatively wide and flat lands along the course of the east-west trending Santa Clara River (Soledad Canyon) and the hills and low-lying mountains which border both sides of the river. Elevations along the river valley in the study area range approximately from 2460 ft at

Ravenna to 3200 ft at the river's headwaters in Soledad Pass near Vincent. The overall river gradient across this 8.3-mile long reach is on the order of 0.017 ft/ft (about 94 ft per mile). Maximum elevations in the hills north of the river are on the order of 4700 ft at Harold Beacon, while maximum elevations to the south are approximately 4400 ft, southeast of Kentucky Springs. Kentucky Springs Canyon represents the main tributary in the headwaters area of the Santa Clara River.

Acton, the only community in the area, has historically been a rural and equestrian-oriented development. Development consists of a school and a main commercial area near the intersection of Crown Valley Road and Soledad Canyon Road. Additional developments include Acton-Camp, a County-owned facility along Soledad Canyon Road south of Acton, a large trailer and recreational vehicle park and campground located just southwest of Acton-Camp, and numerous single-family homes and ranches scattered throughout the main valley and its tributary canyons. In the past few years, a few large residential tracts of single-family dwellings have been built and/or proposed.

At present, private subsurface disposal of onsite-generated sewage has been the sewage disposal alternative used throughout most of the region. Acton Camp reportedly discharges approximately 30,000 to 50,000 gallons per day of secondary-treated sewage effluent to Soledad Canyon. Commercial areas within the community of Acton, including at least one laundry, utilize subsurface disposal of their sewage effluent also. Another area for effluent disposal via leachfields is the large recreational vehicle park located within Soledad Canyon just downstream from Acton Camp.

GROUNDWATER BASIN BOUNDARIES

To facilitate analysis of water supply problems, the California Department of Water Resources established names and locations of groundwater basins along the course of the Santa Clara River in

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both Los Angeles and Ventura Counties (1953, 1975 and 1980). Hydrologic unit boundaries were delineated principally on the basis of topography and watershed divides, and as such, included both alluviated valleys and the adjoining hills and mountains. Each hydrologic unit was further divided, using similar bases, into hydrologic subunits for further definition of runoff and other hydrogeologic conditions.

As a result of these studies, the principal hydrologic unit in the study area is known as the Santa Clara River Valley Unit. Within the region, it has been subdivided in Los Angeles County into the Eastern Subunit and the Acton Valley Subunit.

For detailed assessments of hydrogeologic conditions, DWR further delineated various groundwater basins within each of the above hydrologic units and subunits. Basin boundaries were selected on the basis of such features as faults, groundwater divides, exposures of bedrock in the hills, or at areas of rising water caused by the presence of bedrock shallowly underlying river alluvium. Where none of these types of conditions were determined to exist, arbitrary or even political divides were occasionally selected as groundwater basin boundaries.

The boundary between the Acton Valley and Eastern Subunits was selected by DWR along an arbitrary narrowing of the river channel (caused by exposures of nonwater-bearing bedrock) located between Ravenna and Lang. However, for the purposes of this study, only that portion of the Acton Valley basin, southwesterly to a narrows within the river channel that lies approximately 3000 ft northeast of Ravenna, is included in the analysis. This is because the area southwest of this position does not contribute to groundwater storage or recharge to the LACWWD-Acton area. The upstream boundary of the local groundwater basin for this study is considered to be the narrows through Soledad Pass, since surface and groundwater northeast of the narrows do not flow toward the LACWWD-Acton area. As shown on Plate 1 - Basin Boundaries and Water

Service Area - the LACWWD-Acton area groundwater basin is comprised by the alluvial and stream terrace deposits which lie along the Santa Clara River and its tributaries between the Soledad Pass narrows and 3000 ft northeast of Ravenna.

CLIMATE

The climate of the Santa Clara River basin varies from a moist, Mediterranean-type near the Pacific Coast to a near-desert-type at the extreme eastern boundary, near the study area (Williams, 1979). Climate within the study area is characterized by long, dry summers and relatively short, wet winters. Typical temperatures in the area range from maximums of approximately 100° F during the summer to minimums as low as 30°F, or less, occasionally in the winters. Mean monthly temperatures range between approximately 77°F in summer to 48°F in the winter.

Though not reproduced herein, an isohyetal contour map prepared by Los Angeles County-Department of Public Works, has been reviewed to assess mean annual precipitation in the Acton watershed area (Nov. 1988 report). That isohyetal map was prepared for a period of record of 1897-98 through 1946-47, and it reveals the following for the area mapped on our base maps:

a. Mean annual precipitation in the hills and mountains on the northerly and westerly side of Soledad Canyon (the Sierra Pelona) is relatively low. For the period of record, mean rainfall has ranged from about 8 inches per year in the northeastern portion of this watershed to about 12 inches per year in the southwestern portion of this watershed.

b. Mean annual precipitation in the hills and mountains on the southerly side of Soledad Canyon (the San Gabriel Mountains) is relatively high. For the period of record, mean annual precipitation has ranged from about 32 inches near the watershed divide on the south to about 12 inches along the foothills of these mountains on the north

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Rainfall data have been obtained from Los Angeles County Flood Control District for two rainfall gages, one near Blum Ranch in Aliso Canyon (Station No. 341, elevation 2900 ft) and one near Acton-Camp (Station No. 250D, elevation 2625 ft). Locations for the gage stations are shown on Plate 2. These data, which are presented in Tables 1.1 and 1.2, respectively, have been graphed (Figures 2.1 and 2.2, respectively) to show the accumulated departure in percent from the mean annual rainfall, for each station.

Review of the annual rainfall and cumulative departure data reveals the following:

1. Blum Ranch Gage (upstream area):
   a. The average rainfall over the 1914-15 to 1987-88 period of record is 9.91 inches.
   b. The historic high was 24.09 inches and occurred in 1977-78; 22.99 inches occurred in 1982-83 and 22.38 inches in 1940-41.
   c. The historic low was 3.56 inches in 1959-1960; 3.79 inches occurred in 1950-1951.
2. Acton-Camp Gage (downstream area):
   a. The average rainfall over the 1929-1930 to 1987-88 period of record is 10.22 inches.
   b. The historic high was 26.96 inches in 1977-1978; 24.3 inches occurred in 1982-83.
   c. The historic low was 2.97 inches in 1959-1960; 3.09 inches occurred in 1950-1951.

Approximately 80 percent of the average annual precipitation in the region occurs between November and March. Moreover, the bulk of these winter storms last for one to only a few days; relatively long periods of clear weather typically occur between these storms. Notable on Figures 2.1 and 2.2 is that the precipitation fluctuates widely from year to year.

CUMULATIVE DEPARTURE DATA: RAINFALL

GAGE NO. 341 BLUM RANCH ELEVATION 2900 FT

FIRST YEAR OF RECORD	1915
LAST YEAR OF RECORD	1988
NUMBER OF YEARS OF RECORD	74
AVG. PRECIP. FOR RECORD	9.91

YEAR	PRECIP. (inches)	% OF AVG.	CUM. DEPARTURE
			0
1915	12.78	128.96	28.96
1916	10.2	102.93	31.89
1917	6.76	68.22	0.11
1918	9.96	100.51	0.62
1919	6.8	68.62	-30.76
1920	8.94	90.21	-40.55
1921	9.6	96.87	-43.68
1922	15.3	154.39	10.72
1923	6.87	69.33	-19.96
1924	4.28	43.19	-76.77
1925	4.1	41.37	-135.39
1926	10.22	103.13	-132.26
1927	10.28	103.74	-128.53
1928	6.54	66.00	-162.53
1929	5.8	58.53	-204.00
1930	8.25	83.25	-220.75
1931	10.92	110.19	-210.55
1932	14.03	141.58	-168.98
1933	7.05	71.14	-197.83
1934	4.7	47.43	-250.41
1935	12.96	130.78	-219.63
1936	5.37	54.19	-265.44
1937	13.49	136.13	-229.31
1938	17.33	174.88	-154.43
1939	11.92	120.29	-134.14
1940	8.58	86.58	-147.56
1941	22.38	225.84	-21.72
1942	7.61	76.79	-44.93
1943	17.16	173.16	28.23
1944	19.79	199.70	127.94
1945	10.68	107.77	135.71
1946	10.27	103.64	139.34
1947	8.53	86.08	125.42
1948	5.7	57.52	82.94
1949	4.57	46.12	29.06
1950	4.64	46.82	-24.12
1951	3.79	38.25	-85.88

Table 1.1

Rainfall Data, Blum Ranch Gage

YEAR	PRECIP. (inches)	% OF AVG.
1952	18.75	189.21
1953	7.06	71.24
1954	8.45	85.27
1955	7.03	70.94
1956	6.94	70.03
1957	6.91	69.73
1958	16.23	163.78
1959	6.55	66.10
1960	3.56	35.92
1961	5.72	57.72
1962	11.2	113.02
1963	7.4	74.67
1964	4.77	48.13
1965	7.01	70.74
1966	14.56	146.93
1967	11.2	113.02
1968	9.35	94.35
1969	17.33	174.88
1970	4.87	49.14
1971	8.96	90.42
1972	6.22	62.77
1973	9.43	95.16
1974	7.95	80.22
1975	9.28	93.65
1976	9.04	91.22
1977	8.85	89.31
1978	24.09	243.09
1979	15.7	158.43
1980	18.28	184.47
1981	6.77	68.32
1982	10.48	105.75
1983	22.99	231.99
1984	6.56	66.20
1985	6.96	70.23
1986	10.04	101.31
1987	5.77	58.23
1988	12.91	130.28

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Table 1.2

Rainfall Data, Acton Camp Gage

CUMULATIVE DEPARTURE DATA: RAINFALL

GAGE NO. 250D ACTON CAMP ELEVATION: 2625 FT

FIRST YEAR OF RECORD 1930
LAST YEAR OF RECORD 1988
NUMBER OF YEARS OF RECORD 59
AVG. PRECIP. FOR RECORD 10.22

YEAR	PRECIP. (inches)	% OF AVG.	CUM. DEPARTURE
	0		
1930	6.7	65.54	-34.46
1931	7.46	72.97	-61.49
1932	13.11	128.24	-33.25
1933	7.45	72.88	-60.37
1934	4.19	40.99	-119.38
1935	12.5	122.27	-97.11
1936	6.76	66.13	-130.98
1937	15.26	149.27	-81.71
1938	15.76	154.16	-27.55
1939	13.25	129.61	2.07
1940	8.78	85.89	-12.05
1941	22.09	216.08	104.04
1942	7.59	74.25	76.28
1943	16.93	165.61	143.89
1944	20.05	196.13	240.02
1945	10.38	101.54	241.56
1946	10.62	103.88	245.44
1947	8.83	86.37	231.81
1948	6.18	60.45	192.27
1949	4.3	42.06	134.33
1950	4.7	45.98	80.31
1951	3.09	30.23	10.53
1952	17.67	172.85	83.38
1953	6.83	66.81	50.19
1954	8.16	79.82	30.01
1955	6.93	67.79	-2.20
1956	7.27	71.11	-31.09
1957	7.48	73.17	-57.92
1958	16.19	158.37	0.45
1959	6.28	61.43	-38.11
1960	2.97	29.05	
1961	4.72	46.17	
1962	12.13	118.66	
1963	7.48	73.17	
1964	5.41	52.92	
1965	7.22	70.63	
1966	14.02	137.14	
1967	11.24	109.95	
1968	8.29	81.09	
1969	18.99	185.76	
1970	5.3	51.84	
1971	8.59	84.03	
1972	5.19	50.77	
1973	9.24	90.39	
1974	7.22	70.63	
1975	8.77	85.79	
1976	9.4	91.95	
1977	8.39	82.07	
1978	26.96	263.72	
1979	14.04	137.34	
1980	17.42	170.40	
1981	7.23	70.72	
1982	10.9	106.62	
1983	24.3	237.70	
1984	5.79	56.64	
1985	7.85	76.79	
1986	10.9	106.62	
1987	5.8	56.74	
1988	14.6	142.82	
		0.00	
		0.00	

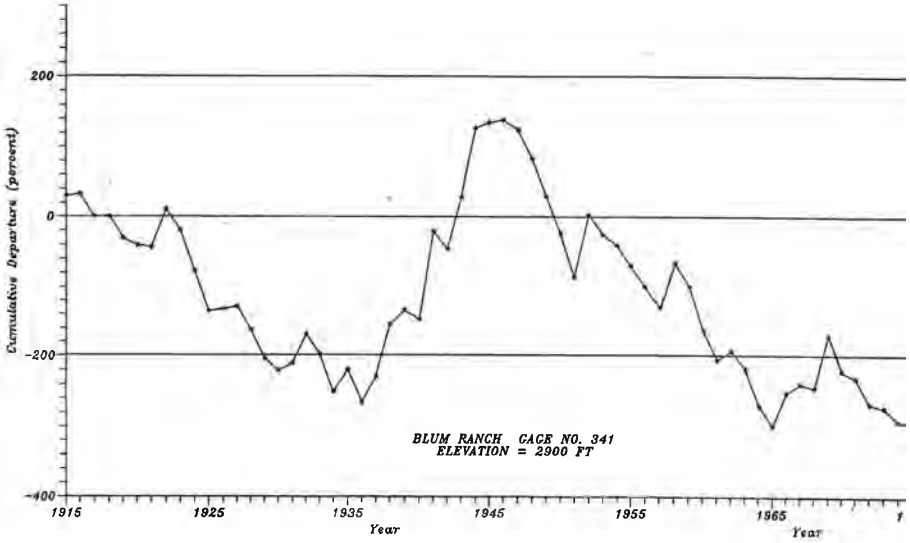


Figure 2.1
Rainfall Cumulative Departure Curve

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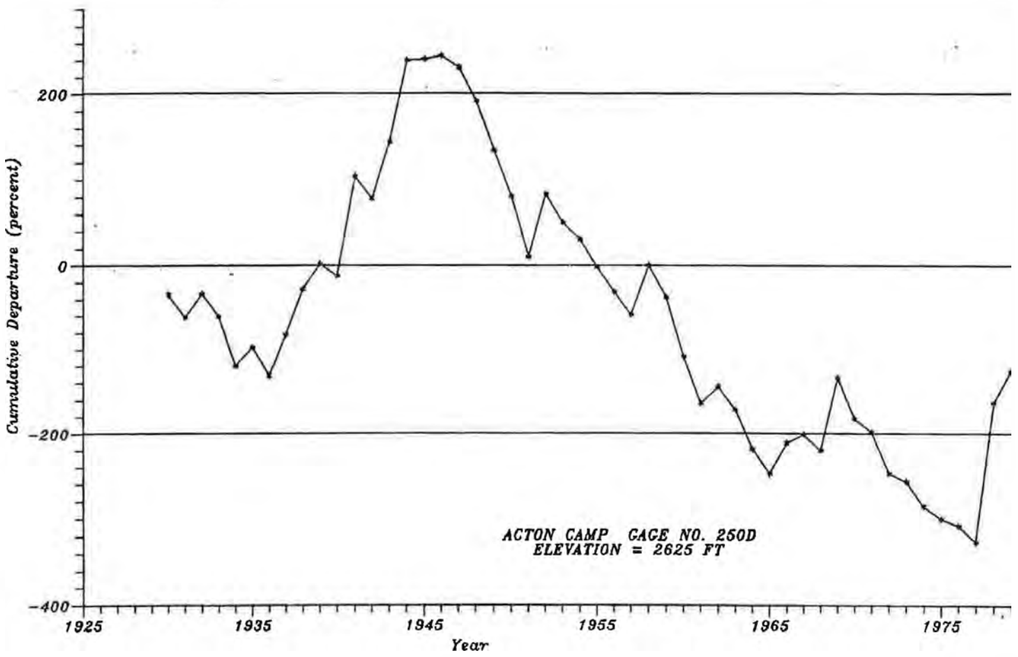


Figure 2.2
Rainfall Cumulative Departure Curve

As seen on the cumulative departure curves, there have been pronounced periods of dry years followed by periods of wet years. However, no rhythmical or fixed cycle of fluctuations is detectable. For these cumulative departures, a positive (or upward) slope for each curve indicates above-normal rainfall, while a negative (or downward) slope indicates below-normal rainfall, regardless of the position of the curve with respect to the ordinate representing the long-term mean (i.e., the zero percent cumulative departure).

For example, the period 1936 through 1946 on the cumulative departure curve for the Blum Ranch gage is characterized by positive (upward to the right) slopes; this is indicative of a hydrologically wet period which was characterized by an accumulation of years of average or above-average precipitation.

In contrast, the period 1947 through 1977 on the curves for both rainfall stations display a protracted, hydrologically dry period that was characterized by an accumulation of generally average or below-average rainfall (a negative or downward-sloping curve). The curves for both rain gages reveal a generally upward trend from 1977 to 1983, but since that time, the data appear to have begun a generally downward trend; deficient precipitation has occurred in the area in the past three to four years, including 1989-1990.

DRAINAGE

Regional drainage across this portion of Los Angeles County, and continuing westerly across Ventura County to the Pacific Ocean, is provided by the Santa Clara River (see Figure 1). The Acton area is located in the upper portion of Soledad Canyon, relatively near the headwaters of the Santa Clara River. The local watershed area comprises a total of approximately 55,600 acres (about 86 square miles), based on data presented by Brockmeier Consulting

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Engineers, Inc. (1990, in conjunction with Geraghty & Miller, Inc.).

The nearest gage to measure surface water runoff in the Santa Clara River lies at Lang, several miles downstream from Acton (see Figure 1 for location of Lang). This gage (Station No. F93B-R) has a tributary drainage area of approximately 157 square miles. DWR (1968) reported that runoff in the Santa Clara River has ranged from nearly 550 percent of the mean to less than one percent. CRWQCB (1975) indicated that severe storms may cause river discharge to increase from nearly zero flow to flow as high as thousands of cubic feet per second within a few hours.

Principal tributaries draining in a southerly direction to their confluence with the Santa Clara River in Soledad Canyon include, from east to west across the study area: Soledad Pass, Acton Canyon, unnamed canyons leading to the Governor, Red Rover and Puritan Mines, and Jones Canyon. Principal tributaries which drain in a northerly direction to their confluence with the river include, from east to west: Kentucky Springs Canyon, Aliso Canyon, Arrastre Canyon, Bootleggers Canyon and Mattox Canyon.

Because the headwater areas of these drainages do not extend into high mountainous areas, and because the local climates preclude the buildup of large snowpacks in the watersheds, flow in all the stream canyons is considered to be ephemeral only and, thus, diminishes rapidly after most rainfall events.

For example, LACFCD records for the Santa Clara River gaging station near Lang date from 1949-50 and, through 1981-82, reveal the following information about flow variations:

a) Mean daily flows ranged from a low of 0.2 cubic feet per second (cfs) in 1976-77, to a high of 29.3 cfs in 1951-52. One cfs equals about 450 gallons per minute. There are no data for 1968-69 which is known to have had very high rainfall and runoff.

b) Peak flows ranged between about 2 cfs (in 1950-51 and in 1956-57) to an estimated 5900 cfs in 1968-69.

c) Total runoff ranged between 147 acre-feet (AF) in 1976-77 to 21,230 AF in 1950-51

In addition, during our field reconnaissance of January 12, 1990, the following runoff information was noted (this date was prior to any significant rainfall in the area): the channel of the Santa Clara River and all of its tributaries in the area mapped on Plate 1 - Basin Boundaries and Water Service Area - contained no surface water runoff, except as noted below (all these channels are wholly unlined in the study area). Surface flows were observed as follows:

1. A flow of about 15 to 20 gpm was observed in Arrastre Canyon about 300 ft southeast of (upstream from) its confluence with the Santa Clara River in Soledad Canyon. Just upstream from this confluence, and including the channel near Acton Camp, there was no runoff in the channel of the Santa Clara River.

2. Just downstream from the above confluence, and very near the center of Section 11, T4N, R13W, surface flow in the Santa Clara River was estimated at 20 to 30 gpm.

3. Within the river channel and about 700 ft downstream from (southwest of) the center of Section 11, surface flow in the river was estimated to be at least 200 gpm.

4. Within the river channel and about 1000 ft downstream from the site in No. 3 above, surface flow was also estimated to be at least 200 gpm.

5. In the river channel just south of Ravenna, runoff was estimated at 75 gpm.

6. About 2500 ft downstream from Ravenna, surface runoff in the river was again estimated to be at least 200 gpm.

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LOCAL WATER PURVEYORS

The study area lies within the service area of the Los Angeles County Waterworks District No. 37-Acton. As seen on Plate 1, the approximately 16-square mile service area of this District occupies the heart of the Acton region. The service area extends along the Santa Clara River-Soledad Canyon and includes Acton Camp at its southwesterly boundary. Much of the service area of the District extends northerly from the main river channel. Metered groundwater production data for 1989 for District well No. 37-1 was 1223 AF. Plate 1 shows this well lies near the intersection of Crown Valley Road and Soledad Canyon Road.

Other major producers in the study area include: Acton Camp which reportedly produced approximately 115 AF of groundwater from its two active wells in 1989 (see Plate 1 for locations; neither of these wells are metered); Big Dipper Water Delivery which lies just north of Acton Camp and which reportedly produced an estimated 107 AF from its unmetered well in 1989; Carson Brothers, which lies just north of the Big Dipper Water Delivery and which reportedly produced an estimated 75 AF of groundwater from its unmetered well in 1989; and the Acton School well, currently used for irrigation purposes only due to high nitrates and which, reportedly, produced on the order of 20 AF in the 1989 irrigation season.

Hence, groundwater extractions by major producers for municipal purposes in 1989 may reasonably be assumed to total about 1520 AF. An additional 20 AF were pumped for irrigation by the single Acton School well, and an unknown additional volume of groundwater was pumped from the remaining active wells in the main river channel and its tributaries to meet all remaining domestic, irrigation, and stock watering needs in the entire study area.

GROUNDWATER GEOLOGY

GENERAL STATEMENT

Geologic materials depicted on Plate 2 - Hydrogeology Map - have been divided according to their relative water-bearing characteristics, that is, to their relative ability to contain, transmit, and yield groundwater to wells. As such, two divisions can be recognized: a water-bearing sediment group (map symbols Qal and Qt) and a relatively nonwater-bearing rock group (all other geologic unit map symbols). Plate 2 provides the exposures and areal extent of these materials, together with local geologic structure, including some folds and bedding attitudes for sedimentary units and the alignment of major faults.

Depending on water levels, the water-bearing sediments can become saturated, thereby permitting them to provide water to wells. Thus, they constitute the groundwater reservoir of the study area. Underlying the water-bearing sediments in the valley areas, and exposed on all adjoining hill and mountain areas, is the relatively impermeable, nonwater-bearing bedrock.

WATER-BEARING SEDIMENTS

This group comprises two units, as follows:

a. Undifferentiated Alluvium, of Holocene age (map symbol Qal). "Younger" alluvium consists of unconsolidated, poorly- to well-stratified clay, silt, sand and gravel and includes alluvial fan, flood-plain and streambed deposits.

b. Terrace deposits and older valley fill, of Pleistocene age (map symbol Qt). Terrace deposits generally consist of porous well-drained silt, sand and gravel capped by fairly well-developed soil where the upper surfaces are preserved.

In general, these water-bearing strata are geologically younger, more permeable, less consolidated and less structurally

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deformed than the nonwater-bearing underlying bedrock. The water-bearing sediments have been penetrated to various depths by wells in the basin and historically have provided virtually all of the groundwater extracted by these wells.

Analysis of available drillers' logs reveals that these sediments are composed of extensively interlayered and interfingered mixtures of gravel, sand, silt and clay with variable concentrations of cobbles and boulders. Due to its unconsolidated to poorly-consolidated condition, and its lack of cementation, Holocene alluvium is subject to rapid erosion. Correlation of individual strata from one well to another is difficult due to the manner of deposition of these stream-deposited alluvial deposits.

Alluvial sediments lie within and along the course of the upper Santa Clara River in Soledad Canyon and its main tributaries (refer to Plate 2 and Plate 3 - Hydrogeologic Sections A-A' and B-B'), while terrace deposits are located along the low lying flanks of the foothills and upper reaches of the tributaries. Thickness of alluvial sediments varies along the river, but the maximum appears to be approximately 225 ft, located near the community of Acton. Typically, the alluvium tends to be thickest near the central portion of the river and thins or pinches out as the flanks of the adjoining hills are approached (refer to cross sections also).

Alluvial thicknesses in all of the tributary canyons are considered to be less than that in the main river valley of Soledad Canyon. In general, larger watershed areas such as Arrastre, Aliso and Kentucky Springs Canyons are underlain by more areally extensive and thicker accumulations of alluvium than the smaller tributary canyons, which generally contain only terrace deposits. In the larger canyons, the maximum alluvial thickness occurs near the confluence with the main river valley and is on the order of 90 to 200 ft (see Plates 2 and 3).

Older alluvium of late-Pleistocene age has been mapped to include the exposures of sediments that have been elevated onto mesas and terraces along the main river valley. These terrace deposits (map symbol Qt, on Plates 2 and 3) are considered to be of the same general composition as Holocene alluvium and were formed in much the same manner. Regional uplift and continued downcutting of the creeks and washes have left these terrace deposits elevated with respect to current stream gradients.

In general, the terrace sediments are more deeply weathered and characteristically reddish-brown in color; due to chemical and mechanical breakdown of the minerals within these sediments, there also tends to be light to moderate cementation by clays and/or iron oxides. These sediments are in relatively topographically-elevated positions in the study area, but appear to be in hydraulic continuity with the alluvial sediments, based on water level data. Maximum thicknesses of terrace deposits are approximately 195 ft in the Kentucky Springs area and 210 ft in the wide valley just north of the community of Acton (see Plates 1 and 3).

NONWATER-BEARING ROCKS

Underlying the water-bearing sediments in the study area are a series of consolidated, cemented sedimentary rocks of Tertiary geologic age, and/or an assemblage of crystalline or metamorphic rocks of pre-Tertiary age. This group is composed of the following units, from youngest to oldest:

a. Punchbowl Formation, of Miocene and Pliocene age (map symbol Tpb). The formation is confined to the northeastern portion of the study area and consists of white, buff to pink sandstone, grey to red siltstone and clay shale, and grey to red conglomerate.

b. Vasquez Formation, conglomerate and sandstone units (map symbol Tv), and volcanic rocks associated with the Vasquez Formation (map symbol Tvv), of Oligocene to Miocene age. The formation consists of up to 12,500 ft of red to light-brown, non-marine sandstone to cobble-boulder conglomerate units interlayered with nearly 4,200

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ft of volcanic flows and volcanic sills of greenish-black basalt and dark reddish-brown andesite.

c. Granitic rocks, of Jurassic and/or Cretaceous age (map symbol gr). Crystalline granitic rocks in the area are usually medium- to moderately-coarse-grained, orange- to pinkish-grey, quartz-rich and massive to crudely-foliated.

d. Diorite, quartz diorite and granodiorite, of Jurassic and/or Cretaceous age (map symbol gd). These crystalline rocks are grey-white, massive, medium-grained and weather grey-buff from iron-oxide staining.

e. Quartz-bearing syenite, of pre-Cambrian age (map symbol sy). The crystalline syenite appears to be a differentiation product of the original anorthositic magma. Iron-bearing units are light-brown to grey, massive and medium-grained.

f. Mafic gabbroic rocks, of pre-Cambrian age (map symbol gb). Gabbroic rocks are part of the anorthosite-gabbro-syenite layered intrusive complex. These crystalline rocks may be mottled to very dark, banded, with coarse-to fine-grained texture.

g. Anorthosite, of pre-Cambrian age (map symbol an). These rocks are white, bluish-grey to light grey, medium- to coarse-grained and consist almost entirely of plagioclase feldspar.

h. Gneissic metamorphic rocks, of pre-Cambrian age (map symbol gn), are composed of blue-quartz-feldspar gneiss with some recrystallized limestone and quartzite.

i. Pelona schist, of pre-Cambrian age (map symbol ps). This metamorphic unit consists of silvery-grey to dark green, strongly foliated mica and chlorite-actinolite schist with a few beds of quartzite and marble.

In general, the older sedimentary and/or volcanic units (Punchbowl and Vasquez Formations) are exposed along the flanks of the hills and mountains which border the Santa Clara River valley in Soledad Canyon while the older crystalline and metamorphic rocks crop out in the upper watershed areas of the Sierra Pelona and the San Gabriel Mountains. The pre-Cambrian units consist of an

anorthosite-gabbro-syenite layered intrusive complex which intruded into older gneissic metamorphic rocks. The Pelona schist is confined to the northern part of the study area, along the southern flank of the east-west-trending Sierra Pelona Mountains.

Due to their cemented and/or crystalline nature, the above rocks possess only secondary porosity and may contain groundwater only along bedding planes, joints, shears or fractures. As a result, and due to their structural complexity and low permeability, these rocks are not considered capable of yielding water readily to wells. Moreover, they have a very limited storage capacity, and their ability to provide long-term sustained yields to wells is unpredictable. These cemented and/or crystalline rocks are not considered part of the groundwater reservoir in the Acton study area.

GEOLOGIC STRUCTURE

The principal geologic structures in the Plate 2 mapped area are the northwest to southeast-trending Kashmere Valley and Acton faults and the west to northeast-trending Soledad fault system. In the northeast corner of the mapped area is a small portion of the Nadeau fault, a branch of the northwest to southeast-trending San Andreas fault. The Acton area consists, essentially, of a relatively thin mantle of alluvial and terrace deposits overlying vast thicknesses of Miocene to Pliocene sedimentary and volcanic rocks, intrusive crystalline basement and older metamorphosed country rock.

The faults, as mapped by others, are recognized as rupturing certain bedrock formations of relatively old geologic age and/or juxtaposing separate bedrock formations of different geologic ages. However, those previous investigators did not reveal whether or not any of these faults are active or potentially active, and they did not definitively state whether or not any of these faults are considered to offset the geologically young alluvium or stream

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terrace deposits in and along Soledad Canyon. Further, it is not within the scope of work for this investigator to determine the relative degree of activity for any of the faults in the area mapped on Plate 2.

As a result wherever any of the fault traces cross the alluvium or terrace deposits on Plate 2, the fault alignment is indicated by a dotted pattern. Such a pattern reveals the fault alignment in that area is either not known with certainty, and thus inferred, or is doubtful and questioned.

Because of the active scouring and/or alluviation of the youthful alluvial river deposits, it is probable that the faults neither intersect the alluvium nor create any groundwater barriers within the alluvium in the study area; this includes such faults as the Soledad, the Kashmere Valley, and the Acton faults (see Plate 2). Groundwater contours inferred within Soledad Canyon as discussed later in this report, do not clearly reveal the presence of any groundwater barriers created by faults displacing the alluvium.

HYDROGEOLOGY

GROUNDWATER OCCURRENCE, RECHARGE AND DISCHARGE

Within the saturated zone of the water-bearing alluvial and terrace deposits of the Acton basin, groundwater occurs in the pore spaces and voids between the individual sedimentary grains. In general, water table conditions appear to prevail throughout the alluvial and terrace deposits, although semi-perched conditions may exist locally in portions of the main river valley and its tributary canyons, particularly within the terrace deposits. Due to the mode of deposition of these materials, sedimentation of thick and areally extensive clay layers has been precluded; as a result, confined artesian conditions have not been developed.

Natural sources of recharge to the groundwater reservoir within the alluvium and terrace deposits include: deep percolation of direct precipitation; infiltration of stream runoff in the river valley and its tributaries; and subsurface inflow, depending on water levels from the adjoining hill and mountain areas. The relative magnitude of each of these recharge sources has not been quantified for this investigation, due principally to a lack of requisite data.

Man-made sources of recharge to the alluvium and terrace deposits systems include: deep percolation of irrigation returns and returns from private subsurface sewage disposal systems. No artificial recharge operations, either by direct surface spreading basins or by shallow well injection, have historically been utilized in the river valley to make use of excess surface runoff, or of imported water, for purposes of augmenting water levels in the alluvium or terrace deposits.

Outflow or discharge from the alluvium and terrace deposits occurs by water well extractions by LACWWD-Acton, by Acton Camp, and by the various private water companies, housing tracts and ranches in the region. Additional discharge is known to occur by: subsurface outflow to the downstream Eastern Groundwater Basin to the west; surface outflow from the area of rising water within the alluvium located downstream from the Acton Camp; subsurface outflow, depending on water levels, to the permeable or fractured portions of the Vasquez Formation and older crystalline or metamorphic rocks which underlie the alluvium and/or terrace deposits; and evapotranspiration in areas of phreatophytes that grow in the downstream reaches of the main river valley where rising water is known to occur.

The approximate zone(s) of rising water and roughly estimated amounts of rising water (as observed during a field reconnaissance on January 12, 1990) were discussed previously in the Drainage section of this report. Also, the only estimates of natural

recharge to the Acton area were provided by Geraghty & Miller, Inc. (in the Brockmeier report, dated Feb. 1990). In that report, they determined the annual recharge to the Acton area to be approximately 11,100 acre-feet per year (AF/yr), calculated as the difference, over the entire Acton region, between annual rainfall (10.42 inches for their period of record) and the average groundwater recharge threshold value (they used 8 inches of rainfall).

Their total watershed area was determined to be approximately 55,600 acres, defined as follows:

a. 45,000 acres of watershed which drains into Soledad Canyon from the watershed divides to the north in the Sierra Pelona and to the south in the San Gabriel Mountains, as measured from the narrows on the northeast at Soledad Pass, just southwest of Kentucky Springs Canyon, to the narrows on the southwest located between Arrastre Canyon and Bootleggers Canyon. (Plate 6 later in this report uses these same two narrows locations in Soledad Canyon for boundaries used herein for calculations of groundwater in storage.) Recharge from this watershed represents 9000 AF/yr of the 11,100 AF/yr total annual recharge.

b. An additional 10,600 acres in the northeast which consists of the watershed that drains into upper Soledad Canyon from the Soledad Pass area and Kentucky Springs Canyon. Recharge from this watershed represents the remaining 2100 AF/yr of the total 11,100 AF/yr of recharge described above.

For comparison, a typical "rule-of-thumb" estimate of annual recharge within a watershed is to multiply the total watershed size (55,600 acres), by the average annual rainfall on the entire watershed area (about 12 to 16 inches, or 1.0 to 1.3 ft), by a factor of about 10 percent (0.10). Such a calculation suggests a total annual recharge to the area of about 5600 to 7200 AF/yr.

Average annual basin outflow as measured at the narrows locations within Soledad Canyon just downstream from Arrastre Canyon were calculated by Geraghty & Miller, Inc. (Brockmeier report of Feb. 1990) to be approximately 11,100 AF/yr. That calculation included: 2100 AF/yr of subsurface outflow through the

alluvium in the canyon itself; and an additional 900 AF/yr of surface water runoff at that location.

For our assessment of subsurface groundwater outflow from the alluvium within the narrows of Soledad Canyon just downstream from Arrastre Canyon, we relied on the Darcy equation. Here, subsurface outflow, Q (gallons per day, gpd) is equal to the product of: the permeability P of the sediments (gpd per square foot, gpd/ft^2); the groundwater gradient I (feet per foot, ft/ft); and the cross sectional area of saturated flow A (square feet, ft^2).

Hence, the relationship used was Q = PIA. Our estimates of alluvium permeability are on the order of 1000 gpd/ft^2. The groundwater gradient, as discussed later in this text and as adapted for this downstream reach of Soledad Canyon, ranges between approximately 0.017 ft/ft for a relatively wet hydrologic period (November 1983 to May 1984) and 0.012 ft/ft for a relatively dry hydrologic period (November 1964 to December 1965).

Also, the cross sectional area of flow, as discussed later in this text and as taken at the location of this same narrows in the canyon, is determined by the product of: the width of the alluvium at the narrows, which is approximately 1500 ft; and the thickness of the zone of saturated alluvium, which ranges from 100 ft in a relatively wet period to about 60 ft in a relatively dry period (as adapted from data on storage units and subunits later in this text). The least well known of the variables is the value for sediment permeability.

Regardless, the requisite calculations for subsurface outflow within the alluvium at the downstream terminus of the Acton basin, as defined herein, show the following:

a. for a relatively wet period, an outflow of about 2800 AF/yr;

b. for a relatively dry period; an outflow of about 1200 AF/yr.

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WATER LEVELS

To evaluate the status of groundwater levels and flow directions in the study area, the elevation of the water table at numerous points must be obtained. When lines connecting points of equal water table elevation are drawn, the lines represent contours of equal elevation of the water table. Construction of water level contour maps requires obtaining non-pumping water depth measurements for a specific time period from wells spaced throughout the study area. These water level depths are then corrected for elevation, plotted on a map, together with the well location and well identification, and then contoured.

Groundwater flows from high head to low head, and hence, flow directions are perpendicular to the contour lines themselves. However, it should be noted that because most wells in the region contain relatively long lengths of continuously perforated casing, groundwater enters the well bore from all strata encountered by the well. This precludes analysis of water movement in individual aquifers. Also, because there is not an even distribution of wells throughout the study area, there are numerous data gaps and contour lines must be interpolated in these areas. Lastly, it should be noted that some reported water levels are questionable and likely relate to some form of measuring error.

For this investigation, two time periods were selected to represent basin-wide groundwater conditions and the direction of groundwater flow. The period from November 1964 to December 1965 was selected because it represents that period of time for which water level data are available when water levels in the study area were at or near their all-time low (a hydrologically dry period). The period from November 1983 to May 1984 was selected because it represents the all-time high period (a hydrologically wet period) for which water level data are available in the project area.

As shown on the rainfall cumulative departure curves (Figures 2.1 and 2.2), the all-time high for precipitation appears to have occurred from 1944 to 1947. However, no water level data for this period are available, therefore, the second period of high water levels which occurred in response to above-average precipitation during the period 1978 to 1983 was used to represent high water levels.

Data was obtained for the low and high groundwater level contour maps from basic water level readings for wells in the region that were on file at LACFCD. These readings were annotated for each water well monitored, and then contoured as illustrated on Plates 4 and 5 - Groundwater Contours - for the periods November 1964 to December and 1965 to November 1983 to May 1984, respectively.

As described in other sections of this report, the alluvium and terrace deposits in the study area are divided into numerous subunits, or storage units, the boundaries of which have been selected on the basis of geologic and topographic features. However, in describing groundwater movement, the alluvial and terrace deposits are considered to be a single entity across the study area from the Soledad Pass watershed divide on the east, to the narrows at the downstream end of the study area which lies approximately 3000 ft northeast of Ravenna on the southwest side of the study area. The location and areal extent of the alluvium and terrace deposits are shown on Plate 1 (and in further detail later in this text on Plate 6).

During the water level low period of November 1964 to December 1965, groundwater levels in the investigation area varied in elevation from 3050 ft above sea level at the easterly limits of the study area in Soledad Pass to 2450 ft at the westerly limits near Ravenna. Highest groundwater elevations were exhibited in terrace deposits in the upper portions of Kentucky Springs Canyon, where groundwater reached a maximum elevation of 3950 ft above sea

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level. Groundwater movement was to the west in the main channel of the Santa Clara River in Soledad Canyon, generally to the south in tributary canyons lying north of the river, and to the north in the southern tributaries.

Depth to water in the terrace deposits during the water level low period of November 1964 to December 1965 period in the study area is considered to be moderately deep, with typical water levels being 150 to 200 ft below ground surface, except in Arrastre and Aliso Canyons, where typical water levels were on the order of 25 to 50 ft below ground surface. Depth to water in the alluvium during this low water level period ranged from 100 to 180 ft below ground surface except for the area of rising groundwater near Acton Camp, where depth to water ranged from 40 to 60 ft below ground surface.

During the water level high period of November 1983 to May 1984, groundwater levels in the study area varied in elevation from 3150 ft above sea level in Soledad Pass to 2450 ft near Ravenna. Highest groundwater elevations of 4000 ft above sea level occurred in terrace deposits in Kentucky Springs Canyon. Depth to water in the terrace deposits during this period ranged from 20 to 70 ft below ground surface, while depth to water in the alluvium was on the order of 10 to 40 ft below ground surface except in the river channel southwest of Acton Camp, where water levels were just below, or occurred at ground surface as rising waters.

Notable in an analysis of water level contour data for both the low period of November 1964 to December 1965 and the high period of November 1983 to May 1984 is the fact that water levels in the alluvial and terrace deposits fluctuated rapidly and to a large degree in response to wet and dry conditions; this occurred not only in individual areas or individual wells, but in general throughout the entire study area. Such a condition of rapid and/or large scale water level fluctuation results from a combination of

sediments with high permeability, and aquifers of limited areal extent and/or of limited storage capacity.

Review of the groundwater contours for the hydrologically dry and wet periods (Plates 4 and 4) indicates that the gradients for any particular canyon are relatively similar regardless of the climatic period. The overall gradient, I, within the alluvium of the river from the northeast to the southwest limits of the Acton basin, as defined herein, are approximately: 0.014 ft/ft, about 73 ft/mi for the dry period (Plate 4); and 0.016 ft/ft, about 86 ft/mi for the wet period (Plate 5).

Similar calculations, but only for the reach of the river near Acton Camp, near the downstream end of the basin, reveal the following:

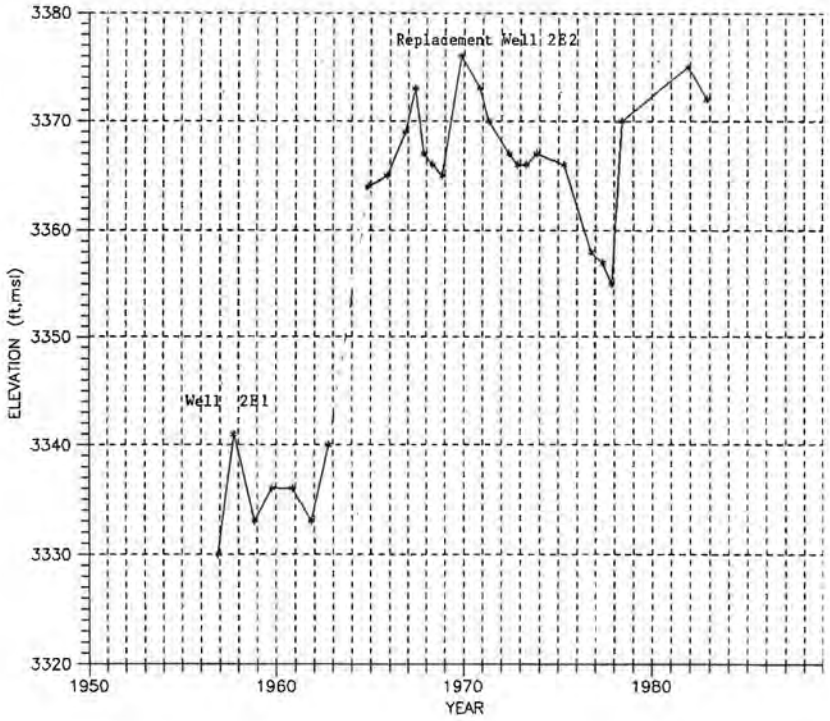
a. in the dry period, I = 0.012 ft/ft, or about 64 ft/mi;
b. in the wet period, I = 0.017 ft/ft, or about 91 ft/mi.

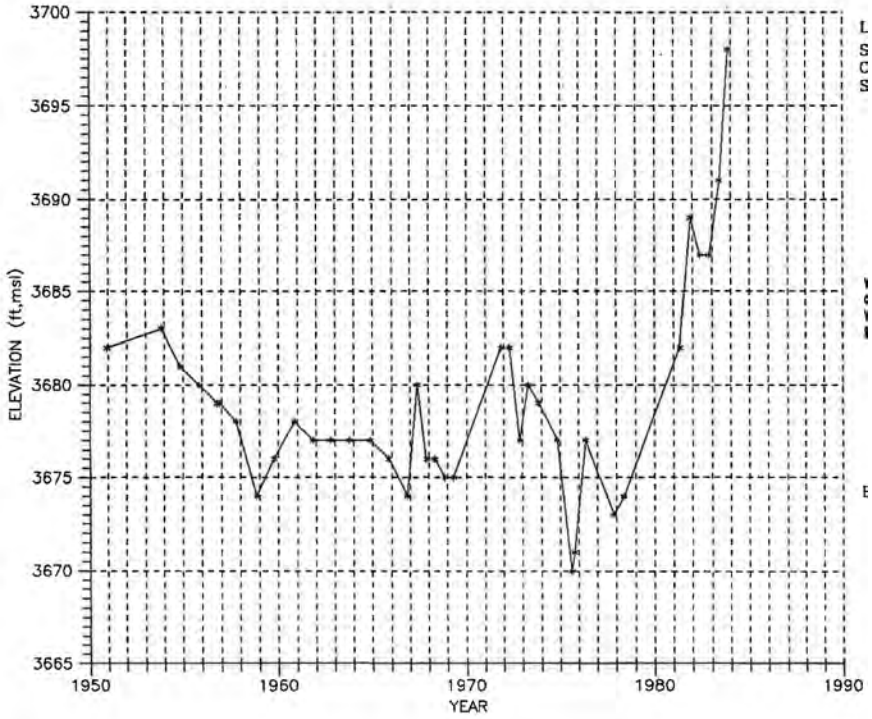
This indicates that the subsurface outflow from the basin below Acton Camp would be greater by the ratio of 91/64, or about 1.42 times larger in the wet period compared to the dry period, assuming that the other two variables in the Darcy equation were constant (specifically, the thickness of the saturated zone of the flow, and the permeability of the alluvial sediments). It should be noted that the thickness of the saturated zone does change depending on long-term climate (see discussion of storage subunits later in this report) and on sediment permeability. The least known and/or tested of these variables is sediment permeability.

HYDROGRAPHS

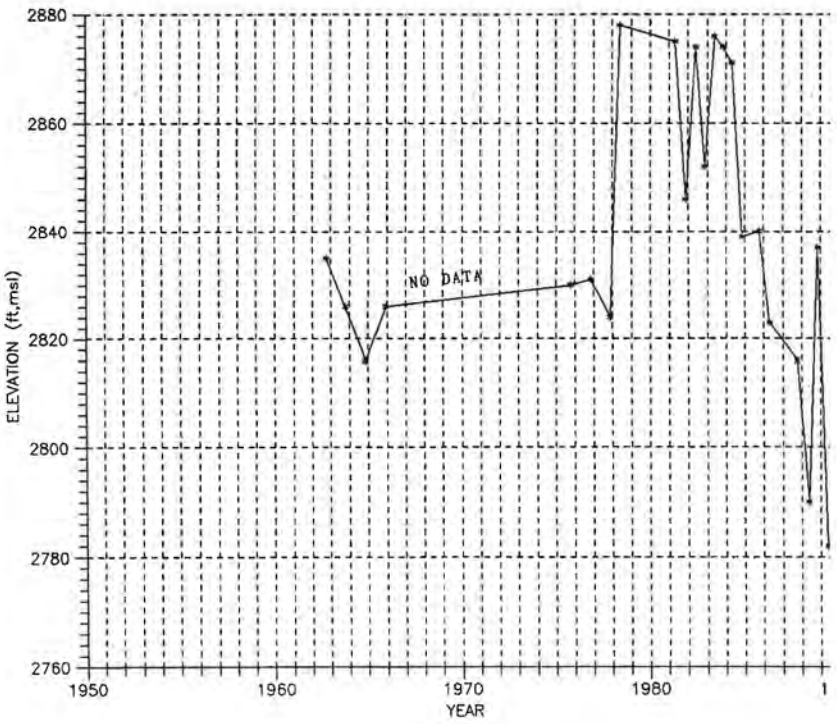
Water level fluctuations in 12 wells in the study area were obtained from various data repositories and plotted versus time to construct water level hydrographs. The hydrographs, as presented in Figures 3.1 to 3.9, reveal the continuous adjustment of groundwater in storage to changes in basin-wide recharge and discharge. The hydrographs permit the assessment of both long-term and short-

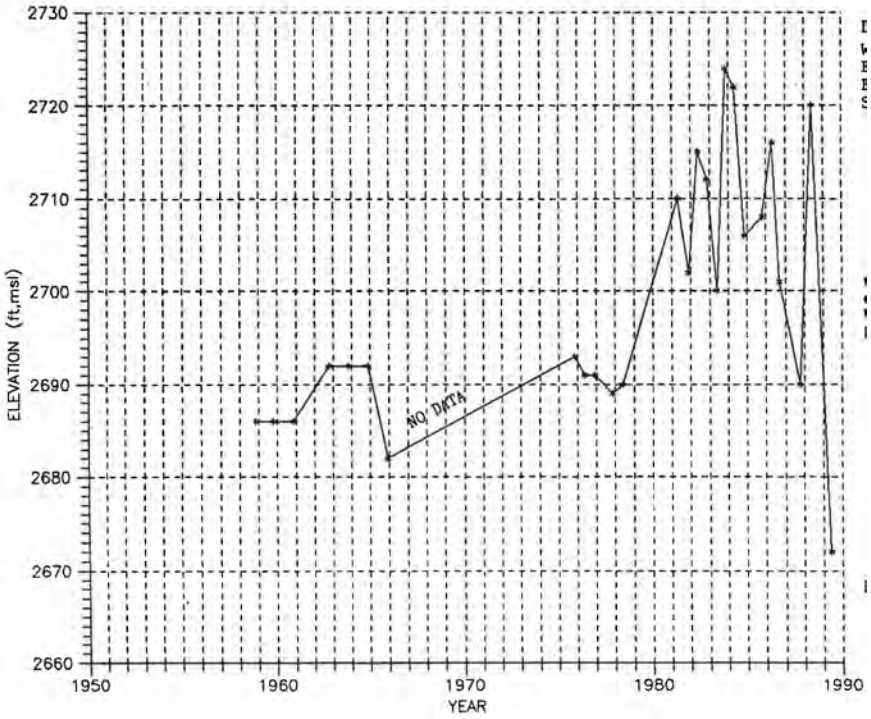
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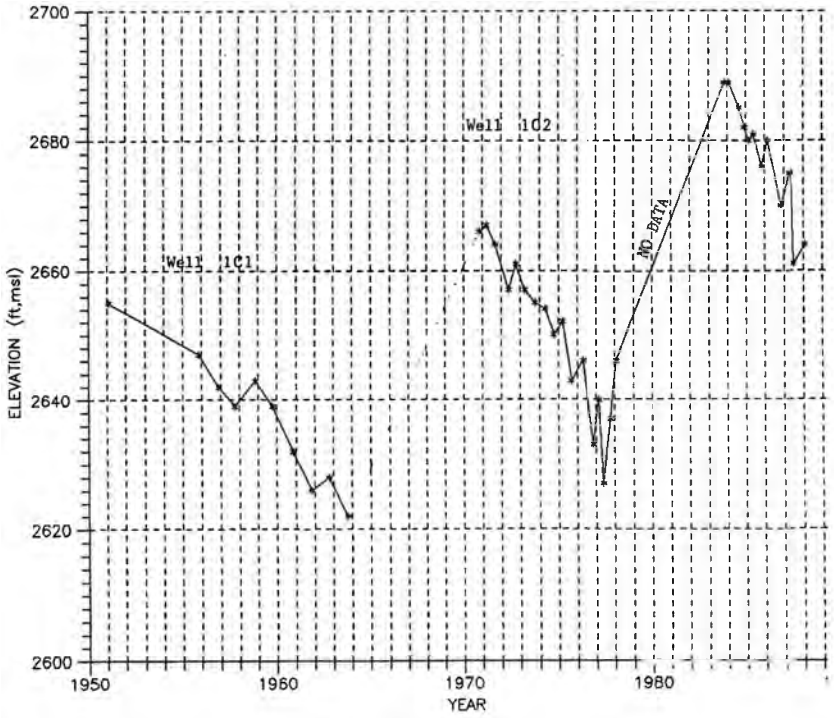


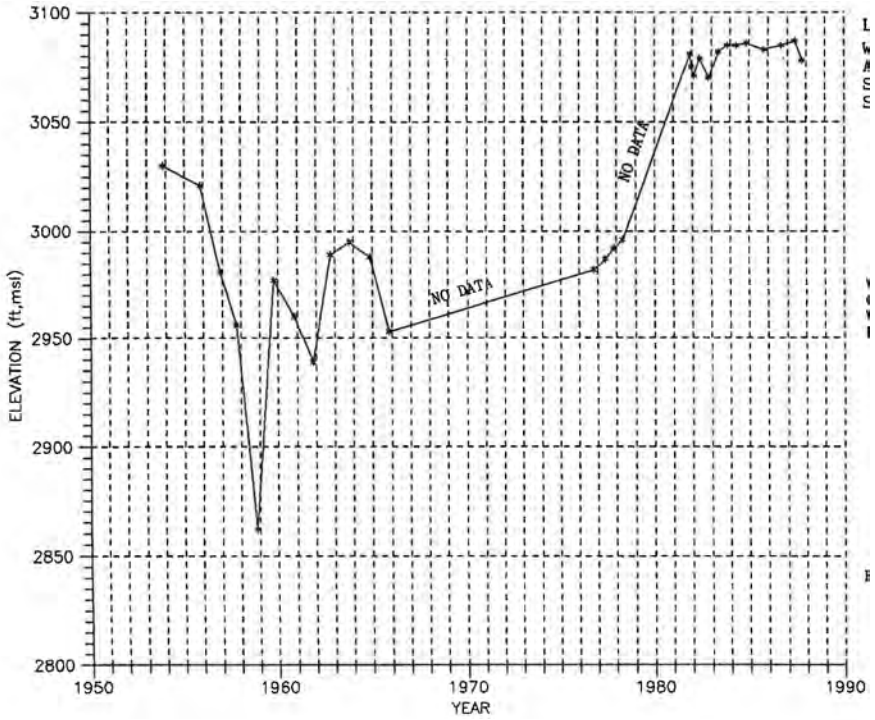
Submission 4519 (Don Henry, Acton Town Council, December 1, 2022) - Continued



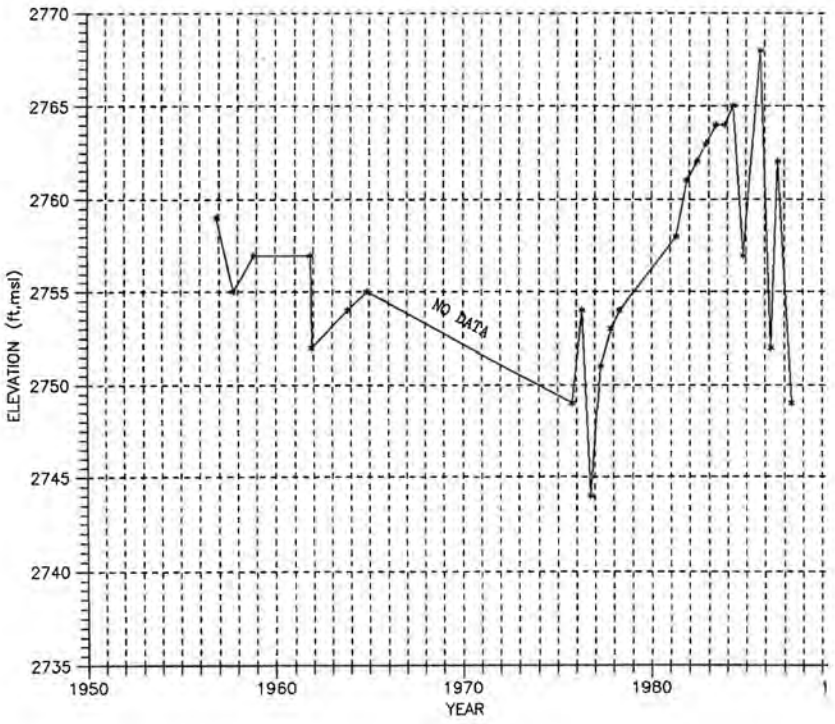


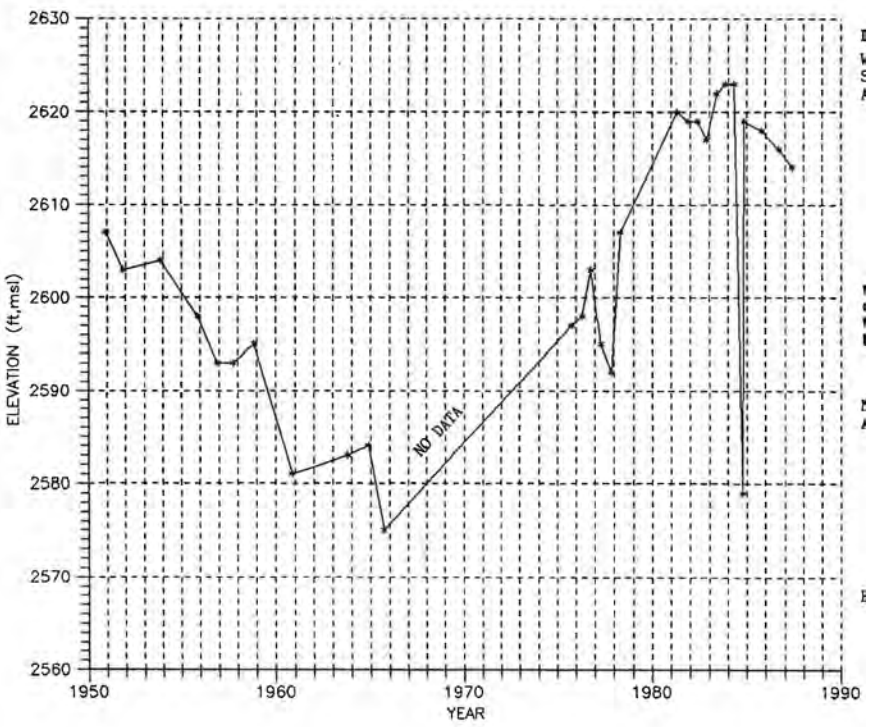
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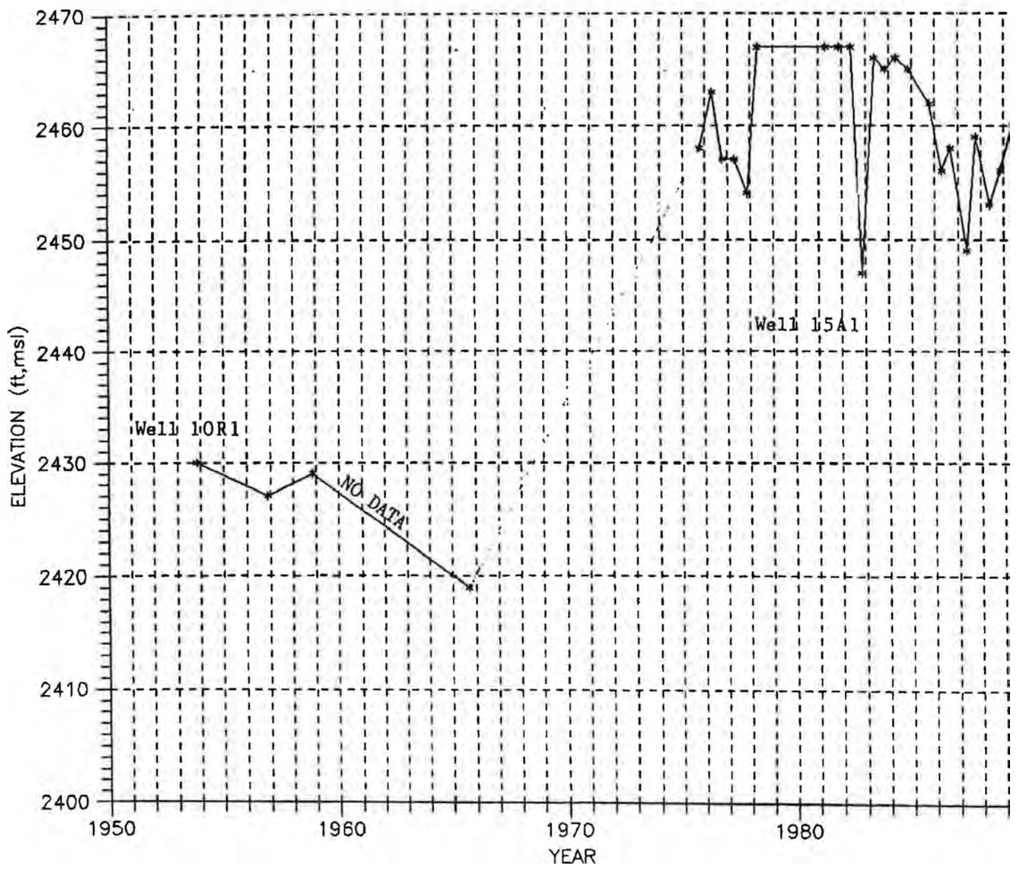


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term seasonal changes occurring within the aquifer systems comprised by the alluvium and by the terrace deposits.

Due to the sporadic nature of water level data collection in the Acton area, three of the hydrographs consist of pairs of nearby wells, the first well covering the period from the early 1950s to the mid-1960s, and the second well covering the period from the late 1960s or early 1970s to the present. Of the remaining six wells, five have data gaps from the mid-1960s to the mid-1970s.

Assessment of the hydrographs is supplemented with the use of precipitation data shown on Tables 1.1 and 1.2 and the cumulative rainfall departure curves on Figures 2.1 and 2.2, for Blum Ranch and Acton Camp, respectively.

The specific wells for which hydrographs have been prepared include (see well locations on Plate 1):

a. Wells 4N/12W-2E1 and -2E2 which are located in the central portion of Kentucky Springs Canyon, south of Soledad Canyon (Fig. 3.1).

b. Well 4N/12W-11G1 located in the southern portion of Kentucky Springs Canyon (Fig. 3.2).

c. Well 4N/12W-5G2 located in Aliso Canyon, south of Soledad Canyon (Fig. 3.3).

d. Well 5N/12W-28F3 located in the zone of terrace deposits which lies near the Vincent Fire Station, just north of Soledad Canyon (Fig. 3.4).

e. Well 5N/13W-25C1 located in the zone of terrace deposits near the freeway, north of Acton and Soledad Canyon (Fig. 3.5).

f. Well 5N/13W-25L1 located in the terrace deposits, between Acton and the freeway, north of Soledad Canyon (Fig. 3.6).

g. Wells 4N/13W-1C1 and -1C2 (also known as LACWWD Well No. 37-1), located at Acton, within the deposits of the Santa Clara River (Fig. 3.7).

h. Well 4N/13W-12C3 (also known as Acton Camp No. 3), located within the deposits of the Santa Clara River (Fig. 3.8).

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i Wells 4N/13W-10R1 and -15A1, located in Soledad Canyon, near Ravenna (Fig. 3.9).

Inspection of the water level fluctuations on Figures 3.1 to 3.9 indicates that changes in groundwater in storage in the study area occur both in the short-term (seasonal) and in the long-term (period of several years).

Short-term, seasonal water level fluctuations are typically in the range of 2 to 10 ft, except for well 4N/12W-5G2 (Fig. 3.3) which displays several seasonal fluctuations in recent years of 20 to 30 ft. For the hydrographs, annual water level highs tend to occur in the spring months (following increased recharge and decreased groundwater pumpage), while the water level lows tend to occur in the fall months (following decreased recharge and increased groundwater pumpage). Rapid and large scale water level rises are commonly observed immediately following large rainfall and/or surface runoff water events and/or rainfall seasons (e.g., see the large rise in early 1978 for well 4N/12W-5G2 on Fig. 3.3 following very high winter-spring rains).

Longer term water level fluctuations reveal the results of basin-wide trends in long-term rainfall, runoff, and deep percolation (recharge). Typical long-term trends for the hydrographs include: a general water level declining period extending (data permitting) from the 1950s, through the 1960s and into the mid-1970s; this is followed by a relatively rapid period of rising water levels into the mid-1980s; and following that, a return to a period of water level declines. Figures 3.1, 3.2, or 3.7 depict these relationships effectively. It is notable that these water level "trends" are analogous to the trends in the cumulative rainfall departure curves (Fig. 2.1 and 2.2).

THEORETICAL AQUIFER PARAMETERS

To assess well yields and aquifer parameters, the water transmitting, or hydraulic properties of the aquifers must be

evaluated. These aquifers represent the water-bearing zones in the groundwater reservoir; that is, those strata comprised of permeable sandy or gravelly materials, or both, which are mixed with lesser concentrations of silt and clay. The arrangement, sorting, shape, and size of the individual grains in the aquifers control the ability of water to move through the strata.

Characterizing the water transmitting properties of the aquifers are the aquifer coefficients of transmissivity (symbol T, in gallons per day per foot of aquifer, gpd/ft), and storativity (S, in cubic feet per square foot per foot, ft^3/ft^3). An additional parameter, permeability (P, in gallons per day per square foot, gpd/ft^2) can be calculated from T values, or is determined by field tests or by soils laboratory testing of aquifer samples.

Transmissivity and permeability will be discussed in this section of the report. Storativity, the amount of storage in the reservoir, will be discussed in the Geohydrology section.

Typically, T is calculated from aquifer tests conducted in the field on individual pumping wells (based on water level drawdown and recovery measurements versus time). Due to a virtual absence of requisite field data in the basin, such direct calculations of transmissivity were not possible.

Instead, an empirical method of assessing T values was used for this project in order to review the relative ability of the local aquifers in the basin to yield water to wells. This method determines the theoretical value of transmissivity by relating T to the specific capacity of the well.

For the assumed water table conditions in the study area, the empirical relationship is approximately:

Theoretical T = 1750 Q/s, where Q/s is the specific capacity of the well;
Q is the well yield in gpm;
s is the amount of drawdown, in feet, created in the well by that pumping rate;
1750 is an empirical constant.

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Actual values of Q and s are generally obtainable from data on drillers' logs or from efficiency tests conducted on local wells by the Edison Company. Again, however, data are meager.

Using data from the well logs, and based on the empirical formula above, theoretical T values for a few wells were then calculated. Because aquifer T values are additive, it follows that if wells were drilled deeper into the alluvium and/or terrace deposits, then the overall T value would increase at that particular location.

It must be recognized that such calculations of theoretical T relate directly to the age, efficiency, condition, and design of the well and its perforations. This is because the key factor in the calculation is well drawdown (symbol, s). Drawdown, in turn, is a measure of the head loss for water entering the well perforations as a result of pumping. Wells that are old, have inefficient designs, that contain precipitates or encrustation on perforations, or that have limited open areas in their perforated intervals will have larger head losses (drawdown) than wells with the opposite of such conditions.

Using existing information for specific capacity, the following are derived:

a. A new well for Acton Camp (No. 4; 130 ft deep, perforations from 40 to 100 ft) was reportedly test pumped in late-1989 (information from Brockmeier Consulting Engineers, Inc.), and produced 800 gpm with a drawdown of 60 ft, and 1100 gpm with a drawdown of 104 ft (initial static level = 18 ft); the length of the tests is not known. Resulting specific capacities are 13.3 and 10.6 gpm per foot of drawdown, respectively. These data suggest T values in the range of 23,000 and 18,500 gpd/ft, respectively. The decrease in the T value at the higher pumping rate indicates that the 1100 gpm is excessive for this well. In addition, both pumping rates created pumping levels (78 ft and 122 ft, respectively) that are below the uppermost perforations in this well (40 ft).

b. Acton Camp Well No. 3, drilled in 1962, displayed an original pumping rate of 1000 gpm from a pumping level of 95 ft, after 50 hours of pumping according to well log records (static level of 37 ft; top of perforations at 42 ft). These data indicate a specific capacity of 17.2 gpm per foot of drawdown, and a transmissivity of about 30,100 gpd/ft. At a pumping rate of 700 gpm, the well showed a specific capacity and transmissivity of 16.3 gpm per foot of drawdown and 28,500 gpd/ft, respectively.

   A 1984 Southern California Edison Company efficiency test of this well showed a pumping rate of 249 gpm from a pumping level of 10 ft (water levels were high in the area in the early-1980s). This calculates to a specific capacity and transmissivity of approximately 65 gpm/ft of drawdown and 114,000 gpd/ft, respectively.

c. Several miles upstream near the intersection of Carson Mesa Road and Aliso Canyon Road, a 354-foot deep well drilled in September 1989 (perforations from 134 to 354 ft) reportedly revealed a specific capacity of 70 gpm per foot of drawdown, at a pumping rate of 350 gpm. If accurate, this would suggest a T value on the order of 120,000 gpd/ft.

d. A 260-foot deep well drilled in September 1989 for Acton I Builders Group revealed pumping rates of 400 to 500 gpm, specific capacities in the range of 10.2 to 10.5 gpm per foot of drawdown, and T values of 17,800 to 18,400 gpd/ft, respectively. This well also lies in the main portion of Soledad Canyon, relatively near the one discussed above.

e. LACWWD Well No. 37-1 (232 ft deep, perforations from 70 to 209 ft) is located in the river area near Acton, and showed a pumping rate of 1000 gpm from a depth of 90 ft when first drilled in 1967 (static level = 75 ft). These data show a Q/s = 66.6 gpm per foot of drawdown and a T = 116,700 gpd/ft.

To evaluate sediment permeability, it is necessary to utilize transmissivity (T) and the relationship T = Pm, where P = permeability (in units of gallons per day per square foot, gpd/ft^2), and m = aquifer thickness (in ft). This relationship must be used for Acton because no laboratory permeability test data are available in the literature. Also, when the full aquifer thickness is not known, it is possible to have m = total footage of perforations in the well.

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Hence, for the wells discussed above, theoretical permeability values would be as follows:

a. For the 60 ft of perforations in the new Acton Camp well, P would be approximately 400 to 300 gpd/ft^2, respectively.

b For Acton Camp No. 3 (100 total feet of perforations) theoretical P would be approximately 300 gpd/ft^2 for the original 30,000 gpd/ft transmissivity. For the 1984 Edison test, theoretical P would be approximately 1140 gpd/ft^2.

c. For the new well near Carson Mesa and Aliso Canyon roads (220 ft of perforations), P would be approximately 550 gpd/ft^2.

d. For the Acton I Builders Group well (150 ft of perforations), theoretical P would be approximately 120 gpd/ft^2.

e. For LACWWD Well No. 37-1 (139 ft of perforations), the theoretical P value would be on the order of 840 gpd/ft^2.

GROUNDWATER QUALITY

Concentrations of dissolved mineral constituents in groundwater are influenced by the quantity and quality of groundwater which percolates into the groundwater reservoir. Once in the ground, the water quality is influenced by such factors as: the lithology and age of the sediments through which it flows; the rate of groundwater flow; the rates and locations of recharge; fluctuation in basin-wide water levels; well construction and abandonment techniques; methods of water sampling; the locations for and qualities of any artificially-recharged waters; and the proximity to sources of potential degradation such as irrigation-return waters, and industrial discharges, or deep percolation of sewage effluent from the multitude of leachfields in the Acton region.

Identification of the chemical character of groundwater in the Acton area has been determined by the construction of a Trilinear Analysis Diagram - Figure 4. Trilinear diagrams are prepared using the percent reactance values of the principal cations and anions

Figure 4
Trilinear Analysis Diagram

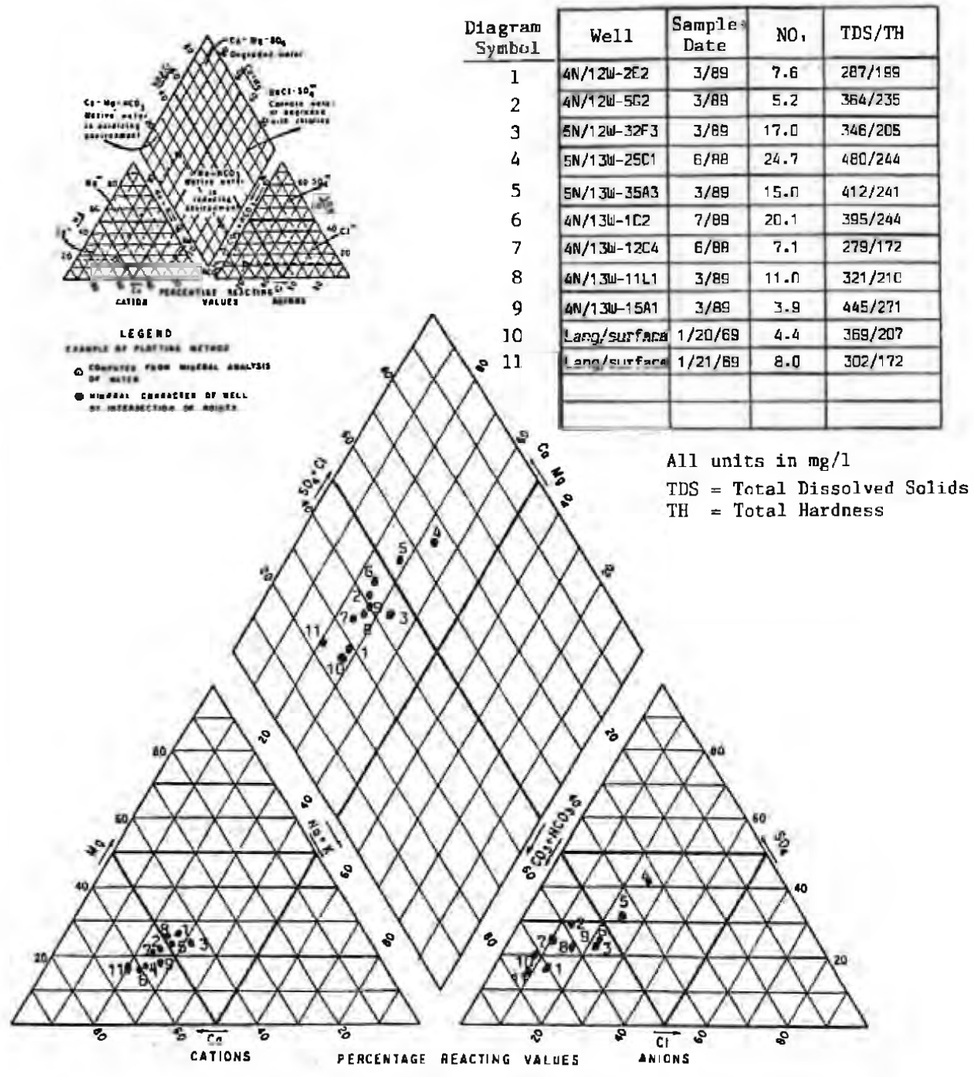


Diagram Symbol	Well	Sample Date	NO$_3$	TDS/TH
1	4N/12W-2E2	3/89	7.6	287/199
2	4N/12W-5G2	3/89	5.2	364/235
3	5N/12W-32F3	3/89	17.0	346/205
4	5N/13W-25C1	6/88	24.7	480/244
5	5N/13W-35A3	3/89	15.0	412/241
6	4N/13W-1C2	7/89	20.1	395/244
7	4N/13W-12C4	6/88	7.1	278/172
8	4N/13W-11L1	3/89	11.0	321/210
9	4N/13W-15A1	3/89	3.9	445/271
10	Lang/surface	1/20/69	4.4	369/207
11	Lang/surface	1/21/89	8.0	302/172

All units in mg/l
TDS = Total Dissolved Solids
TH = Total Hardness

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listed in the original laboratory analysis of the well water. Total dissolved solids (TDS) values used in this study are for total filterable residues and not the higher values historically reported as the summation of constituents; this is consistent with TDS values currently reported by local laboratories.

Figure 4 presents the results of the required calculations for: two relatively deep wells drilled in the region of terrace deposits which may also contain perforations within and produce some water from fractured bedrock (diagram symbols 1 and 2); for two wells probably producing only from terrace deposits (diagram symbols 4 and 5); and for five wells probably producing only from alluvium (diagram symbols 3, 6, 7, 8 and 9). The well represented by symbol no. 9 is located at the western limits of the study area, near Ravenna. Well data is the most recent available and ranges from June, 1988 to July, 1989. The only surface water samples available date from January, 1969, and represent pre- and post-flood periods for a station at Lang, a few miles downstream (diagram symbols 10 and 11).

All the samples show similar calcium-magnesium-bicarbonate character except Nos. 4 and 5, which show calcium-magnesium sulfate character due to a higher sulfate ion concentration. These two wells are located in the broad valley north of Acton community and are part of a four-well group (diagram symbols 3, 4, 5 and 6) situated in the more developed parts of the Acton basin which also display elevated nitrate ion concentration (as NO_3) ranging from 17.0 to 24.7 mg/l. In contrast, the remaining wells on Figure 4 display nitrate levels ranging from 3.9 to 11.0 mg/l. An evaluation of the present nitrate situation in the Acton area, together with an assessment of possible future changes in this ion with time due to proposed developments in the Acton area, are provided in the Geraghty & Miller, Inc. report for Brockmeier Consulting Engineers, Inc. (Feb. 1990).

Total dissolved solids concentrations for existing data range from 279 to 480 mg/l while total hardness (TH) ranges from 172 to 271 mg/l. There does not appear to be any obvious relationship between TDS or TH concentrations for wells producing from terrace deposits versus alluvial wells.

Comparison of historical quality data with hydrographs of water levels for nearby wells (Plate 2, Figures 3.1-3.9), suggests that TDS may have responded inversely to precipitation (recharge). That is, as water levels rose within the alluvium and terrace deposits in response to direct and rapid infiltration of precipitation and stream runoff, the TDS content in wells tended to decline because of large dilution effects of recharge. Similarly, the surface water samples at Lang (symbols 10 and 11, Figure 4) for January 20 and 21, 1969, show a decrease in TDS and TH with an increase in flow from 10 cubic feet per second (cfs) to an estimated 500 cfs, after heavy rainfall and flooding.

GEOHYDROLOGY

GENERAL STATEMENT

Within a groundwater basin, the available groundwater storage capacity represents the total volume of water that can be held in underground storage at a given period of time and that can become readily available for extraction by wells. For the water table environment in the Acton area, the groundwater storage capacity potentially available for extraction by wells depends on the total volume of the alluvial and terrace deposits that are, or can become, saturated in the groundwater reservoir, and on the specific yield of those sediments. Hence, groundwater in storage is a constantly changing value which fluctuates in response to both seasonal and long-term changes in recharge to, and discharge from, the groundwater reservoir. A rising water table increases the thickness of the saturated water-bearing section, which results in

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a greater volume of groundwater in storage; the reverse is true for a declining water table (a decreasing saturated thickness).

To be usable, the void space or reservoir space for groundwater storage in a given volume of sediments must have at least two capabilities: it must be economically capable of being dewatered during periods of deficient surface supply; and it must be capable of being re-saturated either naturally or artificially during periods of excess surface supply. Thus, the groundwater reservoir must contain usable water, which may be defined as that having a satisfactory quality for prevailing beneficial uses and that occurring in sufficient quantity in the underground reservoir to be available without uneconomic yield or excessive drawdown.

Within the water table conditions in the study area, the amount of water available for use at the beginning of the pumping season is dependent entirely upon the amount of water which the formations will yield by gravity when the water levels are depressed by pumping.

For this investigation, it was necessary to assess the quantity of groundwater in storage during periods of average or above-average rainfall; from these calculations, it is then possible to determine the change in storage in response to the quantity of precipitation.

Also, the aquifer system within the study area is comprised of alluvial and terrace deposits derived from the surrounding highland areas and deposited as interfingering lenses of clay-, silt-, sand-, gravel- and boulder-sized sediments. The materials vary in composition and grain size vertically as well as horizontally, and tracing of individual beds or units was not possible. Because the aquifer system is both heterogeneous and non-isotropic, it was considered unreliable to merely select an average thickness for the alluvial and terrace deposits and to apply this value throughout the study area. Likewise, it was deemed inadvisable to select one value of specific yield for all of the alluvial and terrace

deposits and to utilize this single value for computational purposes.

GROUNDWATER STORAGE CAPACITY

To quantify the volume of groundwater in storage that is potentially available for extraction, it is necessary to multiply the total volume of water-bearing sediments by the specific yield of the various strata. In this assessment, specific yield represents the ratio of the volume of water which can be drained by gravity from a saturated stratum to the unit volume of that stratum. The procedure for calculating storage capacity involved the following steps:

1. Subdivision of the study area into individual groundwater storage units within the alluvium and also within the terrace deposits.
2. Assessment of the total thickness of potentially saturated sediments in each of the two storage units.
3. Grouping of earth materials described on drillers' logs into categories based on grain size.
4. Assignment of specific yield values to each category of earth materials.
5. Computation of groundwater storage capacity (SC) using $SC = AmS_y$, where A = surface area of the storage unit, m = thickness of potentially saturated deposits in that unit, and S_y = the assigned specific yield.

STORAGE UNITS AND SEDIMENT THICKNESSES

The first step in determining storage capacity is to subdivide the study area into individual groundwater storage units. To accomplish this, boundaries of the storage units were selected to coincide with either surface or subsurface geologic features or topographic features such as canyon "narrows," obvious surface "divides," or similar features. The purpose of using such subdivisions was twofold: first, our study area was too large and

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had to be divided into smaller, more-easily-managed units; and second, hydrogeologic features varied markedly throughout the investigation area.

As a result, two separate storage units were selected: Unit No. 1, alluvium (map symbol Qal) and Unit No. 2, terrace deposits (map symbol Qt). Unit No. 1 was divided into nine separate subunits and Unit No. 2 was divided into 18 separate subunits. As illustrated on Plate 6 - Groundwater Storage Units, the two storage units are of different areas and geometry. Based on our field reconnaissance in January 1990, the alluvial and terrace deposits contacts on Plates 2 and 5 have been modified from the published geology (as shown on Plate 1) in order to more accurately represent the surface extent of the alluvial and terrace deposits that are being studied for this investigation. Our interpretation of the relationship between the alluvium and the terrace deposits, and the surrounding older nonwater-bearing rocks, is presented in cross-sections A-A' and B-B' (Plate 3). Locations of the cross-sections are shown on Plate 2.

To assess the quantity of groundwater in storage at any given time that is potentially available for extraction by wells, it was necessary to assign specific yield values to each subunit and to multiply this figure by the volume of saturated sediments in the subunit. The volume of saturated material is a product of the area of the individual subunit and the saturated thickness of the material underlying the particular subunit, multiplied by a correction factor to take into account the fact that: the sides of the subunits are not vertical; and the base of the subunit is not a horizontal plane. The total planimetered surface area in each subunit was reduced by a factor of 25 percent to account for the reduction in volume of the subunit caused by the sloping sides of the canyon walls which adjoin the channels and valleys.

To ascertain the thickness of the saturated material, it is necessary to determine the base of the fresh water-bearing

sediments and the elevation of the water table at a specific time period within each of the subunits. Maps depicting the elevation of the water table for specific time periods (November 1964 to December 1965 and November 1983 to May 1984, as seen on Plates 4 and 5) were used for these purposes. The initial interval represents a water-level low period which had been preceded by a series of dry years while the second interval represents a water-level high period following several years of above-average precipitation.

Lastly, the following important assumptions were used:

1. All surface boundaries were considered to be sloping planes.

2. The depth to water in each storage subunit was averaged across the subunit to create a flat water table and a uniform thickness of saturated sediments across each particular subunit.

3. The base of fresh water for each storage subunit was averaged across that subunit to create a flat bottom for each particular subunit; however, the volume of saturated material was corrected, as described above.

SPECIFIC YIELD VALUES

Specific yield in water table environments represents the quantity of water that a unit volume of the material will release from storage when drained by gravity. The part of the water that is not removed by gravity during drainage is held against the force of gravity by such conditions as molecular attraction and capillarity; this water is not available to wells.

For this investigation, drillers' logs or other lithologic data were available for approximately 30 wells and test holes. Those locations completed as wells are shown on Plate 1. Specific yield values were obtained from studies of sediments similar to those at Acton where terms from drillers' logs had been empirically matched to specific yield for the wells in question.

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Specific yield values were determined to range from 10 to 19 percent in the alluvium and from three to five percent in the older, more highly weathered terrace deposits. The higher values of specific yield were found to be restricted to only a few alluvial storage units. Once a determination was made of the specific yield values for selected wells, each storage subunit was assigned a single value which was considered to best represent that entire subunit.

ESTIMATED QUANTITY OF GROUNDWATER IN STORAGE

The estimated quantity of groundwater in storage that is potentially available for extraction within the investigation area was computed by multiplying the area of each storage subunit by the saturated thickness of that storage subunit (based on the water table elevation for that particular period), and by the specific yield value, in percent, assigned to the subunit. Tables 2.1 and 2.2 - Groundwater Storage Calculations - present the results of our calculations of groundwater in storage for Storage Unit Nos. 1 and 2 for the periods November 1964 to December 1965 and November 1983 to May 1984. To provide a detailed summary breakdown of the groundwater in storage in the alluvium and terrace deposits storage units, the reader is referred to Table 3 - Summary of Groundwater Storage Calculations.

Review of Table 2.1 for Storage Unit No. 1 (the alluvium aquifer system) reveals the following:

1. The alluvial aquifer system in the Santa Clara River and its tributaries in the Acton area (see exposure area on Plates 1 and 6) has a total area of 1587 acres, or 2.5 square miles.

2. Total groundwater in storage ranged from a low of approximately 9783 ac-ft during the low water level period November 1964 to December 1965 to a high of approximately 22,271 ac-ft during the high water level period November 1983 to May 1984.

Table 2.1 - Groundwater Storage Calculations - Alluvial Deposits

Storage Subunit Designation	Total Planimetered Surface Area of Qal Aquifer (acres)	Effective Surface Area of Subunit (acres)	Average Surface Elevation (feet)	Average Specific Yield (percent)	Average Elevation of Base of Aquifers (feet)	Average Water Level Elevation 11/64-12/65 (feet)	Groundwater in Storage 11/64-12/65 (acre-feet)	Average Water Level Elevation 11/83-5/84 (feet)
1a	177	133	3140	16	3080	below Qal	0	3135
1b	66	50	3035	14	2990	below Qal	0	3030
1c	209	157	2920	14	2770	2790	440	2910
1d	374	281	2780	14	2570	2660	3541	2750
1e	91	68	2830	10	2730	below Qal	0	2800
1f	51	38	2825	16	2725	2765	243	2820
1g	155	116	2710	10	2610	2640	348	2695
1h	265	199	2660	19	2485	2585	3781	2650
1i	199	149	2560	16	2455	2515	1430	2555
TOTAL	1587	1191					9783	22,271

NOTES:
1) See Plate 6 for location of storage units and subunits.
2) Total planimetered surface area for each subunit has been reduced by 25% to account for reduction in volume of the subunit caused by sloping sides of the canyon while adjoining the alluvium.

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Table 2.2 - Groundwater Storage Calculations - Stream Terrace Deposits

Storage Unit Designation	Total Planimetered Surface Area of Qt Aquifer (acres)	Effective Surface Area of Subunit (acres)	Average Surface Elevation (feet)	Average Specific Yield (percent)	Average Elevation of Base of Aquifer (feet)	Average Water Level Elevation 11/64-12/65 (feet)	Groundwater in Storage 11/64-12/65 (acre-feet)	Aver Water Eleva 11/83 (fe
2a	386	290	3660	3	3635	below Qt	0	36
2b	590	443	3230	3	3185	below Qt	0	32
2c	257	193	3320	5	3290	below Qt	0	33
2d	1003	752	3560	5	3485	3500	564	35
2e	268	201	3110	3	3035	below Qt	0	30
2f	613	460	3115	5	3040	3065	575	30
2g	183	137	2840	3	2780	below Qt	0	28
2h	96	72	2820	5	2780	below Qt	0	28
2i	730	548	2780	4	2715	2750	767	27
2j	493	370	2900	5	2840	below Qt	0	28
2k	1187	890	2820	5	2710	2770	2670	27
2l	621	466	2910	3	2825	2840	210	28
2m	1461	1096	3240	3	3210	below Qt	0	32
2n	400	300	3230	3	3205	below Qt	0	32
2o	849	637	3880	3	3245	below Qt	0	32
2p	323	242	3220	3	3180	below Qt	0	32
2q	637	478	3160	4	3095	below Qt	0	31
2r	1047	785	3030	4	2980	2990	314	30
TOTAL	11,144	8360					5100	

NOTES:
1) See Plate 6 for location of storage units and subunits.
2) Total planimetered surface area for each subunit has been reduced by 25% to account for reductior in volume of the subunit caused by sloping sides of the canyon walls adjoining the terrace deposi

3. During periods of low groundwater, the upper reaches of the alluvium (Storage Subunits 1a and 1b, Plate 6) and a shallow canyon on the north side of the area (Storage Subunit 1e) may be virtually dry, with water levels at or below the base of the alluvial aquifer.

Review of Table 2.2 for Storage Unit No. 2 (the stream terrace deposits aquifer system) indicates the following:

1. The terrace deposits aquifer system in the Acton area has a total area of 11,144 acres, or 17.4 square miles (refer to Plates 1 and 6).

2. Total groundwater in storage ranged from a low of approximately 5100 ac-ft during the water level low period of 1964 to 1965, to a high of 12,124 ac-ft during the water level high period of 1983 to 1984..

3. During periods of low groundwater, the water table may be at or below the base of the terrace deposits throughout most of the aquifer system. The exceptions are likely to be the large canyons in the foothills of the San Gabriel Mountains (Kentucky Springs, Aliso and Arrastre Canyons; Storage Units 2d, 2f, and 2i) and the wide valley north of Acton community (Storage Units 2k and 2l).

Summary Table 3 indicates that total surface area for both the alluvial and terrace deposits is 12,731 acres (19.9 mi^2) and that total groundwater in storage that is potentially available for extraction from the two aquifer systems ranges approximately between: 14,900 AF during the water level low period between November 1964 and December 1965; and 34,400 AF during the water level high period between November 1983 and May 1984. Cumulative departure data for Blum Ranch and Acton Camp (Figures 2.1 and 2.2, respectively) indicate that rainfall for the 1944-47 period was significantly more than for the 1983-84 period, and therefore, the November 1983 to May 1984 groundwater storage calculations likely represent above-average groundwater storage, but likely not the all-time high. The period of November 1964 to December 1965 appears to represent a period at or near the all-time low for water levels in the area.

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Table 3 - Summary of Groundwater Storage Calculations

Storage Unit Name	Total Planimetered Surface Area of Aquifer (acres)	Effective Surface Area of Aquifer (acres)	Groundwater in Storage 11/64 - 12/65 (acre-feet)
Alluvial Aquifer System (No. 1)	1587	1191	9783
Stream Terrace Aquifer System (No. 2)	11,144	8360	5100
TOTAL	12,731	9551	14,883

NOTES: 1) See Plate 6 for locations of storage units and subunit
2) Effective surface area taken at 75% of the planimetere of aquifer in each storage unit (see text).

It should be noted here that groundwater levels in the terrace deposits lying along the foothills of the western San Gabriel Mountains, south of the Santa Clara River, are considerably higher during dry periods than are groundwater levels in the terrace deposits along the foothills of the Sierra Pelona, to the north of the Santa Clara River. Isohyetal contours prepared for the 1897 to 1947 period for the entire Santa Clara River drainage system (CRWQCB, 1975) show a maximum rainfall zone (32 inches per year) over the western San Gabriel Mountains, which decreases markedly to approximately 10-12 inches per year along the course of the river and to 8-10 inches per year in the northern part of the Acton area. This large rainfall decrease is considered to account for the relatively low groundwater levels during dry periods in the northern part of the Acton area.

In comparison to the groundwater storage volumes potentially available for withdrawal, as calculated for this investigation, we note that Geraghty & Miller, Inc. (in Brockmeier, 1990) also calculated the magnitude of total groundwater in storage. Their calculations were based on the following assumptions and/or criteria:

a. A 75-foot average thickness of saturated flow within the alluvium.

b. A porosity of 0.30 (30%) for the alluvium.

c. A 25-foot average thickness of saturated flow within the terrace deposits.

d. A porosity of 0.20 (20%) for the terrace deposits.

e. An area of alluvium of 2480 acres as identified from published geologic maps.

f. An area of terrace deposits of 10,400 acres as identified from published geologic maps.

g. The upgradient boundary (at Soledad Pass) and the downgradient boundary (about 3000 ft northeast of Ravenna) selected by Geraghty & Miller, Inc. for the

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alluvium within Soledad Canyon are the same as used by this investigator.

h. The use of porosity (instead of specific yield) allows them to calculate total water in storage, which is not the quantity of water available for withdrawal as has been calculated for our report.

As a result of the above, Geraghty & Miller, Inc. calculated a total volume of groundwater in storage in their alluvium area of 56,000 AF, and a total volume of groundwater in storage in their terrace deposits area of 52,000 AF. Hence, their total volume of groundwater in storage in the basin is approximately 108,000 AF. They also recognized that basement rocks contain little water, although some wells may produce some water from such rocks.

CONCLUSIONS AND RECOMMENDATIONS

Based upon review and analyses of existing data for the region, we submit the following conclusions and recommendations.

1.0 DATA BASE

Only a limited number of drillers' logs and/or electric logs are available for water wells in the Acton region. Only a very few wells are monitored for water levels and/or water quality. Data gaps in these water level records include information for a) prior to 1950; and b) for the period between 1965 to 1975.

2.0 HYDROGEOLOGY

2.1 Water-Bearing Sediments. The local groundwater reservoir in the Acton region is known as the Acton Valley Basin (or Acton Basin). Comprising this groundwater reservoir for the purposes of this study are all the potentially water-bearing alluvium and stream terrace deposits along and adjacent to Soledad Canyon (the Santa Clara River) and its major tribu-

taries. Plates 1 and 6 identify the surface exposures of these sediments as mapped for this project. These materials extend northeasterly along Soledad Canyon to the narrows at Soledad Pass, and southwesterly along the canyon to a narrows located about 3000 ft northeast of Ravenna.

Alluvium attains a maximum thickness of perhaps 175 to 225 ft in the Acton community area and is comprised of coarse-grained and permeable materials that are readily subject to scour and erosion by the river. Terrace deposits appear to attain a maximum thickness of about 210 ft in the wide valley north of Acton community and are comprised of porous, well-drained silt, sand and gravel. Because of their greater age and degree of weathering, the terrace deposits are likely more clay-rich than the alluvium.

2.2 Bedrock. Underlying the potentially water-bearing sediments, and exposed within the hills and mountains adjacent to Soledad Canyon, are a series of cemented sedimentary rocks, volcanic rocks, and/or crystalline or metamorphic rocks. The geologically older rocks are considered to be bedrock, and they may contain groundwater generally only along bedding planes, fractures, shears or joints. Their permeability is low and they are not considered capable of readily yielding water on a sustained basis to wells.

2.3 Geologic Structure. Several faults traverse the hills in the southwestern portion of the region. Based on water level data in the alluvium, these faults do not appear to create any groundwater barriers within Soledad Canyon.

Water, which was observed to be flowing in the lower reach of Soledad Canyon southwest of Acton Camp on January 12, 1990 (prior to any rainfall in the area), is considered to represent rising water. Such rising water is lost to the basin. This was the only reach of the Santa Clara River in the study area where surface flow was observed on that date.

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It results from a change in the cross sectional area within the zone of saturation in the alluvium in this region. Bedrock highs created by faulting and/or lack of deep erosion exist in this reach of the canyon, thereby creating a reduced cross sectional flow area.

2.4 Groundwater Occurrence and Movement. Water table conditions exist in the alluvium and in the terrace deposits. Due to their mode of deposition, confined (artesian) conditions are not expected to occur in these sediments. Wells drilled by others deep into the underlying bedrock will likely encounter various degrees of confinement.

Historically, and at present, groundwater in these sediments within Soledad Canyon flows from northeast to southwest across the study area. In the Acton area, the November 1964 to December 1965 interval represents approximately the all-time water level low, while the interval November 1983 to May 1984 represents a realistic water level high.

In the wetter period, depth to water in the alluvium ranged from 10 to 40 below ground surface while depth to water in the terrace deposits ranged from 20 to 70 below ground surface. In the drier period (November 1964 to December 1965) depths to water in the alluvium and in the terrace deposits ranged between 100 to 180 ft and between 150 to 200 ft below ground surface, respectively. Even within the drier period it was probable that rising water still occurred in Soledad Canyon downstream from Acton Camp.

Water level fluctuations seen on hydrographs closely follow long-term hydrologic (climatic) conditions in the area. Water levels tend to fluctuate rapidly and to a large degree in response to wet conditions (recharge); response to drier periods are somewhat more subdued. Such responses result from a combination of sediments with high permeability and aquifers

of limited areal extent and/or of limited storage capacity. That water levels do not decline as rapidly as they do for recharge events indicates that discharge from the basin (by pumping and/or natural subsurface outflow) is of a lesser magnitude than recharge to the basin (by deep percolation of rainfall and of stream runoff).

As a result, the amount of groundwater in storage in the basin can be expected to fluctuate seasonally and year-to-year, depending mainly on rainfall and surface water runoff characteristics. Periods of excess rainfall and runoff will tend to rapidly fill the basin, while periods of deficient rainfall and reduced runoff will tend to gradually cause a reduction in basin-wide water levels.

Shallow wells and/or wells with a shallow depth to their uppermost perforations will notice such fluctuations more rapidly and to a larger degree than wells with the opposite conditions. Water quality problems, if any, would also tend to be noticed more rapidly and to a larger degree in shallow wells and/or in wells having shallow perforations. Furthermore, the rapid and large scale recharge induced by periods of rainfall will tend to flush out and/or induce dilution to certain kinds of water quality problems in the groundwater reservoir should they occur.

2.5 Groundwater Recharge and Discharge. Principal sources of natural recharge to the groundwater reservoir are deep percolation of direct precipitation and infiltration of stream runoff. Estimates of recharge from precipitation range from 5600 to 7200 AF/yr (using a factor of 10 percent of the rainfall volume as being available for deep percolation), to 11,100 AF/yr (using the Brockmeier report). No separate estimates of stream runoff infiltration have been made to date by any other investigators. Rising water of at least 200 gpm was observed in the river channel just downstream from Acton

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Camp at a time (January 1990) that includes three prior years of deficient rainfall and runoff.

Man-made sources of recharge include deep percolation of irrigation returns and returns from private subsurface sewage disposal systems. There are no estimates of these quantities available due to a lack of requisite data. There are no artificial recharge spreading basins or injection wells in the region.

Discharge (subsurface outflow) from the basin occurs by water well pumpage, subsurface outflow to the next downstream groundwater basin, deep percolation into underlying bedrock, and evapotranspiration of shallow waters by phreatophytes.

Metered and/or estimated groundwater extractions for 1989 totaled approximately 1540 AF, as produced by: the County Waterworks District; the two privately-owned companies that supply bulk water to their customers; and the Acton school. The volume produced by all other privately-owned wells to meet all remaining domestic, irrigation, and stock-watering needs in the region is unknown, but is probably less than 1000 AF/yr.

Subsurface outflow from the alluvium at the downstream end of the Acton basin was calculated for this study to range approximately between 2800 AF/yr for a relatively wet period (November 1983 to May 1984) to about 1200 AF/yr for a relatively dry period (November 1964 to December 1965). Geraghty & Miller, Inc. (Brockmeier report) reported a subsurface outflow at the same location downstream from Acton Camp of approximately 2100 AF/yr.

The amounts of outflow by deep percolation into bedrock and by evapotranspiration are unknown.

2.6 Theoretical Aquifer Parameters. Using empirical relationships, due to meager requisite data, theoretical aquifer transmissivity for wells within the alluvial deposits ranges

between 20,000 gpd/ft and 120,000 gpd/ft. The wide latitude of these values results from such factors as: the age of the well; the efficiency of the well; the type of well perforations; and the location of the well within the alluvium of Soledad Canyon.

Because alluvium thickness appears to be generally greater in the reach of the canyon easterly from the community of Acton, it can be assumed that aquifer transmissivity may be larger in this region also.

Transmissivity, together with pumping rates and specific capacity within alluvial wells, will tend to vary directly with changes in saturated thickness. That is, when water levels are high (during periods of excess recharge) T, Q, and Q/s will tend to increase. When water levels are low (during periods of deficient rainfall and recharge), these aquifer and water well parameters will tend to decline.

2.7 Water Quality: A calcium-magnesium-bicarbonate character and TDS values in the range of 280 to 480 mg/l are representative of groundwater within the alluvium and the terrace deposits, except in the area in the wide valley north of Acton community where the water appears to be degraded with an increase in sulfate ion concentration. Nitrate values are elevated in the more developed parts of the Acton area, and range from 17.0 to 24.7 mg/l while the rest of the basin displays nitrate values ranging from 3.9 to 11.0 mg/l. There do not appear to be any definitive long-term and/or continuous trends toward poorer groundwater quality (such as increasing nitrate concentrations) discernible from available data.

Surface water quality was found to be similar to groundwater quality, but with less tendency for increased sulfate ion concentration. Much of the recharge to the groundwater is by deep percolation of surface water runoff.

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Shallow wells, wells with shallow perforations and/or wells with inadequate cement seals will be affected more rapidly and to a greater degree by surface spills and contamination than wells with the opposite conditions.

3.0 GEOHYDROLOGY

3.1 Groundwater Storage Capacity. Using a total surface area of alluvial and terrace deposits in the study area of 12,731 acres, a specific yield of 10 to 19 percent for alluvium and three to five percent for terrace deposits, and variable thicknesses based on basin location (maximum thickness of 225 ft), the following storage capacities were calculated in the alluvium: 9783 ac-ft for the period November 1964 to December 1965 (basin-low) and 22,271 ac-ft for the period November 1984 to May 1985 (basin-high); and in the terrace deposits: 5100 ac-ft (basin-low) and 12,124 ac-ft (basin-high).

Hence, the total groundwater in storage in the two aquifer systems in the Acton study area ranged from a low of approximately 14,900 AF in the basin-low period of November 1964 to December 1965, to a high of approximately 34,400 AF in the basin-high period of November 1983 to May 1984.

It is likely that problems will develop in the basin for groundwater levels higher than those measured during the November 1983 to May 1984 basin-high period. Such high groundwater levels probably occurred during the all-time higher period following the 1944-1947 interval of high rainfall, although there are no water-level records from that time period to confirm this probability.

4.0 FUTURE WATER DISTRICT WELLS

4.1 Feasibility. Additional groundwater development by Los Angeles County Waterworks District No. 37 appears feasible in the Acton area based on the difference between calculated

volumes of groundwater in storage available to wells and presently estimated volumes of annual groundwater extraction.

4.2 General Locations. General locations for new Waterworks District-owned wells include those areas of alluvium along the Santa Clara River in the vicinity of and easterly from existing Well No. 37-1. In this reach of the river (groundwater storage units 1d and 1h), alluvial thicknesses and, hence, the potential for greater thicknesses of saturated sediments, are larger particularly in the center portion of the alluvial area, away from the valley walls. Such greater thicknesses would improve the opportunity for maximizing production rates, transmissivity, and specific capacity in future wells. In addition, such greater thicknesses of saturated sediments tend to: increase the amount of available drawdown in the wells; permit the wells to be deeper; and allow for a greater depth to the uppermost perforations.

New wells are not recommended in areas that contain stream terrace deposits at ground surface.

If more than one well is desired in a given area, construction should be conducted in phases, with the first well being drilled, completed, developed, and thoroughly tested prior to selecting the final sites and design criteria for additional wells in that given area. New wells should be spaced at least 1000 ft apart, based on limited evaluation of mutual drawdown interference criteria using existing data.

4.3 General Well Parameters. New alluvial wells in the recommended areas are likely to be capable of producing in the range of 500 to 800 gpm without inducing excessive amounts of drawdown during wetter hydrologic preiods. Production rates are likely to decline, and pumping levels are expected to drop during drier hydrologic times.

Typical completed well depths are expected to be on the order of 250 ft. Fourteen-inch diameter well casing (pump

Submission 4519 (Don Henry, Acton Town Council, December 1, 2022) - Continued

house casing) and 12-inch diameter well screen (either well screen or louvers) are considered acceptable for the anticipated pumping rates. Such well screen (or louvers), utilized with an appropriate gravel pack, will preclude sanding conditions in new wells.

A minimum 50-foot deep cement sanitary seal is essential. If, based on evaluation of the drill cuttings and electric log, a deeper seal can be constructed without adversely impacting production rates, then such a seal could be useful in minimizing possible impacts of nitrates or other possible quality impairment.

4.4 Down-Hole Quality Testing. The opportunity does exist during pilot hole drilling to conduct limited down-hole water sampling of individual aquifers in the open borehole in an effort to determine whether or not contamination exists at the well site; however, collecting conclusive data by this procedure is difficult. That is, such select aquifer sampling is typically conducted by airlifting techniques and can cost on the order of $4,000 to $7,000 per aquifer test zone for mobilization and airlifting alone. Airlifting, however, is not considered appropriate for sampling of volatile organic compounds. Moreover, airlifting typically is conducted at low rates of discharge (less than 50 to 75 gpm) and for relatively short time periods (less than three to four hours). Long-term pumping (several hours to a day or more) is not possible in an open borehole under such circumstances due to the risks of collapsing the borehole and losing the sampling equipment.

A contamination plume, if it existed, would have to be virtually at the well site in order to be intercepted by such low capacity, short-term down-hole sampling. A more distant plume could require hours, days, weeks or even months of pumping at high rates to be intercepted, assuming such a plume exists at all. Naturally-occurring inorganic water quality

problems are capable of being identified by down-hole testing since these contaminants often occur throughout the entire aquifer.

4.5 Construction Operations. Future wells should be drilled using either direct rotary or reverse rotary drilling methods. Cable-tool drilling is not recommended.

Depending on the site(s) selected, a potential problem will be the availability of water for drilling purposes, especially for the reverse circulation method which may require 100 to 300 or more gallons per minute of continuous supply. If the direct rotary method is used, particular care must be given to control of drilling fluid properties so as to not induce permanent damage to the aquifers.

Detailed geologic mud logs should be prepared from drill-cuttings data as monitored by field geologists during the drilling. At the completion of the pilot bore, an electric log survey is essential in order to define available aquifers and potential locations for the well perforations.

Well screen slot widths and gravel pack grain sizes are to be selected based on analysis and grain size distribution of the drill cuttings from each pilot hole.

Important to well site selection and well site usage will be the wellhead protection utilized for the permanent well. This is because the optimum well sites for alluvial wells lie within the active course of the river and, hence, within the flood hazard zone. It is recommended that you work closely with your engineers in designing the wellhead and appurtenances (pipelines, electrical, etc.) for each well.

4.6 Construction Costs. Approximate costs at this time for a contractor to drill, install casing, develop, and test pump one new well on the order of 250 ft in depth will likely be on the order of $100,000 to $125,000. A more detailed and

Submission 4519 (Don Henry, Acton Town Council, December 1, 2022) - Continued

refined breakdown of costs can be provided when the site(s) for eventual wells is(are) selected.

In addition to the drilling costs, there also will be costs for the final pumping equipment, chlorination facilities, electrical appurtenances and transmission lines, property and/or rights-of-way for the new wells, wellhead protection for flood hazard, and for required hydrogeologic services during construction.

5.0 GROUNDWATER MANAGEMENT

Existing extraction data are incomplete because not all water purveyors meter their production for their individual wells. In addition, the number, locations, and production from privately-owned wells in the basin are not known.

To better understand the hydrogeologic regime in the region, the following are recommended:

a. Accurately establish the locations of each well on U. S. Geological Survey quadrangle maps.

b. Install accurate flow meters (both instantaneous rate and totalizer volume meters) on each well.

c. Establish a permanent reference point on all wells from which future depth-to-water measurements can be taken; use a surveyor to obtain accurate elevations for these reference points.

d. Monitor water levels on a regular basis (at least twice per month); ensure that these are true static levels, not partial recovery levels.

e. When abandoning wells, make sure that accurate records are kept as to which well, its location, etc., and the methods used for abandonment. Methods for abandonment should comply with State of California requirements (DWR Bulletin 74-81). Wells which will not be used in the future for monitoring, pumping, etc. should be destroyed instead of abandoned (DWR Bulletin 74-81).

f. Verify that active wells have State-approved sanitary seals; remove from active service those domestically-used wells which do not meet minimum sealing standards;

consider abandonment of those wells with very high perforations in the alluvium.

g. Conduct Edison efficiency tests on a regular basis in all wells (at least once or twice per year).

h. Plot water level hydrographs and graphs of specific capacity vs time for all wells; monitor water for inorganic and organic constituents on a regular basis.

i. Conduct a well canvass of the entire region to verify the existence, location, viability, and usage of all active and potentially active municipal and private wells.

j. Establish a key well monitoring program for wells in the region.

k. Perform operation and maintenance (O & M) on the wells on a regular basis. Such O & M is essential to maintain well efficiency and to return declining specific capacities to their original values. The wells should be periodically surged in order to prevent clogging of the gravel pack by silt or clay.

l. Because of the propensity of the alluvium to be easily contaminated, become cognizant of present and future land use in and along the alluvium; work with the RWQCB to recognize landfill problems, runoff from hazardous waste sites, migration of gasoline from leaky underground service station tanks, or even potential problems from wastewater effluents. Locate all industrial dischargers, if any, on a map and determine the types and amounts of such discharges.

m. Coordinate, with the appropriate regulatory agencies, current and future planned programs for any possible lining of the Santa Clara River or its tributaries for flood protection; maximize the potential for recharge in the river by allowing for percolation of low-flow runoff in any possible future lining operation plans.

The attachments which complete this report are listed in the Table of Contents.

Respectfully submitted,

Richard C. Slade
Registered Professional Hydrogeologist

Submission 4519 (Don Henry, Acton Town Council, December 1, 2022) - Continued

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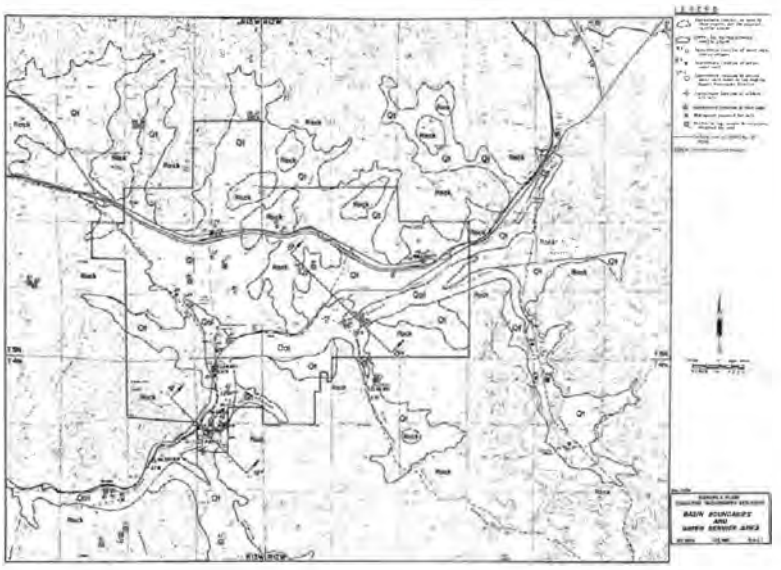
Submission 4519 (Don Henry, Acton Town Council, December 1, 2022) - Continued

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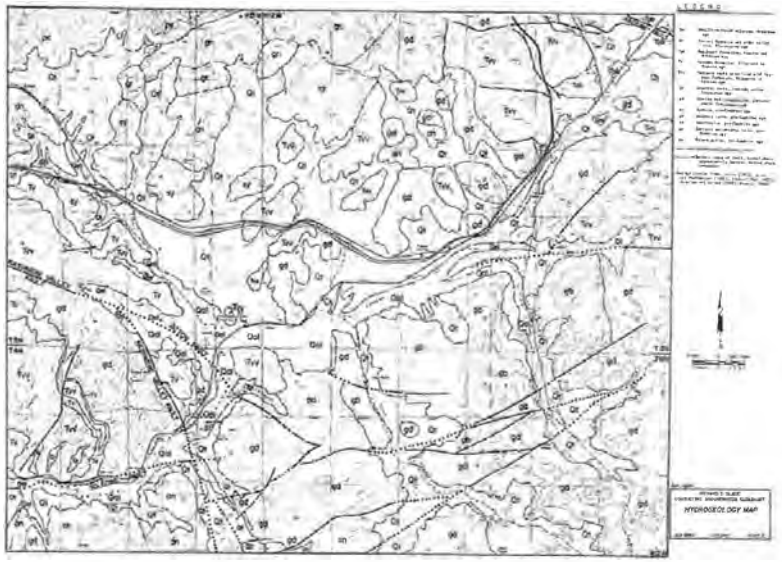
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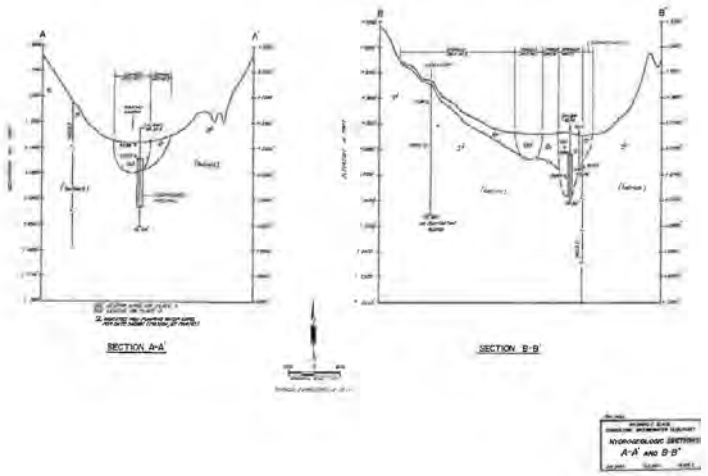
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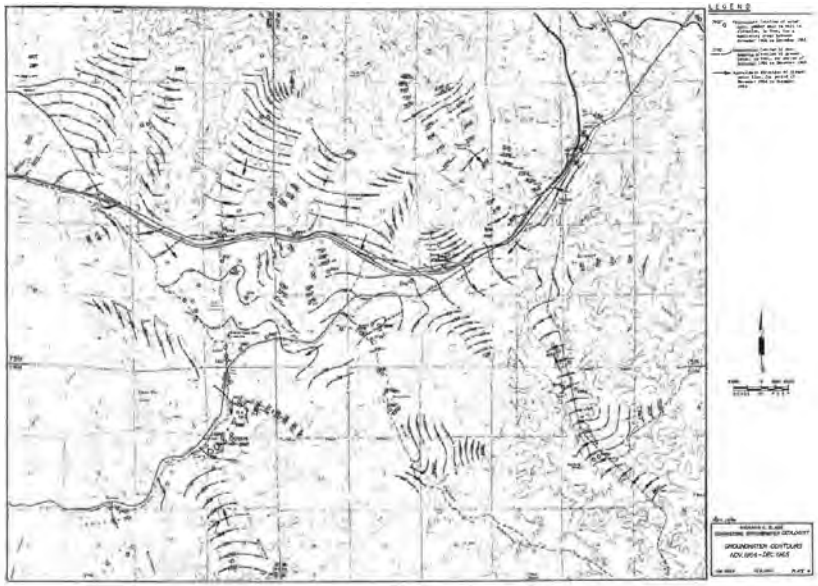


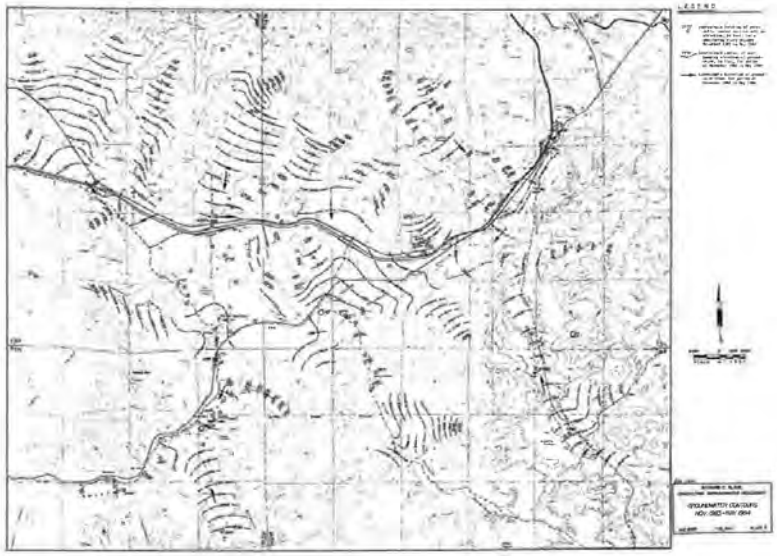
Submission 4519 (Don Henry, Acton Town Council, December 1, 2022) - Continued





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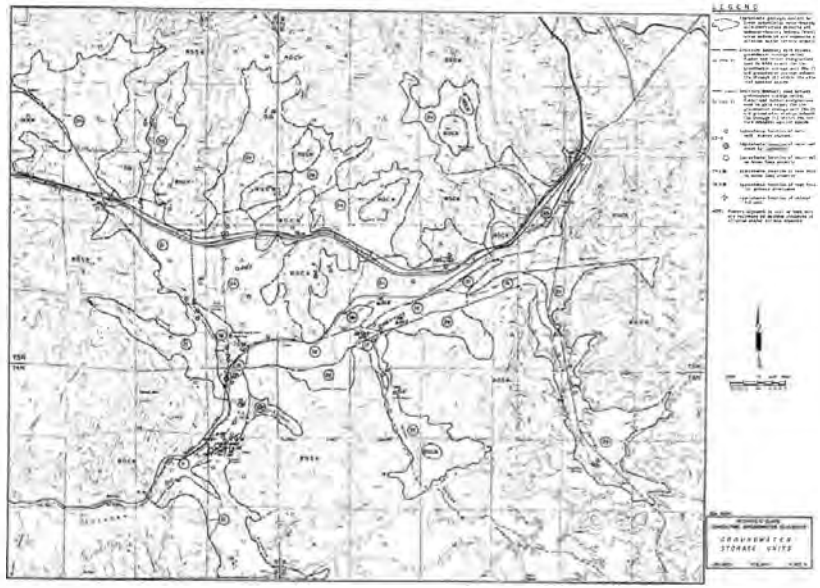




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ATTACHMENT 3

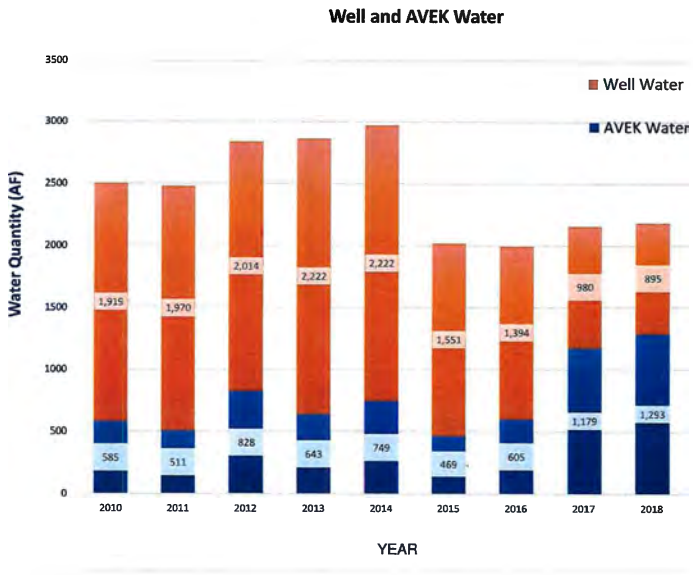
Waterworks District 37 Historical Groundwater Extraction Rates for the Municipal Wells Operated in Acton.
(Source: Waterworks District 37)



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Submission 4519 (Don Henry, Acton Town Council, December 1, 2022) - Continued

GRAPH 1 - D37 WATER SUPPLY



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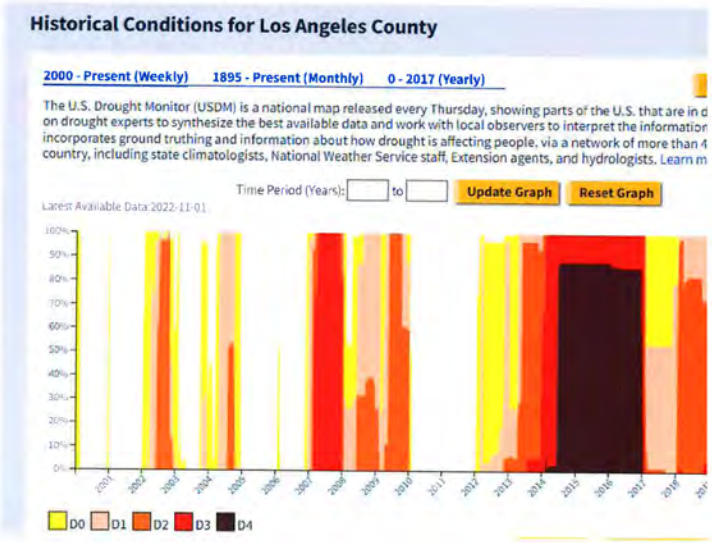
ATTACHMENT 4

Historic Drought Monitor Data for Los Angeles County. (Source: The U.S. Drought Monitor).

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ATTACHMENT 5

Drainage Map of the Area Where the "Acton Window" Will be Constructed Under the Environmentally Preferred SR14A Route Alternative.
(Source: Developer Submittal to Los Angeles County Department of Public Works).

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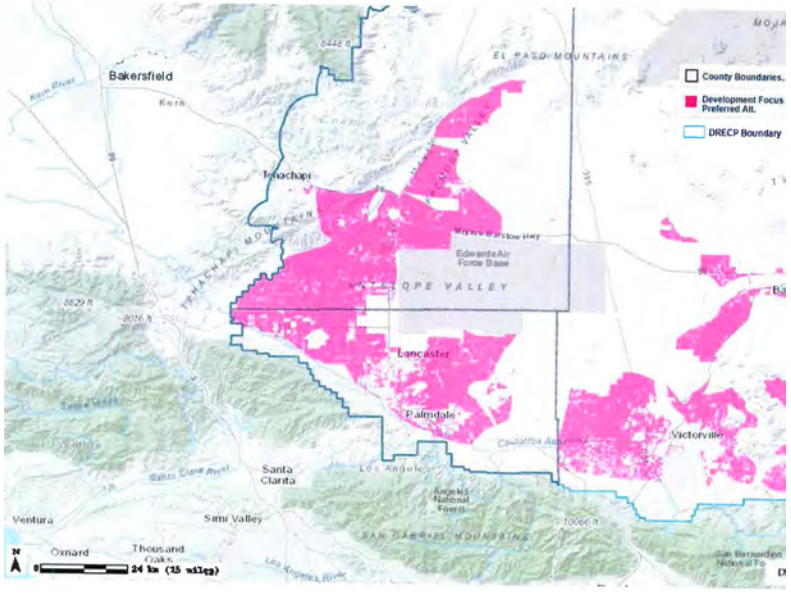
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ATTACHMENT 6

California Energy Commission "Energy Map".
(Source: Desert Renewable Energy Plan:
https://drecp.databasin.org/maps/e4df26ec71184f61b5aafb17fa0c78c9/)

Submission 4519 (Don Henry, Acton Town Council, December 1, 2022) - Continued



Response to Submission 4519 (Don Henry, Acton Town Council, December 1, 2022)

4519-10279

The comment is a duplicate of Comment PB-4414. Refer to previously provided responses to submission 4414 (see Response to Comment #8402 through #8429).

Submission 4534 (Lionel Mares, Sun Valley Area Neighborhood Council (SVANC), December 29, 2022)

Palmdale - Burbank - RECORD #4534 DETAIL

Status :	Unread
Record Date :	12/29/2022
Interest As :	Business and/or Organization
First Name :	Lionel
Last Name :	Mares

Stakeholder Comments/Issues :

December 28, 2022

California High-Speed Rail Authority (CA HSRA)

Re:
California High-Speed Rail Authority
* Palmdale to Burbank Project Section Draft EIR/EIS*

Dear Board of Directors:

4534-10672

I am writing to express my concern about the proposed California High-Speed Rail Project, particularly the Palmdale to Burbank Section. I am a board member of the Sun Valley Area Neighborhood Council (SVANC), and a resident of Sun Valley, CA 91352. I am concerned about the Environmental Impact of the Palmdale to Burbank High-Speed Rail Project in my community. I am concerned about the impact on the San Gabriel Mountains and surrounding areas and neighborhoods, including what effect it will have on the San Andreas Fault Line. I am concerned about the potential dangers it may or will impose on the environment, communities, and wildlife.

I think that the State of California and the CA High-Speed Rail Authority should look into this thoroughly. The route proposed by the CA High-Speed Rail Authority poses a danger to the surrounding environment.

Thank you for taking the time to read my concerns

Sincerely,

Lionel Mares
Board-Member

Response to Submission 4534 (Lionel Mares, Sun Valley Area Neighborhood Council (SVANC), December 29, 2022)

4534-10672

Refer to Standard Response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife, PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events.

The commenter expresses concern regarding impacts to the Sun Valley community and surrounding community, the San Gabriel Mountains, San Andreas Fault Line, the environment, and wildlife. As described in Section 3.9, Geology, Soils, Seismicity, and Paleontological Resources of the Draft EIR/EIS, implementation of GEO-IAMF#6 ensures that project design would incorporate early warning systems to track strong ground motion associated with fault rupture. This would help identify situations where fault creep or rupture have the potential to damage facilities and enable control of trains in a manner that would reduce the potential for accidents. GEO-IAMF#7 requires the preparation of a technical memorandum to address fault rupture for construction components. As established in GEO-IAMF#7, potentially hazardous faults crossed by the HSR Build Alternatives would be evaluated by conducting field investigations to establish updated estimates of levels of ground motion prior to construction and during final design. Final design would be further supported by additional seismic studies and compliance with Caltrans seismic design criteria. Geotechnical and design protocol would adhere to established engineering procedures listed in GEO-IAMF#10 to minimize hazards associated with fault rupture and ground shaking. Refer to PB-Response-GSSP-1: Risk and Impacts Associated with Seismic Events, for concerns regarding project related seismic activity. Additionally, refer to Standard Response PB-Response-BIO-2: Construction and Operations Impacts to Special-Status Plants and Wildlife for concerns regarding impacts to wildlife. Regarding community impacts to the Sun Valley area, please refer to Submission PB-4427, Response to Comment #8104.

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