Aggie Research Campus Project

SCH# 2014112012

Draft Subsequent Environmental Impact Report

Prepared for

Davis California

March 2020

Prepared by

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Aggie Research Campus Project

SCH # 2014112012

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1. INTRODUCTION

1 INTRODUCTION

1.1 INTRODUCTION

The City of Davis, acting as the lead agency[1] for the review of the Aggie Research Campus (ARC) Project under the California Environmental Quality Act (CEQA), has prepared this Subsequent Environmental Impact Report (SEIR). This chapter will describe the background of the project, the regulations and requirements regarding subsequent environmental review, an overview of the processing of the ARC Project to date, and a look ahead to the contents of this SEIR.

1.2 BACKGROUND

An EIR for the formerly proposed Mace Ranch Innovation Center (MRIC) Project was prepared by the City of Davis, and at the applicant's request, brought before Davis City Council for consideration to certify the document without concurrent consideration to approve a project. On September 19, 2017, the City Council adopted Resolution 17-125, certifying the Final MRIC EIR (State Clearinghouse # 2014112012) for the MRIC. By certifying the Final MRIC EIR, the City determined that the EIR adequately evaluated the environmental impacts of the proposed MRIC Project and a related Mixed-Use Alternative. In 2019, the project applicant team (Buzz Oates, Reynolds & Brown, and Ramco Enterprises) reengaged with the City and expressed their desire to proceed with bringing a project before the Davis decision-makers for consideration of approval. The applicant team has chosen to bring forward a mixed-use project that is substantially similar to the Mixed-Use Alternative evaluated in the certified EIR at an equal-weight to the MRIC Project. The equal-weight analysis of the Mixed-Use Alternative is contained in Chapter 8 of the certified EIR. As part of the applicant's current proposal, referred to as "Aggie Research Campus", minor changes to the Mixed-Use Alternative have been proposed.

Former Mace Ranch Innovation Center Project

The MRIC Project, as evaluated in the MRIC EIR, included two distinct components: buildout of the 212-acre MRIC site, and future development of the 16.5-acre Mace Triangle site. The two sites are located immediately east of the City of Davis city limits, near the "Mace Curve", in unincorporated Yolo County, approximately 2.5 miles east of Downtown Davis.

The MRIC Project included up to 2,654,000 square feet (sf) of innovation center uses and dedication of 64.6 acres of green space (including parks and open space) on the 212-acre site. The MRIC Project included approximately 1,510,000 sf for research/office/R&D uses; approximately 884,000 sf for manufacturing and research uses; up to 260,000 sf (10 percent) of supportive

[1] Pursuant to CEQA Guidelines Section 15367, "Lead Agency" means the public agency which has the principal responsibility for carrying out or approving a project. The Lead Agency will decide whether an EIR or Negative Declaration will be required for the project and will cause the document to be prepared.

commercial uses, including a 160,000-sf hotel/conference center; and 100,000 sf of supportive retail throughout the MRIC. The City of Davis included the 16.5-acre Mace Triangle Site within the overall project boundaries to ensure that an agricultural and unincorporated island would not be created, and to allow the continuation and expansion of existing uses. The EIR evaluated development of up to 71,056 sf of general commercial uses including up to 45,900 sf of research, office, and R&D, and up to 25,155 sf of retail on the Mace Triangle properties.

Mixed-Use Alternative

The certified MRIC EIR also included an equal weight analysis of a Mixed-Use Alternative in Chapter 8. The Mixed-Use Alternative provided the same non-residential square footage and land uses as the proposed MRIC Project, but included up to 850 workforce housing units intended to support the innovation center's employee-generated demand for housing within the City. Other ways in which the Mixed-Use Alternative differed from the MRIC Project include proposed building heights (max height of 85 feet for the Mixed-Use Alternative, whereas max height for MRIC Project was 75 feet). The circulation network for this alternative was generally the same as the MRIC Project with the exception of the additional northwesterly access along the "Mace Curve", at its intersection with County Road (CR) 104.

1.3 COMPARISON OF ARC PROJECT AND MIXED-USE ALTERNATIVE

The currently proposed Aggie Research Campus is in substantial conformance with the Mixed-Use Alternative version evaluated in the 2017 certified EIR. Relatively minor differences are described in what follows.

Development Footprint

The ARC Project removes the City-owned 25-acre parcel from the proposed development area. The property would still be included in the proposed annexation limits, but the City's Agriculture zone designation would be applied to the parcel, rather than the previously proposed Planned Development zoning. Due to the exclusion of the 25-acre City-owned property from the proposed development footprint, the ARC Project would involve a slightly reduced development area. It is important to note, however, that the applicant proposes to establish a 6.8-acre easement on this property to satisfy the City's 150-foot Agricultural Buffer requirements along a portion of the project's northern boundary.[2]

In addition to having the same number of residential workforce units, the ARC Project would include the same amount of non-residential square footage as the Mixed-Use Alternative: 1,510,000 sf of research, office and R&D uses, 884,000 sf of manufacturing and research uses, 100,000 sf of ancillary retail, and 160,000 sf of hotel/conference space. Due to rearrangement of the aforementioned land uses within the ARC site, the overall floor-to-area ratio (FAR) would increase slightly, from 0.82 to 0.93.

[2] The applicant does not currently have any rights to the City property; the terms of this easement would have to be negotiated with the City.

Parking

The Mixed-Use Alternative included 6,032 on-site parking spaces, whereas the ARC Project includes 5,858 parking spaces, a reduction of 174 parking spaces. While the applicant's original submittal materials for the ARC Project identified a parking total of 4,340 on-site spaces, during the environmental review process, the number of on-site parking spaces was increased, upon recommendation of the traffic consultant, to be consistent with the parking demand estimate calculated for the project using the Institute of Transportation Engineers Parking Generation Manual.

Green Space

The Mixed-Use Alternative would have incorporated several privately maintained parks and open space areas throughout the site, totaling approximately 75.8 acres of green space. In comparison, the ARC Project would incorporate several privately maintained parks and open space areas throughout the site, totaling approximately 49.2 acres of green space. While this is a reduction of 26.6 acres, it is nearly entirely offset by the removal of the City's 25-acre property from the development footprint. That the methodology for calculating this reduced green space requirement is consistent with the City's methodology for calculating park/green space acreage requirements, will be demonstrated in Chapter 3 of this SEIR (see Impact 3-67).

Circulation

The ARC Project roadway alignment is still a modified grid with two access points onto CR 32A, two full access points onto Mace Boulevard at Alhambra Drive and CR 30B, and a third right-in and right-out onto Mace Boulevard.

As part of ARC Project, the right-in and right-out onto Mace Boulevard has been moved approximately 500 feet further north in response to prior traffic engineering comments. In addition, the internal east/west roadways have been shortened in length and now end at the vertical extension of the eastern north/south roadway. This is an overall reduction in project roadways.

Phasing

The phasing plan has been modified to more clearly tie the construction of housing to the creation of jobs. The phasing now permits the construction of one (1) housing unit for every 2,000 sf of jobs-creating space until the maximum 850 units are built. The modified phasing allows housing to be built in phases 1, 2 and 3 of ARC. In the MRIC Mixed-Use Alternative, housing was only in phases 2, 3, and 4. However, no housing can be constructed until 200,000 sf of non-residential uses are built. Thereafter, building permits for housing may be sought at the ratio of 1 unit/2,000 sf to ensure that housing is and continues to be supportive of the jobs created.

1.4 SUBSEQUENT EIR PROCESS AND SCOPE

In situations when a lead agency has certified an EIR for a project, and then the project is modified, requiring additional environmental review, the lead agency has a few options for conducting such

review. Depending on the nature of the project modifications, a lead agency may prepare an addendum, a supplement to the EIR, or a subsequent EIR. According to Section 15164, a lead agency can prepare an addendum to a previously certified EIR if some changes or additions to an EIR are necessary, but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred. The 15162 conditions are as follows:

> (1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
> (2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
> (3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:
> (A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
> (B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;
> (C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
> (D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

As will be demonstrated in Chapter 3 of this SEIR, substantial changes have occurred with respect to circumstances under which the project would be undertaken, thus, requiring major revisions of the previous EIR in select sections due to either the involvement of new significant effects (e.g., construction NO_X emissions) or substantial increase in the severity of previously identified significant effects (circulation system effects), though such is the case for a small subset of environmental topics. As a result, the City of Davis, as the CEQA lead agency, has prepared a SEIR for the ARC Project.

Although the CEQA Guidelines do not contain a description of a subsequent EIR, the meaning of the term may be inferred by comparing it with an EIR supplement.[3] A supplement to an EIR is a document that contains additions or changes needed to make the previous EIR adequate. In

[3] See Stephen L. Kostka and Michael H. Zischke. *Practice Under the California Environmental Quality Act, Second Edition*. March 2019 Update, pg. 19-8.

contrast, to make the EIR adequate for the project, a subsequent EIR revises the previous EIR, rather than simply supplementing it, as has been done here. *City of Irvine v County of Orange* (2015) 238 CA4th 526, 538, is also instructive here. As the court states:

> One, as CEQA Guideline 15162's [sic] "may choose" language shows, the choice to proceed by way of a "supplemental" as distinct from a "subsequent" EIR is a discretionary one with the lead agency, thus tested under a reasonableness standard. Two, as shown recently by *Citizens for a Sustainable Treasure Island v. City and County of San Francisco* (2014) 227 Cal.App.4th 1036, 1047-1048 (*Treasure Island*), the appropriate judicial approach is to look to the substance of the EIR, not its nominal title.[7] (Accord, *California Oak Foundation v. Regents of University of California* (2010) 188 Cal.App.4th 227, 271, fn. 25 ["The fact that this EIR is labeled a 'project' rather than a 'program' EIR matters little for purposes of this inquiry. 'The level of specificity of an EIR is determined by the nature of the project and the "rule of reason" . . . rather than any semantic label accorded to the EIR.'"].)

While the notice prepared for the meeting held on December 2, 2019 to receive comments on the range of topics the public feels should be addressed in this environmental document referred to the document as a Supplemental EIR, after conducting the environmental review, the City, in its discretion, chose to prepare a SEIR. Though, as discussed above, the title matters little. The appropriate judicial approach is to look at the substance of the EIR.

According to CEQA Guidelines Section 15162(d), a subsequent EIR shall be given the same notice and public review as required under Section 15087 or Section 15072. A subsequent EIR shall state where the previous document is available and can be reviewed.

The Mace Ranch Innovation Center Draft and Final EIR documents are available at the City of Davis Department of Community Development and Sustainability, 23 Russell Boulevard, Suite 2, Davis, CA 95616, between the hours of 8AM to 5PM, Monday through Friday. The documents are also available for review on the City's website at:

https://www.cityofdavis.org/city-hall/community-development-and-sustainability/development-projects/aggie-research-campus

Environmental Issues Addressed in this Subsequent EIR

Chapter 3 of this Draft SEIR includes an analysis of all relevant issue areas that were previously evaluated in the MRIC EIR, as follows:

- Aesthetics and Visual Resources;
- Agriculture and Forestry Resources
- Air Quality;
- Biological Resources
- Cultural Resources;
- Geology, Soils, and Mineral Resources;
- Greenhouse Gas Emissions and Energy;

- Hazards and Hazardous Materials;
- Hydrology and Water Quality;
- Land Use and Urban Decay;
- Noise and Vibration;
- Population and Housing;
- Public Services and Recreation;
- Transportation and Circulation;
- Utilities; and
- Cumulative Impacts.

While the basic requirement for a subsequent EIR, as discussed above, is to revise the previous EIR to make it adequate for the project as modified, as well as changes in circumstances, this SEIR goes above and beyond by providing an overview of the changes in circumstances and changes to the project for each topic area, as applicable, in an effort to provide additional disclosure to the public regarding the severity of changed circumstances and the extent to which changes to the project affect the previous analysis.

Thus, for each issue area, this SEIR includes subheaders titled "Changes in Circumstances" and "Changes in the Project". The Changes in Circumstances subheaders include an overview of changes in circumstance that have occurred since the release of the MRIC EIR, including any changes to the environmental setting since certification of the MRIC EIR. The "Changes in the Project" subheaders include a comparison of the ARC Project components with the MRIC Project, as well as the Mixed-Use Alternative, and identify any new or more severe impacts that could result from the ARC changes.

1.5 SUMMARY OF COMMENTS RECEIVED DURING THE INITIAL COMMENT PERIOD

While preparation of a new Notice of Preparation (NOP) and subsequent scoping meeting are not required for a subsequent EIR or supplemental EIR, the City of Davis chose to hold a meeting to receive comments on the range of issues that the public believes should be studied in the subsequent environmental document, much like an initial scoping meeting for new projects under CEQA review. As a result, the City held a public comment meeting for the proposed ARC Project on December 2, 2019 (Davis City Hall Conference Room, 23 Russell Blvd, Davis, CA 95616). As advertised, the meeting was intended to focus more appropriately on collecting comments related to the changes in circumstances that may have occurred in the project vicinity since the certification of the MRIC EIR in 2017, given that this is an important criterion to consider when preparing further environmental documents for projects, according to CEQA Guidelines Section 15162(a)(2).

The City also voluntarily extended the period to accept written comments from public agencies and the general public that are interested in providing input as to the range of issues to be studied in the environmental document. The public was informed that they could submit comments in person at the December 2, 2019 meeting or written comments could be delivered to the City of Davis Community Development and Sustainability Department, 23 Russell Boulevard, Suite 2

Davis, CA 95616 Attn: Sherri Metzker, Principal Planner, or via electronic mail to smetzker@cityofdavis.org up until Monday, December 16, 2019 at 5:00 PM.

The City of Davis received 25 comment letters during the open comment period for the ARC Project SEIR. A copy of each letter is provided in this EIR (see Appendix A). The following letters were authored by public agencies and residents.

Agencies

1. Blacklock, Patrick, County of Yolo
2. Boyd, Ian, CDFW
3. Echiburu, Taro, County of Yolo Department of Community Services
4. Portman, Catherine, Burrowing Owl Preservation Society

Interested Persons

5. Cunningham, Lynne
6. Edelman, Todd
7. Fleeman, William
8. Gunnell, Pamela
9. Keller, Rik
10. Lamb-Bang, Gayna
11. Martin, Billie
12. Millstein, Roberta
13. Nieberg, Pam
14. Oertel, Ron
15. Portman, Catherine
16. Prindle, Robert
17. Pryor, Alan
18. Rasmusson, Cathy
19. Rowe, Greg
20. Samitz, Eileen
21. Smallwood, Shawn
22. Walsh, Colin
23. Williams, Matt

The following list, categorized by issue, summarizes the concerns addressed in the comment letters:

Agricultural Resources	• 6.5 acres of required Ag Buffer should not be on City's 25-acre property, purchased with Measure O funds. • Agricultural land mitigation. • Changes in surrounding agricultural conditions and pesticide use.
Air Quality	• What dust mitigation during construction is proposed?

Biological Resources	• Bird and bat strike concerns. • Effects on the Yolo Causeway bat colony. • Causeway is also part of Pacific Flyway where many waterfowl migrate. • Wind turbines also generate noise and effects on nearby houses should be addressed. • Visual; shadow flicker effects; and aviation lighting from turbines also need to be considered. • Cumulative effects to Western Burrowing Owl (BUOW) need to be addressed – Marriot Residence Inn built on BUOW habitat. • California Department of Fish and Wildlife (CDFW) may potentially be a responsible agency if it may need to make a discretionary action under the Fish and Game Code, such as Lake and Streambed Alteration Agreement. • Rewrite Mitigation Measure 4.4-11 to include updated status of Yolo Habitat Conservation Plan and description of procedures applicant will take to obtain coverage. • MRIC Certified Final EIR analysis of BUOW inadequate because: o Surveys for certified EIR not conducted in accordance with CDFW 2012 Staff Report. o Cumulative impacts to regional burrowing owl population were not assessed. o Mitigations, including preconstruction survey and passive relocation are not mitigation. • Per the 2012 Staff Report, eviction of BUOW (passive relocation) is a potentially significant impact under CEQA. • MRIC Certified Final EIR did not assess impacts to BUOW habitat from construction activities. The majority of available burrows near the project site are at the edge of county roads. Heavy equipment and staging may impact BUOW. • Ag Buffer on City 25-acres: project proposes planting trees and other vegetation. This loss of habitat should be included in the impact assessment.
Hazards and Hazardous Materials	• Issue of potential use of hazardous materials in close proximity to on-site residential. • Hazardous materials response plan.
Hydrology and Water Quality	• What are effects of reduced park/green space acreage on drainage and infiltration to underlying aquifer? • Climate change affects related to flooding and how the ARC Project could contribute to this.
Land Use	• Additional regional innovation center projects competing with ARC Project.

Population and Housing	• Concerns re: assumptions about employees living on-site. • Project provides no mechanism to ensure employees live in the on-site housing; thus, the EIR analysis must be done assuming few employees living on-site. • Provision of affordable housing. • If applicable provides affordable housing off-site – induced growth needs to be evaluated.
Public Services	• Demand on County library services.
Transportation and Circulation	• More CR 32A vehicular traffic will further affect bike travel on 32A, which is primary route to Sacramento. • Closure of CR 32A crossing – plan for replacement road needs to be in place before this project is approved. • Since certification of EIR, CR 32A has become a popular alternative to I-80 and receives much heavier traffic than before. • Ride share cars produce twice the trips. This doubling of trips must be considered in the GHG emissions and traffic study. • The developer offers no evidence or plan that would justify the low amount of parking. • Changes in projected growth in Woodland needs to be considered in traffic analysis. • Mace Boulevard needs to be widened to 4-lanes north of freeway and through the Mace Curve. • Traffic analysis should address Covell Blvd, east of State Route 113, Mace Boulevard, CR 32A, and routes used to avoid traffic on Interstate 80 (including CR 27 and 28H). • Mitigation regarding any safety impacts along heavily travelled routes (due to traffic apps) should be addressed. • How will the level of fire response time to ARC be impacted if new or more severe traffic impacts are identified in the SEIR?
Cumulative Impacts	• New cumulative impacts analysis required for traffic, water, wastewater treatment, flood control, and City services, including police and fire.
Alternatives	• Evaluate all housing alternative. • City and Project objectives are too narrowly defined; thus, alternatives analysis is deficient. • Alternatives Analysis in Chapter 7 of EIR should be redone given changes. A much-reduced amount of land could now be considered sufficient. • Commenter references January 2019 Commercial Land inventory prepared by the City. Infill Alternative should be re-evaluated in light of this new information.

All of the above issues are addressed in this SEIR, in the relevant sections identified in the first column.

1.6 Organization of the EIR

The Aggie Research Campus Project Draft SEIR is organized into the following sections:

Chapter 1 – Introduction
Provides an introduction and overview describing the intended use of the SEIR and the review and certification process, as well as summaries of the chapters included in the SEIR.

Chapter 2 – Executive Summary
Provides a summary of the ARC Project and whether the changes in circumstances under which the project is undertaken would result in a new significant effect or a substantial increase in the severity of previously identified significant effects. Similarly, the chapter summarizes whether the modifications to the project evaluated in the Certified Final EIR would result in a new significant effect or a substantial increase in the severity of previously identified significant effects. The impacts and mitigation measures identified for the ARC Project are presented in table format.

Chapter 3 – Aggie Research Campus Analyses
Includes a detailed project description of the Aggie Research Campus Project (ARC Project), and subsequently, a detailed evaluation of the potential physical environmental impacts that may result from implementation of the ARC Project. The format of this chapter intentionally matches that of the Mixed-Use Alternative Analysis chapter in the Certified Final EIR, given the similarities between the Mixed-Use Alternative and the proposed ARC Project.

Chapter 4 – Authors
Provides a list of authors involved in writing the SEIR.

Chapter 5 – References
Provides bibliographic information for all references and resources cited.

Appendices
Includes the comments received during the public scoping period for the Draft SEIR, as well as additional technical information.

2. EXECUTIVE SUMMARY

2 EXECUTIVE SUMMARY

2.1 INTRODUCTION

The Executive Summary chapter of this SEIR provides an overview of the Aggie Research Campus (ARC) Project and summarizes the conclusions of the environmental analysis provided in Chapter 3. In addition, the chapter outlines the mitigation, monitoring, and reporting program, summarizes the alternatives that are described in the Alternatives Analysis chapter of the Certified Final EIR, identifies the Environmentally Superior Alternative, and discusses areas of controversy and issues to be resolved. Table 2-2 at the end of this chapter contains a summary of the potential environmental impacts associated with the ARC Project, as described in Chapter 3 of this SEIR, including the significance of the impacts, the proposed mitigation measures for the impacts, and the significance of the impacts after implementation of the mitigation measures.

2.2 SUMMARY DESCRIPTION OF THE ARC PROJECT

The proposed annexation area includes the 187-acre privately-owned Aggie Research Campus site, 25-acre City parcel, and the 16.5-acre Mace Triangle Site, which are collectively the 228.5 acres proposed for annexation. The ARC Project is anticipated to include up to approximately 2,654,000 square feet (sf) of innovation center/business uses, of which up to 260,000 sf may be developed with supportive commercial uses. The ARC Project also incorporates up to 850 workforce housing units on-site.

The City of Davis has included the Mace Triangle within the overall project boundaries to ensure that an agricultural and unincorporated island is not created and to allow the continuation and expansion of existing uses. This SEIR evaluates the potential for expansion of the Ikeda's farm stand and additional urban development on the Ikeda's parcel and adjacent agricultural parcel. Specifically, this SEIR assumes development of up to 71,056 sf of general commercial uses, including up to 45,900 sf of research, office, and R&D, and up to 25,155 sf of retail.

Generally, the ARC Project requires the following approvals from the City of Davis: General Plan Amendment, prezone, development agreement, and action by the City Council to set the baseline features of the project and call for an election. In addition, the ARC Project would require a Combined Municipal Service Review (MSR) and Sphere of Influence (SOI) Amendment in order to bring the 229-acre project site, including the Mace Triangle Site, within the City of Davis's SOI; annexation of the entire 229-acre project site, including the Mace Triangle Site, into the City of Davis; and detachment of the entire 229-acre project site, including the Mace Triangle Site, from the East Davis County Fire Protection District. The City will need to issue additional discretionary approvals for the ARC Project prior to any on-site development being allowed.

2.3 SUMMARY OF ENVIRONMENTAL IMPACTS AND REQUIRED MITIGATION MEASURES (TABLE 2-2)

A summary of the identified impacts in Chapter 3 of this SEIR is presented in Table 2-2 at the end of this Chapter. In Table 2-2, the ARC Project impacts are identified for each issue area presented within Chapter 3. In addition, Table 2-2 includes the level of significance of each impact, any mitigation measures required for each impact, and the resulting level of significance after implementation of mitigation measures for each impact.

It should be noted that the level of significance reflects the overall severity of the impact, considering both the ARC Project and the Mace Triangle. For example, in cases where the impact has been determined to be *significant* for the ARC Project and *less than significant* for the Mace Triangle, the overall impact is characterized as significant in Table 2-2 will be *significant*. Similarly, where an impact is determined to be *significant and unavoidable* for the ARC Project and *less than significant* for the Mace Triangle, the overall impact is characterized as *significant and unavoidable*.

2.4 MITIGATION MONITORING AND REPORTING PROGRAM

Section 15097 of the California Environmental Quality Act (CEQA) requires all State and local agencies to establish monitoring or reporting programs for projects approved by a public agency whenever approval involves the adoption of environmental findings related to environmental impact reports (see Guidelines Section 15091 for Findings). In order to ensure that the mitigation measures and project revisions identified in the EIR are implemented, the public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program.

The ARC Project will be built-out over an extended period of time, a factor which is relevant to successful monitoring and reporting of the mitigation measure requirements set forth in this SEIR. As a result, the list of mitigation measures in the Mitigation Monitoring and Reporting Program (MMRP) for this SEIR will be arranged in chronological order with respect to the order of approvals needed to enable physical development of the property.

Mitigation Trigger Points

The "trigger" points for the mitigation measure requirements include but are not necessarily limited to the following actions, for each phase of development:

- In conjunction with submittal of a final planned development or tentative map
- Prior to approval of a final planned development
- In conjunction with submittal of improvement plans

- Prior to issuance of any building permits
- Prior to initiation of grading activities

Establishment of Master Owners' Association

As part of the overall ARC management, the ARC Project applicant has proposed to form a Master Owners' Association ("MOA") that will oversee and perform various management and marketing tasks associated with the ARC Project, including, but not limited to:

- Managing and maintaining the common areas and facilities;
- Enforcing site-wide covenants, conditions and restrictions ("CC&Rs");
- Serving as a point of contact for, and reporting to, the City, on a regular basis, the ARC Project's compliance with project approvals, including, but not limited to, the ARC Project conditions of approval, the mitigation monitoring and reporting program, and the transportation demand management plan (TDM);
- Providing and pursuing ongoing branding, marketing and operational programs that will facilitate collaborative innovation partnerships, provide opportunities for increased UC Davis and public and private research engagement; and assist in the growth of new business ventures; and
- Account for and collect MOA assessments from the project owners/members.

The MOA will perform such further tasks and obligations as the City and the applicant may agree upon.

The MOA would not extend to the Mace Triangle, which would be developed separately from the ARC Project, by different landowners.

2.5 SUMMARY OF ALTERNATIVES TO THE ARC PROJECT

Chapter 7, Alternatives Analysis, of the Certified Final EIR evaluated the following range of alternatives:

1. No Project (No Build) Alternative;
2. Reduced Site Size Alternative;
3. Reduced Project Alternative;
4. Off-Site Alternative A (Davis Innovation Center Site);
5. Off-Site Alternative B (Covell Property); and
6. Mixed-Use Alternative.

Table 2-1 provides a summary of the basic components of each alternative evaluated for the proposed project. It is important to note that changes in circumstances have occurred since the preparation of the alternatives analysis with respect to Off-Site Alternative A (Davis Innovation Center Site). This off-site alternative assumed development of the MRIC Project on the 207-acre Davis Innovation Center (IC) site. However, the West Davis Active Adult project has since been approved on the southerly 74 acres of the Davis IC site. Thus, this off-site alternative would have

to be shifted to the northerly 133 acres, which would mean that this off-site alternative would have to become either a reduced project alternative, or an intensified alternative similar to the Reduced Site Size Alternative, meaning the same amount of development for the MRIC Project would be located on smaller site acreage. It is assumed for purposes of the following comparative discussion, that this off-site alternative would become another "reduced site size" alternative.

Other than the above noted change in circumstance related to Off-Site Alternative A (Davis IC Site), substantial changes in circumstances have not occurred since the 2015 alternatives analysis that would require major revisions to the previous EIR. The following section has been prepared to qualitatively compare the significant impacts identified for the ARC Project with the alternatives evaluated in the EIR.

It is noted that the Certified Final EIR considered but dismissed from further consideration the Infill Alternative. Pursuant to CEQA Guidelines 15126.6(f)(1), among the reasons for determining feasibility of alternative locations are site suitability; economic viability; availability of infrastructure; general plan consistency; other plans or regulatory limitations; jurisdictional boundaries; whether the project proponent already owns the site; and whether the project proponent can acquire, control, or have access to the site if it does not own it. In addition, pursuant to 15126.6(a), an alternative should feasibly attain most of the basic objectives of the project. As discussed in the Certified Final EIR (pp. 7-16 to 7-19), the majority of vacant sites, appropriately zoned for office and industrial building types, are small; thus, development of the same amount of proposed uses as the project would require development scattered across multiple infill parcels throughout the City.[1] The passage of time has not materially changed this situation, as evidenced by City staff's recent vacant property inventory, which determined that there are approximately 124.22 acres of vacant, privately held commercially-zoned land within the City limits (approximately 80 percent of the parcels are below seven acres in size).[2] This inventory does not account for City-owned properties, potential commercially viable property(ies) outside the City limits, nor does it attempt to identify those properties which may be commercially zoned and developed within the City limits, but underutilized and pose potential redevelopment opportunities (such as the PG&E corporation yard site, for example). While other underutilized sites not accounted for in the 124-acre vacant land inventory could be considered, these sites are located in closer proximity to existing residential neighborhoods, as compared to the ARC Site.

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1 As stated in the Certified Final EIR, as the infill alternative would involve multiple small locations throughout the City, it does not meet the fundamental objectives of the City or the applicant to develop an integrated innovation center campus of approximately 200 acres in size, with sufficient land to meet demand over a 20 to 25 year period, and a critical mass of users of various sizes sufficient to support the necessary infrastructure and amenities to allow for a full range of research and market uses (e.g., Applicant Objective #2 and City Objective #1). Moreover, the City would not realize the benefits of an agglomeration of development, instead having a disconnected patchwork of development spread out in various sites. As a result, the City would be unlikely to capture a greater share of local and regional business growth. On the basis of not meeting this basic project objective, the Infill Alternative is infeasible.

2 City of Davis City Council Staff Report. *Undeveloped Property in the City of Davis*. January 8, 2019.

Table 2-1
Comparison of Alternatives Features

Project / Alternative	Acres				Square Feet				Dwelling Units			
	Total	MRIC	Mace Triangle	Alternate Site	Total	MRIC	Mace Triangle	Alternate Site	Total	MRIC	Mace Triangle	Alternate Site
MRIC Project	228.5	212.0	16.5	N/A	2,725,056	2,654,000	71,056	N/A	--	--	--	N/A
ARC Project	228.5	187[1]	16.5	N/A	2,725,056	2,654,000	71,056	N/A	850	--	--	N/A
No Project (No Build) Alternative	228.5	212.0	16.5	N/A	--	--	--	N/A	--	--	--	N/A
Reduced Site Size Alternative	122.5	106.0	16.5	N/A	2,725,056	2,654,000	71,056	N/A	--	--	--	N/A
Reduced Project Alternative	66	49.5	16.5	N/A	611,056	540,000	71,056	N/A	--	--	--	N/A
Off-Site Alternative A (Davis Innovation Center Site)[2]	133	--	--	133	2,654,000	2,654,000	--	2,654,000	--	--	--	--
Off-Site Alternative B (Covell Property)	236.0	--	--	236.0	2,654,000	2,654,000	--	2,654,000	--	--	--	--
Mixed-Use Alternative	228.5	212.0	16.5	N/A	2,725,056	2,654,000	71,056	--	850	850	--	--

[1] Does not include 25-acre City Parcel, as it has been removed from the development footprint. The total acreage remains at 228.5 as the overall annexation area would include the 25-acre City Parcel.
[2] Assumes Off-Site Alternative A is shifted to northerly 133 acres of former Davis Innovation Center site, due to the approval of the West Davis Active Adult Project.

Thus, placing the proposed residential and non-residential uses within these locations could reasonably be expected to have greater noise and local traffic impacts to these communities. While the extent of some project impacts could be reduced (e.g., agricultural land conversion), the Infill Alternative would be expected to have greater environmental impacts overall, as discussed in the Certified Final EIR (pp. 7-17 to 7-19).

Aesthetics
The ARC Project would have a greater aesthetic impact related to substantially degrading the existing visual character or quality of a site and its surroundings, as compared to the No Project (No Build) Alternative, the Reduced Site Size Alternative, Reduced Project Alternative, and Off-Site Alternative A (due to the now reduced site size of 133 acres). However, the ARC Project would have a reduced aesthetic impact compared to the MRIC Project, Off-Site Alternative B (Covell Property), and the Mixed-Use Alternative given the reduced ARC development footprint (i.e., 187-acre ARC development area vs. 229 to 236 acres, depending upon the alternative). It is important to note, however, that similar to the ARC Project, each of the alternatives, excepting the No Project (No Build) Alternative, would still be anticipated to have a significant and unavoidable aesthetic effect due to the permanent alteration of visual character.

Agriculture and Forestry Resources
The ARC Project would have a greater impact related to conversion of agricultural land, as compared to the No Project (No Build) Alternative, the Reduced Site Size Alternative, Reduced Project Alternative, and Off-Site Alternative A (due to the now reduced site size of 133 acres). However, the ARC Project would have a reduced impact to agricultural land conversion compared to the MRIC Project, Off-Site Alternative B (Covell Property), and the Mixed-Use Alternative. It is important to note, however, that similar to the ARC Project, each of the alternatives, excepting the No Project (No Build) Alternative, would still be anticipated to have a significant and unavoidable effect due to the permanent conversion of agricultural lands.

Air Quality
The ARC Project would have a greater potential impact related to air quality, as compared to the No Project (No Build) Alternative, the Reduced Site Size Alternative (specifically, construction AQ emissions), Reduced Project Alternative, and Off-Site Alternative A (specifically, construction AQ emissions).

In relation to construction air quality emissions, grading is generally one of the most emissions intensive phases of construction. Because the ARC Project would result in grading activity over a greater area as compared to the No Project (No Build) Alternative, the Reduced Site Size Alternative, Reduced Project Alternative, and Off-Site Alternative A, the ARC Project would be anticipated to result in greater AQ emissions and potential impacts. Considering that both the Mixed-Use Alternative and MRIC Project would involve disturbance over similar areas as the ARC Project, construction emissions and potential impacts would likely be similar between the ARC Project, Mixed-Use Alternative, and MRIC Project.

With the exception of the No Project (No Build) Alternative, Reduced Project Alternative, and Mixed-Use Alternative, the remainder of alternatives include an amount of development equivalent to the MRIC Project. As shown in Table 3-30 of the SEIR, the ARC Project would

have substantially more trips than both the MRIC Project and the Mixed-Use Alternative. In terms of mobile air quality emissions, the number of vehicle trips related to project operations largely dictates the magnitude of operational emissions; as a result, an increased number of trips would be likely to result in an increased rate of operational emissions associated with the ARC Project. However, it is important to understand that the increase in traffic from the Mixed-Use Alternative is not due to changes in land uses, but rather changes in the methodology for calculating trip generation, primarily related to internalization of trips due to the mix of uses. In other words, if the trip generation was recalculated for the Mixed-Use Alternative using the same methodology now employed for the ARC Project, the total trips would be equivalent for ARC and the Mixed-Use Alternative. In this way, it can be seen that the mobile AQ emissions (and non-mobile) associated with the ARC Project would be equivalent to the Mixed-Use Alternative. With respect to the MRIC Project, the ARC Project, using the new trip generation methodology employed in this SEIR, would have a greater number of trips than the MRIC Project, and thus, a greater potential to generate mobile AQ emissions.[3] In addition to considering the effect of alterations in trip generation rates, it should be noted that the emissions modeling software employed in this environmental analysis, CalEEMod, has been updated since preparation of the MRIC EIR. The updates to the CalEEMod software have included changes to emissions rates, which generally result in estimated emissions being higher than estimated emissions from previous versions. As such, it is important to consider that if emissions from the Mixed-Use Alternative and MRIC Project were re-analyzed using updated trip generation estimates and the updated version of CalEEMod, the estimated emissions would likely be higher than those presented in the MRIC EIR. When considering both the updated trip generation rates as well as the updated modeling software, operational impacts of the ARC Project would likely remain greater than operational impacts of the MRIC Project, No Project (No Build) Alternative, the Reduced Site Size Alternative, Reduced Project Alternative, and Off-Site Alternative A, but would be similar to impacts estimated for the Mixed-Use Alternative.

Biological Resources

The ARC Project would have a greater potential impact related to biological resources, as compared to the No Project (No Build) Alternative, the Reduced Site Size Alternative, Reduced Project Alternative, and Off-Site Alternative A (due to the now reduced site size of 133 acres). However, the ARC Project could have a reduced impact to biological resources compared to the MRIC Project, Off-Site Alternative B (Covell Property), and the Mixed-Use Alternative given the reduced ARC development footprint (i.e., 187-acre ARC development area vs. 229 to 236 acres).

Cultural Resources

The ARC Project would have a greater potential impact related to cultural resources, as compared to the No Project (No Build) Alternative, the Reduced Site Size Alternative, Reduced Project Alternative, and Off-Site Alternative A (due to the now reduced site size of 133 acres). However, the ARC Project could have a reduced impact to cultural resources compared to the

[3] Since the Reduced Site Size Alternative, Off-Site Alternative A, and Off-Site Alternative B include the same amount of development as the MRIC Project, the ARC Project could also be expected to have greater air quality effects than these alternatives.

MRIC Project, Off-Site Alternative B (Covell Property), and the Mixed-Use Alternative given the reduced ARC development footprint (i.e., 187-acre ARC development area vs. 229 to 236 acres).

Geology, Soils, and Mineral Resources
The ARC Project would have a greater potential impact related to geology and soils, as compared to the No Project (No Build) Alternative, the Reduced Site Size Alternative (specifically, soil erosion), Reduced Project Alternative, and Off-Site Alternative A (i.e., soil erosion, due to the now reduced site size of 133 acres). However, the ARC Project could have a reduced impact to geology and soils compared to the MRIC Project, Off-Site Alternative B (Covell Property), and the Mixed-Use Alternative given the reduced ARC development footprint (i.e., 187-acre ARC development area vs. 229 to 236 acres).

Greenhouse Gas Emissions and Energy
The ARC Project would have a greater potential impact related to greenhouse gas emissions and energy, as compared to the No Project (No Build) Alternative, the Reduced Site Size Alternative (specifically, construction GHG emissions), Reduced Project Alternative, and Off-Site Alternative A (specifically, construction GHG emissions).

With the exception of the No Project (No Build) Alternative, Reduced Project Alternative, and Mixed-Use Alternative, the remainder of alternatives include an amount of development equivalent to the MRIC Project. As shown in Table 3-30 of the SEIR, the ARC Project would have substantially more trips than both the MRIC Project and the Mixed-Use Alternative. However, it is important to understand that the increase in traffic from the Mixed-Use Alternative is not due to changes in land uses, but rather changes in the methodology for calculating trip generation, primarily related to internalization of trips due to the mix of uses. In other words, if the trip generation was recalculated for the Mixed-Use Alternative using the same methodology now employed for the ARC Project, the total trips would be equivalent for ARC and the Mixed-Use Alternative. In this way, it can be seen that the mobile GHG emissions (and non-mobile) associated with the ARC Project would be equivalent to the Mixed-Use Alternative. With respect to the MRIC Project, the ARC Project, using the new trip generation methodology employed in this SEIR, would have a greater number of trips than the MRIC Project, and thus, a greater potential to generate mobile GHG emissions.[4]

Hazards and Hazardous Materials
Overall, the ARC Project would be anticipated to have similar impacts associated with hazards and hazardous materials, as compared to the range of project alternatives, for reasons set forth in the EIR. For example, the types of chemicals that could be used at ARC businesses could also be used at the similar businesses anticipated for the alternatives; and the use and storage of such chemicals would be done in accordance with applicable state and local regulations. In addition, the agricultural nature of each alternative site renders the probability of encountering upset

[4] Since the Reduced Site Size Alternative, Off-Site Alternative A, and Off-Site Alternative B include the same amount of development as the MRIC Project, the ARC Project could also be expected to have greater mobile GHG emissions than these alternatives.

conditions during construction similar. Some exceptions may exist, however, as noted in the certified EIR. For example, previous Phase I environmental site assessments have identified potential hazards on the Covell property, such as pesticide containers and potential asbestos-containing materials and lead-based paints. Such features are absent from the ARC Site.

Hydrology and Water Quality
The ARC Project would have a greater potential impact related to hydrology and water quality, as compared to the No Project (No Build) Alternative, the Reduced Site Size Alternative, Reduced Project Alternative, Off-Site Alternative A, and for flooding specifically, Off-Site Alternatives A and B, given that a least a portion of their sites are within a FEMA floodplain. However, the ARC Project could have a reduced impact to water quality during construction compared to the MRIC Project, Off-Site Alternative B (Covell Property), and the Mixed-Use Alternative given the reduced ARC development footprint (i.e., 187-acre ARC development area vs. 229 to 236 acres). Operational effects to water quality and increases in peak flows would be similar between the ARC Project and the MRIC Project, Off-Site Alternative B, and the Mixed-Use Alternative.

Land Use and Urban Decay
The ARC Project would have a greater potential impact related to urban decay, as compared to the No Project (No Build) Alternative, and the Reduced Project Alternative, due to the reduced amount of development that could compete with existing businesses. However, the ARC Project would have a similar potential impact related to urban decay compared to the MRIC Project, Off-Site Alternative A, Off-Site Alternative B (Covell Property), and the Mixed-Use Alternative.

Noise and Vibration
This SEIR did not identify any significant noise effects resulting from the ARC Project, given required compliance with the City's Noise Ordinance; thus, a comparative analysis of alternatives is not required.

Population and Housing
This SEIR did not identify any significant population and housing effects resulting from the ARC Project; thus, a comparative analysis of alternatives is not required.

Public Services and Recreation
This SEIR did not identify any significant public services and recreation effects resulting from the ARC Project, given required compliance with the City's Municipal Code and other regulations; thus, a comparative analysis of alternatives is not required.

Transportation and Circulation
The ARC Project would have greater operational traffic impacts compared to the No Project (No Build) Alternative and the Reduced Project Alternative, due to the substantially reduced scale of operations. With the exception of the Mixed-Use Alternative, the remainder of alternatives include an amount of development equivalent to the MRIC Project. As shown in Table 3-30 of the SEIR, the ARC Project would have substantially more trips than both the MRIC Project and the Mixed-Use Alternative. However, it is important to understand that the increase in traffic from the Mixed-Use Alternative is not due to changes in proposed land uses, but rather changes

in the methodology for calculating trip generation, primarily related to internalization of trips due to the mix of uses and prior assumptions related to the number of MRIC employees that would live on-site. In other words, if the trip generation was recalculated for the Mixed-Use Alternative using the same methodology now employed for the ARC Project, the total trips would be equivalent for ARC and the Mixed-Use Alternative. In this way, it can be seen that the ARC Project would have similar traffic impacts as compared to the Mixed-Use Alternative. However, this SEIR also considers the changes in circumstances since preparation of the EIR and how that affects the previous analysis. As discussed in this SEIR, due to the substantial increase in background traffic, the ARC Project would now have greater traffic impacts than the Mixed-Use Alternative. With respect to the MRIC Project, the ARC Project, using the new trip generation methodology employed in this SEIR, would have a greater number of trips than the MRIC Project, and thus, a greater potential to impact the surrounding circulation system.

The ARC Project was also determined in this SEIR to have a significant impact related to vehicle miles travelled (VMT). Again, if the VMT generated by the Mixed-Use Alternative was recalculated using the methodology employed for the ARC Project, the VMT would be equivalent. The VMT has not been recalculated for the MRIC Project using updated ITE rates and the new City of Davis Travel Demand Model. However, elimination of proposed ARC residential uses could have detrimental VMT effects at the local and regional levels. This is because the provision of residential uses within the City of Davis increases opportunities for local and regional employees to live closer to where they work, thus reducing their average commute trip distances and related VMT (e.g., a Davis or UC Davis employee who would otherwise live in Sacramento would have an opportunity to live in Davis).

Utilities and Service Systems
The SEIR identified that the ARC Project could have a significant wastewater impact. The ARC Project would have a greater wastewater impact as compared to the No Project (No Build) Alternative, the Reduced Project Alternative, and due to the inclusion of housing units as well as 2.65 million sf on non-residential uses, ARC would have a greater wastewater impact than the MRIC Project, Off-Site Alternative A, and Off-Site Alternative B. The ARC Project would have a similar wastewater impact compared to the Mixed-Use Alternative.

2.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Section 15126(e)(2) of the CEQA Guidelines states, "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." Although the No Project (No Build) Alternative would result in the fewest impacts in all resources areas compared to the ARC Project, and all other alternatives even after accounting for anticipated mitigation measures, the No Project (No Build) Alternative would not satisfy any of the project objectives.

The Reduced Site Size Alternative would result in less impact overall as compared to the ARC Project simply because the site size, and thus total disturbance area, would be reduced. While the ARC Project's significant impacts related to site disturbance/extent of development footprint would be lessened under this alternative, the impacts would not be fully avoided (e.g., substantially degrade visual character or quality of site, agricultural land conversion). This

alternative would meet some of the objectives of the proposed project; however, the smaller site size would make it difficult to achieve a sufficient long-term land supply for the full range of projected uses including those that require larger building footprints.

The most environmentally superior alternative is the Reduced Project Alternative. This alternative would result in less impact as compared to the ARC Project given its substantially reduced scale; however, it fails to achieve the fundamental objectives of the City or the applicant to develop an integrated innovation center campus of approximately 200 acres in size, with sufficient land to meet demand over a 20- to 25-year period, and a critical mass of users of various sizes sufficient to support the necessary infrastructure and amenities to allow for a full range of research and market uses.

2.7 STATUTORILY REQUIRED SECTIONS

The analysis of statutorily topics required in Section 15126.2 of the CEQA Guidelines was included in Chapter 6 of the Certified Final EIR. The topics include growth-inducement, significant irreversible environmental changes, and significant and unavoidable impacts. The growth-inducement discussion for the MRIC Project remains generally applicable to the ARC Project in that the ARC Project would not eliminate obstacles to growth (see 6.2.2 of Certified Final EIR), affect service levels, facility capacity, or infrastructure demand (see 6.2.3 of Certified Final EIR), with the exception of cumulative fire service impacts, nor encourage or facilitate other activities that could significantly affect the environment (see 6.2.4 of Certified Final EIR). The difference between the MRIC Project and the ARC Project is that, unlike the MRIC Project, as discussed in Section 6.2.1, the ARC Project would be expected to meet its fair share of the employee-generated housing demand created by the project.

The Significant Irreversible Environmental Changes addressed in Section 6.3 of the Certified Final EIR remain applicable to the ARC Project with respect to use of nonrenewable resources and irretrievable commitments of nonrenewable resources.

With respect to significant and unavoidable impacts result from the ARC Project, Table 2-1 below identifies the following significant and unavoidable impacts:

3-2 Substantially degrade the existing visual character or quality of the project site and its surroundings.

3-5 Impacts related to the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Important Farmlands) to non-agricultural use, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency.

3-7 Result in the loss of forest or agricultural land or conversion of forest or agricultural land to non-forest or non-agricultural use.

3-11 Violate any air quality standard or contribute substantially to an existing or projected air quality violation during operations, and a conflict with or obstruction of implementation of applicable air quality plans.

3-37 Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

3-38 Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

3-70 Conflict with a program, plan ordinance, or policy addressing the circulation system under Existing Plus Project conditions.

3-71 Impacts to Local Neighborhood Street Traffic.

3-72 Increase in Vehicle Miles Traveled.

3-75 Impacts to Pedestrian and Bicycle Facilities.

3-76 Impacts to Transit Services.

3-85 Cumulative impacts related to long-term changes in visual character of the region.

3-87 Impacts related to cumulative loss of agricultural land.

3-88 A cumulatively considerable net increase of any criteria pollutant.

3-93 Cumulative impacts related to greenhouse gas (GHG) emissions and global climate change.

3-102 Cumulative impacts to fire protection services from the proposed project in combination with future developments in the City of Davis.

3-104 Conflict with a program, plan, ordinance or policy addressing the circulation system under Cumulative Plus Project conditions.

3-105 Cumulative Increase in Vehicle Miles Traveled.

3-106 Cumulative impacts to pedestrian, bicycle, and transit facilities.

2.8 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

The CEQA Guidelines, Section 15123(b), require that this EIR consider areas of controversy known to the lead agency, including issues raised by agencies and the public. The discussion below goes beyond identification of impacts expected to result from implementation of the project, and identifies issues to be resolved known from workshops and other public discussion of the project. At this time, these known areas include the following (in no order):

- Agricultural land conversion – The project would convert land being used primarily for agriculture and agriculturally-related uses to urban uses.
- Project-level and cumulative effects to burrowing owl.

- Bicycle and pedestrian connections – The project would add vehicle trips onto CR 32A which has existing safety concerns for bicyclists in the area, particularly those traveling CR 32A to commute to Sacramento.
- Effects of traffic apps such as WAZE.
- Increase in background traffic since preparation of the original traffic analysis and certification of the EIR.
- City-owned 25 acres – The project annexation area includes a 25-acre parcel owned by the City, a portion of which is being proposed to serve as the City-required agricultural buffer along the project's northern boundary.
- Sustainability – The project includes various sustainability features most notably generation of 50 percent of needed energy on-site.
- Inclusion of affordable housing.
- Reduction in park acreage compared to MRIC Project.

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact		Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
Aesthetics and Visual Resources (reference Section 4.1 of the Certified Final EIR)				
3-1	**Substantial adverse effect on a scenic vista (reference Impact 4.1-1).**	LS	*None required.*	N/A
3-2	**Substantially degrade the existing visual character or quality of the project site and its surroundings (reference Impact 4.1-2).**	S	*None feasible.*	SU
3-3	**Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area (reference Impact 4.1-3).**	S	*ARC Project and Mace Triangle* *3-3 In conjunction with submittal of improvement plans for the Mace Triangle and each phase of development for the ARC Site, the applicant shall submit a lighting plan to the Department of Community Development and Sustainability for review and approval. The lighting plan shall be designed to limit light trespass and glare onto off-site properties to a reasonable level through the use of shielding, directional lighting methods (including, but not limited to, fixture location and height), and application of a low-emissivity coating on exterior glass surfaces of proposed structures. If low-emissivity coating is used, the low-emissivity coating shall reduce the reflection of visible light that strikes the exterior glass and prevent interior light from being emitted brightly through the glass. The Plan shall comply with Chapter 6 of the Davis Municipal Code - Article 8:*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Outdoor Lighting Control.	
3-4 Conflict, or create inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to aesthetics and visual resources (reference Impact 4.1-4).	S	*ARC Project and Mace Triangle* *3-4 At or prior to final planned development, or tentative map submittal, whichever occurs first, the applicant shall submit landscape and architectural details to the Department of Community Development and Sustainability showing the following:* *Landscaping* • *Research/office/R&D and manufacturing areas shall have access connections at regular intervals along the perimeter of the project area to adjacent bike and pedestrian pathways and easily-accessible, landscaped pedestrian and bicycle access between various areas.* • *Arterial and collector streets shall have planted medians, but with widths sized to accommodate tree and shrub plantings. Medians on collector streets shall be limited to locations where the median contributes to a specific purpose or solves a specific problem, such as enhancing an entry, calming traffic, or providing a needed pedestrian refuge at intersections. Removal of street trees to accommodate an increase in vehicular traffic shall occur only as a last*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		resort, after review by appropriate boards and commissions. • *Trees that are planted in the future shall have wide canopies, sufficient to eventually provide, at maturity, at least 50 percent shade coverage of the pavement area of local streets and 30 percent shade coverage of the pavement area of collector and arterial streets.* *Architecture* • *A scale transition between intensified land uses and adjoining lower intensity land uses shall be provided, as applicable.* • *Taller buildings shall be stepped back at upper levels in areas with a relatively smaller-scale character.* • *Buildings shall be varied in size, density and design.* • *Stored materials, goods, parts or equipment shall be screened from adjacent public streets or highways.* • *Loading facilities shall be designed as an integral part of the building(s) which they serve and shall be located in an inconspicuous manner.* • *Roof mounted equipment shall be screened from*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		view of any ground level area accessible to the general public. • *Trash enclosures, noise generating equipment, and other nuisances shall be adequately screened or located away from any adjacent residential use.*	
Agricultural and Forest Resources (reference Section 4.2 of the Certified Final EIR)			
3-5 Impacts related to the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Important Farmlands) to non-agricultural use, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency (reference Impact 4.2-1).	S	*ARC Project* *3-5(a)* *Prior to initiation of grading activities for each phase of development at the ARC Site, the project applicant for the ARC Site shall set aside in perpetuity, at a minimum ratio of 2:1 of active agricultural acreage, an amount equal to the current phase. The applicant may choose to set aside in perpetuity an amount equal to the remainder of the ARC Site instead of at each phase. The agricultural land shall be elsewhere in unincorporated Yolo County, through the purchase of development rights and execution of an irreversible conservation or agricultural easement, consistent with Section 40A.03.025 of the Davis Municipal Code. The location and amount of active agricultural acreage for the proposed project is subject to the review and approval by the City Council. The amount of agricultural acreage set aside shall account for farmland lost due to the conversion of the ARC Site, as well as any off-site*	SU

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		improvements, including but not necessarily limited to the off-site sewer pipe. The amount of agricultural acreage that needs to be set aside for off-site improvements shall be verified for each phase of the ARC Project during improvement plan review. Pursuant to Davis Code Section 40A.03.040, the agricultural mitigation land shall be comparable in soil quality with the agricultural land whose use is being changed to nonagricultural use. The easement land must conform with the policies and requirements of LAFCo including a LESA score no more than 10 percent below that of the project site. The easement instrument used to satisfy this measure shall conform to the conservation easement template of the Yolo Habitat Conservancy. *3-5(b) The ARC Master Owners' Association (MOA) shall encourage, and exercise control over, interim agricultural operations on-site through specific terms of agricultural leases. Terms shall specify duration of leases and require each new leasee to coordinate with the Yolo County Agricultural Commissioner to determine appropriate types of agricultural crops and uses for urban/ag interface areas. The MOA shall work cooperatively with the farmer(s) to minimize incompatibilities between ongoing agricultural operations on-site and ARC businesses, such that the ARC Site can continue to be farmed successfully until the ARC Project is fully built out. Minimization*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		measures should include the appropriate timing of on-site agricultural operations (i.e., use of equipment) to avoid early morning or nighttime noise generation; prohibiting disking operations during periods of high winds; minimization of pesticide applications; etc. *Mace Triangle* *None required.*	
3-6 Impacts related to conflicting with existing zoning for agricultural use (reference Impact 4.2-2).	LS	*None required.*	N/A
3-7 Result in the loss of forest or agricultural land or conversion of forest or agricultural land to non-forest or non-agricultural use (reference Impact 4.2-3).	S	*ARC Project* *3-7(a) Implement Mitigation Measures 3-5(a) and (b).* *Mace Triangle* *3-7(b) Prior to initiation of grading activities for APN 033-630-012 or APN 033-630-011 within the Mace Triangle Site, the future project applicant(s) shall set aside in perpetuity, at a minimum ratio of 2:1 of active agricultural acreage, the following approximate acreages of protected farmland for agricultural purposes:*	SU

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		• *APN 033-630-011 (Ikeda's): Mitigate conversion of approximately 2.5 acres at a 2:1 ratio = 5 acres* • *APN 033-630-012 (Easternmost Parcel): Mitigate conversion of approximately 8.4 acres at a 2:1 ratio = 16.8 acres* *The agricultural land shall be elsewhere in unincorporated Yolo County, through the purchase of development rights and execution of an irreversible conservation or agricultural easement, consistent with Section 40A.03.025 of the Davis Municipal Code. The location and amount of active agricultural acreage for the proposed project is subject to the review and approval by the City Council. The amount of agricultural acreage set aside shall account for farmland lost due to the conversion of the Mace Triangle Site as well as any off-site improvements. Pursuant to Davis Code Section 40A.03.040, the agricultural mitigation land shall be comparable in soil quality with the agricultural land whose use is being changed to nonagricultural use. The easement land must conform with the policies and requirements of LAFCo including a LESA score no more than 10 percent below that of the Mace Triangle Site. The easement instrument used to satisfy this measure shall conform to the conservation easement template of the Yolo Habitat Conservancy.*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
3-8 Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use (reference Impact 4.2-4).	S	*ARC Project* *3-8(a) Prior to the construction of residential uses within 300 feet of neighboring orchards, the ARC Project applicant shall mitigate for potential pesticide drift through the implementation of barrier plantings. The applicant shall utilize the Natural Resources Conservation Services'[5] best practices for establishing an appropriate windscreen between residential structures and adjacent agricultural operations to the satisfaction of the Yolo County Agricultural Commissioner. Written confirmation of compliance shall be provided to the Community Development and Sustainability Director prior to issuance of residential building permit within 300 feet of neighboring agriculture.* *3-8(b) Prior to the public use of the recreational bicycle and pedestrian trails located within the agricultural transition area, the ARC Project applicant shall mitigate for potential pesticide drift. Mitigation shall be achieved pursuant to utilization of a windscreen in a manner consistent with MM 3-8(a). Alternatively, applicant shall enter into an agreement with the neighboring property owner pursuant to which the agricultural operator*	LS

[5] See Natural Resources Conservation Service, *Windbreak/Shelterbelt Establishment, Conservation Practice Job Sheet 380*. April 2013. As noted, when used as a living screen, windbreaks control views, reduce noise, and intercept airborne particulate matter, chemicals and odors.

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
			provides notice to the ARC Project applicant or the MOA of the days on which pesticide application will occur and the applicant shall close the recreational trails during the period in which pesticides are applied within 300 feet of the trail. Notice of closure shall be provided by the MOA to disseminate to employees and residences, and closure notice shall be posted at all points of access onto the impacted portion of trail during the period of pesticide application. *Mace Triangle* *None required.*	
3-9	**Conflict, or create an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to agricultural resources (reference Impact 4.2-5).**	LS	*None required.*	N/A
	Air Quality (reference Section 4.3 of the Certified Final EIR)			
3-10	**Violate any air quality standard or contribute substantially to an existing or projected air quality violation**	S	*ARC Project and Mace Triangle* *3-10 Prior to approval of any grading or demolition plans, the project applicant shall show on the plans via*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
during construction (reference Impact 4.3-1).		*notation that the contractor shall ensure that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet average 20 percent NO_X reduction compared to the year 2023 California Air Resources Board (CARB) fleet average. A fleet average reduction of less than 20 percent may only be acceptable when the project applicant has demonstrated, to the satisfaction of the City's Department of Community Development and Sustainability, that the achieved reductions would be sufficient to ensure that project-related emissions would remain below YSAQMD's thresholds.* *In addition, all off-road equipment operating at the construction site must be maintained in proper working condition according to manufacturer's specifications. Idling shall be limited to 5 minutes or less in accordance with the Off-Road Diesel Fueled Fleet Regulation as required by CARB. Clear Signage regarding idling restrictions should be placed at the entrances to the construction site.* *Portable equipment over 50 horsepower must have either a valid District Permit to Operate (PTO) or a valid statewide Portable Equipment Registration Program (PERP) placard and sticker issued by CARB.*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
3-11 Violate any air quality standard or contribute substantially to an existing or projected air quality violation during operations, and a conflict with or obstruction of implementation of applicable air quality plans (reference Impact 4.3-2).	S	*ARC Project and Mace Triangle* *3-11 Prior to issuance of any entitlement or permit, the project applicant shall work with the City of Davis, the YSAQMD, and/or other air districts within the region (as appropriate) to develop and implement a strategy to mitigate ROG and NOx, and PM_{10}. The strategy must reduce emissions from project operation to levels at or below the applicable YSAQMD thresholds of significance to the maximum extent feasible. Feasible on-site actions to reduce emissions shall receive highest priority for implementation. Emissions that cannot be reduced through on-site actions shall be mitigated through off-site action. The strategy and all actions shall be subject to review and approval by the City in consultation with the YSAQMD, and, if applicable, the air quality management district or air pollution control district within which the off-site mitigation project is located. On-site actions may include, but shall not be limited to the following:* • *Reducing the total amount of paved area within the ARC Site in order to reduce off-gassing, emissions from restriping and painting, and the urban heat island effect;* • *Using concrete or other non-emitting materials for parking lots instead of asphalt;* • *Reducing vehicle trips through implementation*	SU

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		of a Traffic Demand Management program, such as that required in Mitigation Measure 3-72(a); • *Using passive heating and cooling systems for buildings;* • *Using natural lighting in buildings to the extent practical;* • *Installing mechanical air conditioners and refrigeration units that use non-ozone depleting chemicals;* • *Providing electric outlets outside of buildings, sufficient to allow for use of electric landscaping equipment;* • *Hiring landscaping companies that use primarily electric landscaping equipment;* • *Using zero-VOC paints, finishes, adhesives, and cleaning supplies on all buildings on the project site;* • *Employing vehicle fleets that use only cleaner-burning fuels;* • *Prohibiting the installation of natural gas fueled space and water heating equipment, and/or other large appliances such as ranges and stoves, within portions of the project; and* • *Providing electrical vehicle charging stations in excess of local and/or State standards in each phase of the project.*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Off-site actions may include, but shall not be limited to, the following: • *Retrofitting stationary sources such as back-up generators or boilers with new technologies that reduce emissions;* • *Replacing diesel agriculture water pumps with alternative fuels;* • *Funding projects within an adopted bicycle/pedestrian plan;* • *Replacing non-USEPA wood-burning devices with natural gas or USEPA-approved fireplaces;* • *Providing energy efficiency upgrades at government buildings;* • *Installing alternative energy supply on buildings;* • *Replacing older landscape maintenance equipment with newer, lower-emission equipment;* • *Payment of mitigation fees into an established air district emissions offset program.* *The Reduction Strategy shall include requirements to ensure that the Reduction Strategy document is enforceable and measurable. A mechanism for*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		oversight, monitoring and reporting through the project Master Owners Association (MOA) to the City shall be included as a part of the strategy. Because ROG, NO_X, and PM_{10} are pollutants of regional concern, the emissions reductions for these pollutants may occur anywhere within the lower Sacramento Valley Air Basin (e.g., within YSAQMD, the Sacramento Metropolitan Air Quality Management District, or the Placer County Air Pollution Control District). *In General, emissions reduction measures implemented for development within the ARC Site shall use the following prioritization:* • *First Priority – building specific actions;* • *Second priority – onsite (within ARC Site) actions;* • *Third priority – community based (within Davis) actions;* • *Fourth priority – within YSAQMD jurisdiction;* • *Fifth priority – within the Sacramento Federal Nonattainment Area; and* • *Sixth priority – within California.*	
3-12 Expose sensitive receptors to substantial pollutant concentrations (reference Impact 4.3-3).	LS	*None required.*	N/A

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact		Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
3-13	**Create objectionable odors affecting a substantial number of people (reference Impact 4.3-4).**	LS	*None required.*	N/A
3-14	**Conflict, or create an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to air quality (reference Impact 4.3-5).**	LS	*None required.*	N/A
Biological Resources (reference Section 4.4 of the Certified Final EIR)				
3-15	**Impacts related to special-status plant species (reference Impact 4.4-1).**	S	*ARC Project and Mace Triangle* *3-15 To ensure avoidance and minimization of potential impacts to special-status plant species, the following measures shall be implemented:* • *Prior to initiation of any ground disturbance activities occurring after August 7, 2022, for the Mace Triangle and for each phase of the ARC Project, the applicant shall retain a qualified botanist to conduct a botanical survey during spring (April to May) and fall (July to September), during the evident and identifiable periods for special-status plants with potential*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		to occur on the site. The botanical survey must also cover all potential utility line alignments and any other off-site work required for any phase of development. The survey shall be submitted to the City of Davis Department of Community Development and Sustainability for review. If special-status plants are not identified within the areas proposed for disturbance, further mitigation is not required for that phase. • *Any special-status plants that are within the limits of grading for on- or off-site improvements shall be propagated to suitable habitat in designated open space areas, or for the Mace Triangle, another pre-approved location. The propagation shall be overseen by a qualified botanist, approved by the City of Davis Department of Community Development and Sustainability and CDFW. The botanist shall identify the location to receive the plants, identify the methods of propagation, and oversee the work.*	
3-16 Impacts to valley elderberry longhorn beetle (reference Impact 4.4-2).	S	*ARC Project* *3-16 To ensure avoidance and minimization of impacts to VELB, the project applicant for the ARC Site shall obtain coverage under the Yolo HCP/NCCP for on-site, and as may be determined necessary by Yolo Habitat Conservancy, for off-site infrastructure work, for each*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		phase of development. In addition to payment of any applicable HCP/NCCP fees, the applicant shall implement Yolo HCP/NCCP Avoidance and Minimization Measure AMM-12 (Minimize Take and Adverse Effects on Habitat of Valley Elderberry Longhorn Beetle) to the satisfaction of the City and the YHC. AMM-12 provides: • *The project proponent will retain a qualified biologist who is familiar with valley elderberry longhorn beetle and evidence of its presence (i.e., exit holes in elderberry shrubs) to map all elderberry shrubs in and within 100 feet of the project footprint with stems that are greater than one inch in diameter at ground level. To avoid take of valley elderberry longhorn beetle fully, the project proponent will maintain a buffer of at least 100 feet from any elderberry shrubs with stems greater than one inch in diameter at ground level. A lesser buffer may be applied in some circumstances, as described in AMM-1 (Establish Buffers) of the Yolo HCP/NCCP.* • *For elderberry shrubs that cannot be avoided with a designated buffer distance as described above, the qualified biologist will quantify the number of stems one inch or greater in diameter to be affected, and the presence or absence of*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		exit holes. The Conservancy will use this information to determine the number of plants or cuttings to plant on a riparian restoration site to help offset the loss, consistent with Section 6.4.2.4.1, Valley Elderberry Longhorn Beetle. Additionally, prior to construction, the project proponent will transplant elderberry shrubs identified within the project footprint that cannot be avoided. • *Transplantation will only occur if a shrub cannot be avoided and, if indirectly affected, the indirect effects would otherwise result in the death of stems or the entire shrub. If the project proponent chooses, in coordination with a qualified biologist, not to transplant the shrub because the activity would not likely result in death of stems of the shrub, then the qualified biologist will monitor the shrub annually for a five-year monitoring period. The monitoring period may be reduced with concurrence from the wildlife agencies if the latest research and best available information at the time indicates that a shorter monitoring period is warranted. If death of stems at least one inch in diameter occurs within the monitoring period, and the qualified biologist determines that the shrub is sufficiently healthy to transplant, the project proponent will transplant the shrub as described*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		in the following paragraph, in coordination with the qualified biologist. If the shrub dies during the monitoring period, or the qualified biologist determines that the shrub is no longer healthy enough to survive transplanting, then the Conservancy will offset the shrub loss consistent with the preceding paragraph. • *The project proponent will transplant the shrubs into a location in the HCP/NCCP reserve system that has been approved by the Conservancy. Elderberry shrubs outside the project footprint but within the 100-foot buffer will not be transplanted.* • *Transplanting will follow the following measures:* 1. *Monitor: A qualified biologist will be on-site for the duration of the transplanting of the elderberry shrubs to ensure the effects on elderberry shrubs are minimized.* 2. *Timing: The project proponent will transplant elderberry plants when the plants are dormant, approximately November through the first two weeks of February, after they have lost their leaves. Transplanting during the non-growing season will reduce shock to the plant and increase transplantation*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		success. *3. Transplantation procedure:* *a. Cut the plant back three to six feet from the ground or to 50 percent of its height (whichever is taller) by removing branches and stems above this height. Replant the trunk and stems measuring one inch or greater in diameter. Remove leaves that remain on the plants.* *b. Relocate plant to approved location in the reserve system, and replant as described in Section 6.4.2.4.1, Valley Elderberry Longhorn Beetle.* *Mace Triangle* *None required.*	
3-17 Impacts to giant garter snake (reference Impact 4.4-3).	S	*ARC Project* *3-17 To ensure avoidance and minimization of impacts to GGS, the project applicant for the ARC Project shall obtain coverage under the Yolo HCP/NCCP for on-site, and as may be determined necessary by Yolo Habitat Conservancy, for off-site infrastructure work, for each phase of development. In addition to payment of any*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		applicable HCP/NCCP fees, the applicant shall implement Yolo HCP/NCCP Avoidance and Minimization Measure AMM-15 (Minimize Take and Adverse Effects on Habitat of Giant Garter Snake) to the satisfaction of the City and the YHC. AMM-15 provides: *The project proponent will avoid effects on areas where planning-level surveys indicate the presence of suitable habitat for giant garter snake. To avoid effects on giant garter snake aquatic habitat, the project proponent will conduct no in-water/in-channel activity and maintain a permanent 200-foot non-disturbance buffer from the outer edge of potentially occupied aquatic habitat (see Figure 3-12).* *If the project proponent cannot avoid effects of construction activities, the project proponent will implement the measures below to minimize effects of construction projects (measures for maintenance activities are described after the following bulleted list).* • *Conduct preconstruction clearance surveys using USFWS-approved methods within 24 hours prior to construction activities within identified giant garter snake aquatic and adjacent upland habitat. If construction activities stop for a period of two weeks or more, conduct another preconstruction*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		clearance survey within 24 hours prior to resuming construction activity. • *Restrict all construction activity involving disturbance of giant garter snake habitat to the snake's active season, May 1 through October 1. During this period, the potential for direct mortality is reduced because snakes are expected to move and avoid danger.* • *In areas where construction is to take place, encourage giant garter snakes to leave the site on their own by dewatering all irrigation ditches, canals, or other aquatic habitat (i.e., removing giant garter snake aquatic habitat) between April 15 and September 30. Dewatered habitat must remain dry, with no water puddles remaining, for at least 15 consecutive days prior to excavating or filling of the habitat. If a site cannot be completely dewatered, netting and salvage of giant garter snake prey items may be necessary to discourage use by snakes.* • *Provide environmental awareness training for construction personnel, as approved by the Conservancy. Training may consist of showing a video prepared by a qualified biologist, or an in-person presentation by a qualified biologist. In addition to the video or in-person presentation, training may be supplemented*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		with the distribution of approved brochures and other materials that describe resources protected under the Yolo HCP/NCCP and methods for avoiding effects. • *A qualified biologist will prepare a giant garter snake relocation plan which must be approved by the Conservancy prior to work in giant garter snake habitat. The qualified biologist will base the relocation plan on criteria provided by CDFW or USFWS, through the Conservancy.* • *If a live giant garter snake is encountered during construction activities, immediately notify the project's biological monitor and USFWS and CDFW. The monitor will stop construction in the vicinity of the snake, monitor the snake, and allow the snake to leave on its own. The monitor will remain in the area for the remainder of the work day to ensure the snake is not harmed or, if it leaves the site, does not return. If the giant garter snake does not leave on its own, the qualified biologist will relocate the snake consistent with the relocation plan described above.* • *Employ the following management practices to minimize disturbances to habitat:* ▪ *Install temporary fencing to identify and protect adjacent marshes, wetlands, and*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		ditches from encroachment from construction equipment and personnel. ▪ *Maintain water quality and limit construction runoff into wetland areas through the use of hay bales, filter fences, vegetative buffer strips, or other accepted practices. No plastic, monofilament, jute, or similar erosion-control matting that could entangle snakes or other wildlife will be permitted.* *Ongoing maintenance covered activities by local water and flood control agencies typically involve removal of vegetation, debris, and sediment from water conveyance canals as well as resloping, rocking, and stabilizing the canals that serve agricultural water users. Maintenance of these conveyance facilities can typically occur only from mid-January through April when conveyance canals and ditches are not in service by the agency, although some drainages are used for storm conveyance during the winter and are wet all year. This timing is during the giant garter snake's inactive period. This is when snakes may be using underground burrows and are most vulnerable to take because they are unable to move out of harm's way. Maintenance activities, therefore, will be limited to the giant garter snake's active season (May 1 to October 1) when possible. All*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		personnel involved in maintenance activities within giant garter snake habitat will first participate in environmental awareness training for giant garter snake, as described above for construction related activities. To minimize the take of giant garter snake, the local water or flood control agency will limit maintenance of conveyance structures located within modeled giant garter snake habitat (Appendix A, Covered Species Accounts) to clearing one side along at least 80 percent of the linear distance of canals and ditches during each maintenance year (e.g., the left bank of a canal is maintained in the first year and the right bank in the second year). To avoid collapses when re-sloping canal and ditch banks composed of heavy clay soils, clearing will be limited to one side of the channel during each maintenance year. *For channel maintenance activities conducted within modeled habitat for giant garter snake, the project proponent will place removed material in existing dredged sites along channels where prior maintenance dredge disposal has occurred. For portions of channels that do not have previously used spoil disposal sites and where surveys have been conducted to confirm that giant garter snakes are not present, removed materials may be placed along channels in areas that are not occupied by giant garter snake and where materials will not re-enter the canal because of stormwater runoff.*	

LS = *Less than Significant*; S = *Significant*; SU = *Significant and Unavoidable;* LCC = *Less than Cumulatively Considerable;* CC = *Cumulatively Considerable;* N/A = *Not Applicable*

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Modifications to this AMM may be made with the approval of the Conservancy, USFWS, and CDFW. This includes any modifications needed to ensure compliance with the City's existing agreement with CDFW regarding maintenance of the Mace Drainage Channel. *Mace Triangle* *None required.*	
3-18 Impacts to burrowing owl (reference Impact 4.4-4).	S	*ARC Project and Mace Triangle* *3-18 To ensure avoidance and minimization of impacts to Western Burrowing Owl, the project applicant for the ARC shall obtain coverage under the Yolo HCP/NCCP for on-site, and as may be determined necessary by Yolo Habitat Conservancy, for off-site infrastructure work, for each phase of development. In addition to payment of any applicable HCP/NCCP fees, the applicant shall implement Yolo HCP/NCCP Avoidance and Minimization Measure AMM-18 (Minimize Take and Adverse Effects on Western Burrowing Owl) to the satisfaction of the City and the YHC. AMM-18[6] provides:*	LS

[6] Per Table 5-2(b) of the HCP/NCCP, no injury or mortality of individuals would occur with application of avoidance and minimization measures (Final HCP/NCCP, pp. 5-21 to 5-25).

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		The project proponent will retain a qualified biologist to conduct planning-level surveys and identify western burrowing owl habitat (as defined in Appendix A of the Yolo HCP/NCCP, Covered Species Accounts) within or adjacent to (i.e., within 500 feet of) a covered activity. If habitat for this species is present, additional surveys for the species by a qualified biologist are required, consistent with CDFW guidelines (Yolo HCP/NCCP, Appendix L). *If burrowing owls are identified during the planning-level survey, the project proponent will minimize activities that will affect occupied habitat as follows. Occupied habitat is considered fully avoided if the project footprint does not impinge on a non-disturbance buffer around the suitable burrow. For occupied burrowing owl nest burrows, this non-disturbance buffer could range from 150 to 1,500 feet (Table 3-17, Recommended Restricted Activity Dates and Setback Distances by Level of Disturbance for Burrowing Owls), depending on the time of year and the level of disturbance, based on current guidelines (California Department of Fish and Game 2012).*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation

Table 3-17
Recommended Restricted Activity Dates and Setback Distances by Level of Disturbance for Burrowing Owls Time of Year Level of Disturbance (feet) from Occupied Burrows

	Level of Disturbance (feet) from Occupied Burrows		
Time of Year	***Low***	***Medium***	***High***
April 1 – August 15	*600*	*1,500*	*1,500*
August 16 – October 15	*600*	*600*	*1,500*
October 16-March 31	*150*	*300*	*1,500*

The Yolo HCP/NCCP generally defines low, medium, and high levels of disturbances of burrowing owls as follows.

- *Low: Typically 71-80 dB, generally characterized by the presence of passenger vehicles, small gas-powered engines (e.g., lawn mowers, small chain saws, portable generators), and high tension power lines. Includes electric hand tools (except circular saws, impact wrenches and similar). Management and enhancement activities would typically fall under this category. Human activity in the immediate vicinity of burrowing owls would*

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		also constitute a low level of disturbance, regardless of the noise levels. • *Moderate: Typically 81-90 dB, and would include medium- and large-sized construction equipment, such as backhoes, front end loaders, large pumps and generators, road graders, dozers, dump trucks, drill rigs, and other moderate to large diesel engines. Also includes power saws, large chainsaws, pneumatic drills and impact wrenches, and large gasoline-powered tools. Construction activities would normally fall under this category.* • *High: Typically 91-100 dB, and is generally characterized by impacting devices, jackhammers, compression ("jake") brakes on large trucks, and trains. This category includes both vibratory and impact pile drivers (smaller steel or wood piles) such as used to install piles and guard rails, and large pneumatic tools such as chipping machines. It may also include large diesel and gasoline engines, especially if in concert with other impacting devices. Felling of large trees (defined as dominant or subdominant trees in mature forests), truck horns, yarding tower whistles, and muffled or underground explosives are also included. Very few covered activities are expected to fall under this category, but some construction activities*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		may result in this level of disturbance. *The project proponent may qualify for a reduced buffer size, based on existing vegetation, human development, and land use, if agreed upon by CDFW and USFWS (California Department of Fish and Game 2012).* *If the project does not fully avoid direct and indirect effects on nesting sites (i.e., if the project cannot adhere to the buffers described above), the project proponent will retain a qualified biologist to conduct preconstruction surveys and document the presence or absence of western burrowing owls that could be affected by the covered activity. Prior to any ground disturbance related to covered activities, the qualified biologist will conduct the preconstruction surveys within three days prior to ground disturbance in areas identified in the planning-level surveys as having suitable burrowing owl burrows, consistent with CDFW preconstruction survey guidelines (Yolo HCP/NCCP, Appendix L, Take Avoidance Surveys). The qualified biologist will conduct the preconstruction surveys three days prior to ground disturbance. Time lapses between ground disturbing activities will trigger subsequent surveys prior to ground disturbance.* *If the biologist finds the site to be occupied by western burrowing owls during the breeding season (February 1*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		to August 31), the project proponent will avoid all nest sites, based on the buffer distances described above, during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups that forage on or near the site following fledging). Construction may occur inside of the disturbance buffer during the breeding season if the nest is not disturbed and the project proponent develops an AMM plan that is approved by the Conservancy, CDFW, and USFWS prior to project construction, based on the following criteria: • *The Conservancy, CDFW, and USFWS approves the AMM plan provided by the project proponent.* • *A qualified biologist monitors the owls for at least three days prior to construction to determine baseline nesting and foraging behavior (i.e., behavior without construction).* • *The same qualified biologist monitors the owls during construction and finds no change in owl nesting and foraging behavior in response to construction activities.* • *If the qualified biologist identifies a change in owl nesting and foraging behavior as a result of construction activities, the qualified biologist*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		will have the authority to stop all construction related activities within the non-disturbance buffers described above. The qualified biologist will report this information to the Conservancy, CDFW, and USFWS within 24 hours, and the Conservancy will require that these activities immediately cease within the non-disturbance buffer. Construction cannot resume within the buffer until the adults and juveniles from the occupied burrows have moved out of the project site, and the Conservancy, CDFW, and USFWS agree. • *If monitoring indicates that the nest is abandoned prior to the end of nesting season and the burrow is no longer in use by owls, the project proponent may remove the non-disturbance buffer, only with concurrence from CDFW and USFWS. If the burrow cannot be avoided by construction activity, the biologist will excavate and collapse the burrow in accordance with CDFW's 2012 guidelines to prevent reoccupation after receiving approval from the wildlife agencies.* *If evidence of western burrowing owl is detected outside the breeding season (December 1 to January 31), the project proponent will establish a non-disturbance buffer around occupied burrows, consistent with Table*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		3-17, as determined by a qualified biologist. Construction activities within the disturbance buffer are allowed if the following criteria are met to prevent owls from abandoning important overwintering sites: • *A qualified biologist monitors the owls for at least three days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).* • *The same qualified biologist monitors the owls during construction and finds no change in owl foraging behavior in response to construction activities.* • *If there is any change in owl roosting and foraging behavior as a result of construction activities, these activities will cease within the buffer.* • *If the owls are gone for at least one week, the project proponent may request approval from the Conservancy, CDFW, and USFWS for a qualified biologist to excavate and collapse usable burrows to prevent owls from reoccupying the site if the burrow cannot be avoided by construction activities. The qualified biologist will install one-way doors for a 48-hour period prior to collapsing any potentially occupied burrows. After all usable burrows are*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		excavated, the buffer will be removed and construction may continue. *Monitoring must continue as described above for the nonbreeding season as long as the burrow remains active.* *A qualified biologist will monitor the site, consistent with the requirements described above, to ensure that buffers are enforced and owls are not disturbed. Passive relocation (i.e., exclusion) of owls has been used in the past in the Plan Area to remove and exclude owls from active burrows during the nonbreeding season (Trulio 1995). Exclusion and burrow closure will not be conducted during the breeding season for any occupied burrow. If the Conservancy determines that passive relocation is necessary, the project proponent will develop a burrowing owl exclusion plan in consultation with CDFW biologists. The methods will be designed as described in the species monitoring guidelines (California Department of Fish and Game 2012) and consistent with the most up-to-date checklist of passive relocation techniques. This may include the installation of one-way doors in burrow entrances by a qualified biologist during the nonbreeding season. These doors will be in place for 48 hours and monitored twice daily to ensure that the owls have left the burrow, after which time the biologist will collapse the burrow to prevent*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		reoccupation. Burrows will be excavated using hand tools. During excavation, an escape route will be maintained at all times. This may include inserting an artificial structure, such as piping, into the burrow to prevent collapsing until the entire burrow can be excavated and it can be determined that no owls are trapped inside the burrow. The Conservancy may allow other methods of passive or active relocation, based on best available science, if approved by the wildlife agencies. Artificial burrows will be constructed prior to exclusion and will be created less than 300 feet from the existing burrows on lands that are protected as part of the reserve system.	
3-19 Impacts to Swainson's hawk (reference Impact 4.4-5).	S	*ARC Project and Mace Triangle* *3-19 To ensure avoidance and minimization of impacts to Swainson's hawk and their habitat, the project applicant for the ARC, or the Mace Triangle as applicable, shall obtain coverage under the Yolo HCP/NCCP for on-site, and as may be determined necessary by Yolo Habitat Conservancy, for off-site infrastructure work, for each phase of development. In addition to payment of any applicable HCP/NCCP fees, the applicant shall implement Yolo HCP/NCCP Avoidance and Minimization Measure AMM-16 (Minimize Take and*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite) to the satisfaction of the City and the YHC. AMM-16[7] *provides:* *The project proponent will retain a qualified biologist to conduct planning-level surveys and identify any nesting habitat present within 1,320 feet of the project footprint. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.* *If a construction project cannot avoid potential nest trees (as determined by the qualified biologist) by 1,320 feet, the project proponent will retain a qualified biologist to conduct preconstruction surveys for active nests consistent, with guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000), between March 15 and August 30, within 15 days prior to the beginning of the construction activity. The results of the survey will be submitted to the Conservancy and CDFW. If active nests are found during*	

[7] Per Table 5-2(b) of the HCP/NCCP, no injury or mortality of individuals would occur with application of avoidance and minimization measures (Final HCP/NCCP, pp. 5-21 to 5-25).]

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		preconstruction surveys, a 1,320-foot initial temporary nest disturbance buffer shall be established. If project related activities within the temporary nest disturbance buffer are determined to be necessary during the nesting season, then the qualified biologist will monitor the nest and will, along with the project proponent, consult with CDFW to determine the best course of action necessary to avoid nest abandonment or take of individuals. Work may be allowed only to proceed within the temporary nest disturbance buffer if Swainson's hawk are not exhibiting agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, and only with the agreement of CDFW and USFWS. The designated on-site biologist/monitor shall be on-site daily while construction-related activities are taking place within the 1,320-foot buffer and shall have the authority to stop work if raptors are exhibiting agitated behavior. Up to 20 Swainson's hawk nest trees (documented nesting within the last 5 years) may be removed during the permit term, but they must be removed when not occupied by Swainson's hawks. *For covered activities that involve pruning or*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		removal of a potential Swainson's hawk nest tree, the project proponent will conduct preconstruction surveys that are consistent with the guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000). If active nests are found during preconstruction surveys, no tree pruning or removal of the nest tree will occur during the period between March 1 and August 30 within 1,320 feet of an active nest, unless a qualified biologist determines that the young have fledged and the nest is no longer active.	
3-20 Impacts to raptors, nesting birds, or other birds protected under the MBTA (reference Impact 4.4-6).	S	*ARC Project* *3-20(a)* <u>White-tailed kite.</u> *To ensure avoidance and minimization of impacts to White-Tailed Kite, the project applicant for the ARC Project shall obtain coverage under the Yolo HCP/NCCP for on-site, and as may be determined necessary by Yolo Habitat Conservancy, for off-site infrastructure work, for each phase of development. In addition to payment of any applicable HCP/NCCP fees, the applicant shall implement Yolo HCP/NCCP Avoidance and Minimization Measure AMM-16 (Minimize Take and Adverse Effects on Habitat of*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Swainson's Hawk and White-Tailed Kite) to the satisfaction of the City and the YHC. AMM-16[8] provides: *The project proponent will retain a qualified biologist to conduct planning-level surveys and identify any nesting habitat present within 1,320 feet of the project footprint. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.* *If a construction project cannot avoid potential nest trees (as determined by the qualified biologist) by 1,320 feet, the project proponent will retain a qualified biologist to conduct preconstruction surveys for active nests consistent, with guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000), between March 15 and August 30, within 15 days prior to the beginning of the construction activity. The results of the survey will be submitted to the Conservancy and CDFW. If active nests are found during*	

[8] Per Table 5-2(b) of the HCP/NCCP, no injury or mortality of individuals would occur with application of avoidance and minimization measures (Final HCP/NCCP, pp. 5-21 to 5-25).]

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		preconstruction surveys, a 1,320-foot initial temporary nest disturbance buffer shall be established. If project related activities within the temporary nest disturbance buffer are determined to be necessary during the nesting season, then the qualified biologist will monitor the nest and will, along with the project proponent, consult with CDFW to determine the best course of action necessary to avoid nest abandonment or take of individuals. Work may be allowed only to proceed within the temporary nest disturbance buffer if white-tailed kite are not exhibiting agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, and only with the agreement of CDFW and USFWS. The designated on-site biologist/monitor shall be on-site daily while construction-related activities are taking place within the 1,320-foot buffer and shall have the authority to stop work if raptors are exhibiting agitated behavior. *For covered activities that involve pruning or removal of a potential white-tailed kite nest tree, the project proponent will conduct preconstruction surveys that are consistent with the guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000). If active*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		nests are found during preconstruction surveys, no tree pruning or removal of the nest tree will occur during the period between March 1 and August 30 within 1,320 feet of an active nest, unless a qualified biologist determines that the young have fledged and the nest is no longer active. *3-20(b)* *<u>Tricolored blackbird.</u> To ensure avoidance and minimization of impacts to Tricolored Blackbird, the project applicant for the ARC Project shall obtain coverage under the Yolo HCP/NCCP for on-site, and as may be determined necessary by Yolo Habitat Conservancy, for off-site infrastructure work, for each phase of development. In addition to payment of any applicable HCP/NCCP fees, the applicant shall implement Yolo HCP/NCCP Avoidance and Minimization Measure AMM-21 (Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird) to the satisfaction of the City and the YHC. AMM-21[9] provides:* *The project proponent will retain a qualified biologist to identify and quantify (in acres)*	

[9] Per Table 5-2(b) of the HCP/NCCP, no injury or mortality of individuals would occur with application of avoidance and minimization measures (Final HCP/NCCP, pp. 5-21 to 5-25).]

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		tricolored blackbird nesting and foraging habitat (as defined in Appendix A of the Yolo HCP/NCCP, Covered Species Accounts) within 1,300 feet of the footprint of the covered activity. If a 1,300-foot buffer from nesting habitat cannot be maintained, the qualified biologist will check records maintained by the Conservancy (which will include CNDDB data, and data from the tricolored blackbird portal) to determine if tricolored blackbird nesting colonies have been active in or within 1,300 feet of the project footprint during the previous five years. If there are no records of nesting tricolored blackbirds on the site, the qualified biologist will conduct visual surveys to determine if an active colony is present, during the period from March 1 to July 30, consistent with protocol described by Kelsey (2008). *Operations and maintenance activities or other temporary activities that do not remove nesting habitat and occur outside the nesting season (March 1 to July 30) do not need to conduct planning or construction surveys or implement any additional avoidance measures.* *If an active tricolored blackbird colony is present or has been present within the last five*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		years within the planning-level survey area, the project proponent will design the project to avoid adverse effects within 1,300 feet of the colony site(s), unless a shorter distance is approved by the Conservancy, USFWS, and CDFW. If a shorter distance is approved, the project proponent will still maintain a 1,300-foot buffer around active nesting colonies during the nesting season but may apply the approved lesser distance outside the nesting season. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. *ARC Project and Mace Triangle* *3-20(c)* <u>*Northern harrier, mountain plover, Modesto song sparrow and other migratory birds.*</u> *The project applicant shall implement the following measures to avoid or minimize impacts to migratory birds and other protected bird species during on- and off-site construction:* • *If any site disturbance or construction activity for any phase of development begins outside the February 1 to August 31 breeding season, a preconstruction survey for active nests shall not*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		be needed. • *If any site disturbance or construction activity for any phase of development is scheduled to begin between February 1 and August 31, a qualified biologist shall conduct a preconstruction survey for active nests from publicly accessible areas within 14 days prior site disturbance or construction activity for any phase of development. The survey area shall cover the construction site and the area surrounding the construction site, including a 100-foot radius for MBTA birds, and a 250-foot radius for birds of prey. If an active nest of a bird of prey, MBTA bird, or other CDFW-protected bird is not found, then no further mitigation measures are necessary. The preconstruction survey shall be submitted to the City of Davis Department of Community Development and Sustainability for review.* • *If an active nest of a bird of prey, MBTA bird, or other CDFW-protected bird is discovered that may be adversely affected by any site disturbance or construction or an injured or killed bird is found, the project applicant shall immediately:* o *Stop all work within a 100-foot radius of the discovery.* o *Notify the City of Davis Department of*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Community Development and Sustainability. o *Do not resume work within the 100-foot radius until authorized by the biologist.* o *The biologist shall establish a minimum 250-foot Environmentally Sensitive Area (ESA) around the nest if the nest is of a bird of prey, and a minimum 100-foot ESA around the nest if the nest is of an MBTA bird other than a bird of prey. The ESA may be reduced if the biologist determines that a smaller ESA would still adequately protect the active nest. No work may occur within the ESA until the biologist determines that the nest is no longer active.*	
3-21 Impacts to riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS (reference Impact 4.4-7).	S	*ARC Project* *3-21 The project applicant for the ARC Site shall implement the following measure to avoid or minimize impacts to the Mace Drainage Channel:* • *Prior to conducting non-maintenance work within the bed and banks in the Mace Drainage Channel for any phase of development, as applicable, the project applicant for the ARC Site shall notify CDFW pursuant to Section 1602 of the Fish and Wildlife Code. If CDFW*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
			determines that a Streambed Alteration Agreement (SAA) is necessary, the applicant shall obtain a SAA and comply with all conditions of that Agreement, including the payment of any applicable Yolo HCP/NCCP fees. Compliance with the SAA shall be ensured by the City of Davis Department of Community Development and Sustainability. This does not apply to City maintenance work within the Mace Drainage Channel, for which the City already has an agreement with CDFW. *Mace Triangle* *None required.*	
3-22	**Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (reference Impact 4.4-8).**	LS	*None required.*	N/A
3-23	**Interfere substantially with the movement of native, resident, or migratory fish or wildlife species or established native**	LS	*None required.*	N/A

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
	resident or migratory wildlife corridors (reference Impact 4.4-9).			
3-24	**Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (reference Impact 4.4-10).**	LS	*None required.*	N/A
3-25	**Conflict with an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan (reference Impact 4.4-11).**	LS	*None required.*	N/A
3-26	**Conflict, or create an inconsistency, with any applicable biological resources plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect (reference Impact 4.4-12).**	S	*ARC Project* *3-26 At or prior to final planned development, or tentative map submittal, whichever occurs first, the applicant shall submit a design plan for the proposed on-site buffer/drainage features to the Department of Community Development and Sustainability for review and approval. The design plan shall demonstrate how the buffer/drainage features will be wildlife friendly natural spaces, with respect to details such as plant types, detention slopes, etc. In addition, should staff determine that in order to meet the City's stated objectives for urban agricultural transition areas (UATA), as well as drainage and safety, the proposed*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		buffer design shall be modified to concentrate the proposed buffer and drainage areas to the northern and eastern boundaries of the project site, in order to establish wider UATA segments. *Mace Triangle* *None required.*	
Cultural Resources (reference Section 4.5 of the Certified Final EIR)			
3-27 Cause a substantial adverse change in the significance of a historical resource (reference Impact 4.5-1).	S	*ARC Project* *3-27 If the northerly off-site sewer alignment is selected for the ARC Project, then prior to approval of design-level improvement plans for the off-site sewer pipe, the applicant shall retain a qualified archaeologist to design and implement a cultural study, the intent of which shall be to identify and investigate any subsurface historic remains within the northerly portion of the sewer pipe construction limits. Because of the potential for fragile prehistoric remains within this area, the evaluation shall include only metal detection and hand excavation. Metal detection should include a complete sweep of the APE adjacent to the farm structures, to test for subsurface features. Hand excavation should include testing of the metal detection finds. If no subsurface features are uncovered, no additional cultural investigations will necessary. If, on the other hand, structural remains are*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		found, the investigation shall continue as formal evaluation to determine their eligibility for the California Register of Historical Resources. This shall include, at a minimum, additional exposure of the feature(s), and photo-documentation and recordation. If the evaluation determines that the features do not have sufficient data potential to be eligible for the California Register, no additional work should be required. However, if data potential exists – e.g., there is an intact feature – it will be necessary to mitigate any project impacts. The evaluation shall be submitted to the Davis Department of Community Development and Sustainability for review. *If it is determined that standing structures associated with the William Seward Wright house and farm are within, or immediately adjacent to, the off-site sewer APE, a qualified architectural historian shall conduct an evaluation of those structures for their potential eligibility for the California Register of Historical Resources. The evaluation should include a full assessment of the structures, archival research to confirm the age, occupants, and historic uses of the structures, and the dates and extent of any renovations that might impact the structures' historic integrity. Should the structures be determined to be eligible for the California Register, pursuant to Public Resources Code Section 5024.1, Title 14 CCR, Section 4852, any mitigation measures provided in the architectural historian's report*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		shall be followed. Should the structures be determined ineligible for the California Register, no further consideration shall be required. The evaluation shall be submitted to the Davis Department of Community Development and Sustainability for review. *Mitigation of impacts might include avoidance of further disturbance to the resources through project redesign. If avoidance is determined to be infeasible, additional data recovery excavations shall be conducted for the resources, to collect enough information to exhaust the data potential of those resources. Impacts to the standing structures shall be mitigated through recordation to the standards of the National Park Service's Historic American Buildings Survey (HABS), as determined by the qualified architectural historian.* *Mace Triangle* *None required.*	
3-28 Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 (reference Impact 4.5-2).	S	*ARC Project* *3-28(a) Prior to approval of any on- and/or off-site improvement plans for development within the areas designated as having "high" sensitivity for buried sites per Figure 7 of the "Archaeological Survey Report for the Proposed Davis Innovation Center: Mace Ranch Location", prepared by Far Western Anthropological Research*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Group, the applicant shall retain a qualified archaeologist to design and implement an archeological study, the intent of which shall be to identify and investigate any subsurface archaeological remains within the northwestern portion of the ARC Site. The subsurface sampling methodology outlined in the study shall be sufficient to enable the qualified archaeologist to define the physical extent and nature of any artifact-bearing deposits should they be discovered. Because of the potential for fragile prehistoric remains, the evaluation should include only hand excavation. Hand excavation should include placement of a series of small shovel probes across the site to look for prehistoric artifacts and features. If artifact-bearing deposits are not uncovered, additional cultural investigations are not required. If artifact-bearing features are found, the investigation shall continue as formal evaluation to determine their eligibility for the California Register of Historical Resources. This shall include, at a minimum, hand excavation of larger control units and analysis of the artifact assemblage(s). If the evaluation determines that the artifacts do not have sufficient data potential to be eligible for the California Register, additional work shall not be required. However, if data potential exists – e.g., there is an intact feature with a large and varied artifact assemblage – necessary mitigation measures shall be implemented to alleviate any project impacts. The evaluation shall be submitted to the Davis Department of	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Community Development and Sustainability for review. *Mitigation of impacts might include avoidance of further disturbance to the resources through project redesign. If redesign is not feasible, additional data recovery excavations shall be conducted for the archaeological resources, to collect enough information to exhaust the data potential of those resources.* *3-28(b) If the northerly off-site sewer alignment is selected for the ARC Project, then prior to approval of design-level improvement plans for the off-site sewer pipe, the applicant shall retain a qualified archaeologist to design and implement an archeological study, the intent of which shall be to identify and investigate any subsurface archaeological remains within the northerly portion of the sewer pipe construction limits. The subsurface sampling methodology outlined in the study shall be sufficient to enable the qualified archaeologist to define the physical extent and nature of any artifact-bearing deposits should they be discovered. Because of the potential for fragile prehistoric remains, the evaluation should include only hand excavation. Hand excavation should include placement of a series of small shovel probes across the site to look for prehistoric artifacts and features. If artifact-bearing deposits are not uncovered, additional archaeological investigations are not required. If artifact-bearing features are found, the*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		investigation shall continue as formal evaluation to determine their eligibility for the California Register of Historical Resources. This shall include, at a minimum, hand excavation of larger control units and analysis of the artifact assemblage(s). If the evaluation determines that the artifacts do not have sufficient data potential to be eligible for the California Register, additional work shall not be required. However, if data potential exists – e.g., there is an intact feature with a large and varied artifact assemblage – necessary mitigation measures shall be implemented to alleviate any project impacts. The evaluation shall be submitted to the Davis Department of Community Development and Sustainability for review. *Mitigation of impacts might include avoidance of further disturbance to the resources through project redesign. If redesign is not feasible, additional data recovery excavations shall be conducted for the archaeological resources, to collect enough information to exhaust the data potential of those resources.* *ARC Project and Mace Triangle* *3-28(c) If any prehistoric or historic artifacts, or other indications of archaeological resources are found during grading and construction activities, all work within the vicinity of the find shall cease and the applicant shall*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		retain an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology, as appropriate, to evaluate the finds. If the resource is determined to be eligible for inclusion in the California Register of Historical Resources and project impacts cannot be avoided, data recovery shall be undertaken. Data recovery efforts can range from rapid photographic documentation to extensive excavation depending upon the physical nature of the resource. The degree of effort shall be determined at the discretion of a qualified archaeologist and should be sufficient to recover data considered important to the area's history and/or prehistory. This language of this mitigation measure shall be included on any future grading plans, utility plans, and subdivision improvement drawings approved by the City for the ARC Site and/or 16.49-acre Mace Triangle Site.	
3-29 Directly or indirectly destroy a unique paleontological resource or unique geologic feature on the project site (reference Impact 4.5-3).	S	*ARC Project and Mace Triangle* *3-29 If any vertebrate bones or teeth are found by the construction crew, the contractor shall cease all work in the immediate vicinity of the discovery until an on-site archaeological monitor, if present, inspects the discovery; if none is present, or if recommended by the monitor, a professional paleontologist shall evaluate the find. If deemed significant with respect to authenticity, completeness, preservation, and identification, the*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		resource(s) shall then be salvaged and deposited in an accredited and permanent scientific institution (e.g., UCMP), where it will be properly curated and preserved for the benefit of current and future generations. The language of this mitigation measure shall be included on any future grading plans, utility plans, and subdivision improvement drawings approved by the City for the ARC Site and/or 16.49-acre Mace Triangle Site, where excavation work will be required.	
3-30 Disturb any human remains, including those interred outside of formal cemeteries (reference Impact 4.5-4).	S	*ARC Project and Mace Triangle* *3-30 During construction, if bone is uncovered that may be human, the California Native American Heritage Commission, located in Sacramento, and the Yolo County Coroner shall be notified. Should human remains be found, all work shall be halted until final disposition by the Coroner. Should the remains be determined to be of Native American descent, the Native American Heritage Commission shall be consulted to determine the appropriate disposition of such remains.*	LS
3-31 Conflict, or create an inconsistency, with any applicable cultural resources plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect (reference Impact 4.5-5).	LS	*None required.*	N/A

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
Geology, Soils, and Mineral Resources (reference Section 4.6 of the Certified Final EIR)			
3-32 Risks to people and structures associated with seismic activity, including ground shaking and ground failure (reference Impact 4.6-1).	LS	*None required.*	N/A
3-33 Result in substantial soil erosion or loss of topsoil (reference Impact 4.6-2).	S	*ARC Project and Mace Triangle* *3-33 Prior to initiation of any grading activities for each phase of development at the ARC Site, or Mace Triangle Site, the project proponent shall submit a Notice of Intent (NOI) and Storm Water Pollution Prevention Plan (SWPPP) to the RWQCB in accordance with the NPDES General Construction Permit requirements. The SWPPP shall be designed to control pollutant discharges utilizing Best Management Practices (BMPs) and technology to reduce erosion and sediments. BMPs may consist of a wide variety of measures taken to reduce pollutants in stormwater runoff from the project site. Measures shall include temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other groundcover) that will be employed to control erosion from disturbed areas. Final selection of BMPs will be subject to approval by the City of Davis and the RWQCB. The SWPPP will be kept on site during*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact		Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
			construction activity and will be made available upon request to representatives of the RWQCB.	
3-34	**Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in lateral spreading, subsidence, liquefaction, or collapse (reference Impact 4.6-3).**	S	*ARC Project* *3-34(a)* *Prior to final design approval and issuance of building permits for each phase of the project, the project applicant for the ARC Site shall submit to the City of Davis Building Inspection Division, for review and approval, a design-level geotechnical engineering report produced by a California Registered Civil Engineer or Geotechnical Engineer. The report shall include the recommendations in the report entitled Preliminary Geotechnical Engineering Report, Mace Ranch Innovation Center, dated January 20, 2015 unless it is determined in the design-level report that one or more recommendations need to be revised. The design-level report shall address, at a minimum, the following:* • *Compaction specifications and subgrade preparation for on-site soils;* • *Structural foundations, including retaining wall design (if applicable);* • *Grading practices; and* • *Expansive/unstable soils, including fill.* *Design-level recommendations shall be included in the foundation and improvement plans and approved by the*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Davis Public Works Department prior to issuance of any building permits. *Mace Triangle* *3-34(b) Prior to final design approval and issuance of building permits for future on-site development, the future project applicant for the Mace Triangle Site shall submit a site-specific, design-level geotechnical report produced by a California Registered Geotechnical Engineer to the City of Davis Building Inspection Division for review and approval. The geotechnical report shall include, but would not be limited to, an analysis of the on-site geologic and seismic conditions, including soil sampling and testing. Recommendations shall be included regarding project design measures to avoid risks to people and structures, including compliance with the latest CBC regulations, structural foundations, and grading practices.*	
3-35 Be located on expansive soil, as defined in Table 118-1-B of the Uniform Building Code (1994), creating substantial risks to life or property (reference Impact 4.6-4).	S	*ARC Project* *3-35(a) Implement Mitigation Measure 3-34(a).* *Mace Triangle* *3-35(b) Implement Mitigation Measure 3-34(b).*	LS
3-36 Conflict, or create an inconsistency, with any	LS	*None required.*	N/A

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
	applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to geology, soils, and mineral resources (reference Impact 4.6-5).			
	Greenhouse Gas Emissions and Energy (reference Section 4.7 of the Certified Final EIR)			
3-37	**Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment (reference Impact 4.7-1).**	S	*ARC Project* *3-37(a) Implement Mitigation Measures 3-11, 3-72(a), and 3-72(b).* *Mace Triangle* *3-37(b) Implement Mitigation Measure 3-11.*	SU
3-38	**Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs (reference Impact 4.7-2).**	S	*ARC Project* *3-38(a) Prior to issuance of building permits, each individual development of the ARC Project shall demonstrate consistency with the City's Climate Action and Adaptation Plan by demonstrating a fair-share reduction of GHG emissions towards an ARC Project-wide reduction goal of 37,684.19 $MTCO_2e/yr$, which would achieve carbon neutrality. Individual projects may choose one of the following methods for complying with this goal:*	SU

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		1. Individual future developments undergoing Design Review, may prepare a Carbon Neutrality Plan for review and approval by the City's Department of Community Development and Sustainability. The Carbon Neutrality Plan must demonstrate the individual development's compliance with the City's net carbon neutrality goal for the year 2040. Compliance with the City's net carbon neutrality goal shall be demonstrated through the use of CalEEMod, or another method or model accepted for this purpose by the City, to demonstrate that emissions from the individual development, to the extent feasible, would reach a level of carbon neutrality by the year 2040. *2. If a project applicant chooses not to prepare a Carbon Neutrality Plan, the applicant must demonstrate that the individual development provides a fair-share contribution towards the ARC Project-wide emissions reductions need of 37,684.19 $MTCO_2e/yr$, to the extent feasible. A fair-share contribution is to be made based on the total acreage proposed for development in any given project subject to Design Review, as compared to the entire area of development proposed within the ARC Site as a whole. For the purposes of this mitigation measure, areas*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		not anticipated for development, such as parks, open spaces, and agricultural buffer areas, are not included in the total development acreage. Therefore, the total development area, is considered to be 156.4 acres. Considering the total development area, a hypothetical ten-acre project would represent 6.4 percent of the total development area and would be required to show a GHG emissions reduction, savings, or off-set, of 2,409.5 $MTCO_2e/yr$ from the emissions modeled herein, which would represent 6.4 percent of the total 37,684.19 $MTCO_2e/yr$ reduction required for the project area as a whole. Proof of the fair-share GHG emissions reductions shall be submitted to the City's Department of Community Development and Sustainability. *Examples of measures that may be used by future development projects in either of the above options include, but are not limited to, the following:* • *Trip and/or VMT reductions due participation in a Transportation Demand Management program or similar program;* • *Electrifying loading docks to reduce emissions from engine idling of Transport Refrigeration Units;*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		• *Inclusion of on-site renewable energy beyond the level anticipated in this analysis;* • *Institution of a composting and recycling program in excess of local standards;* • *Implementation of an Urban Forestry Management Plan or tree planting programs;* • *Use of energy efficient street lighting fixtures;* • *Limit the installation of natural gas infrastructure and appliances;* • *Implement relevant measures from Mitigation Measure 3-11; and* • *Purchase of off-site mitigation credits.*[10] *In general, GHG reduction measures implemented for development within the ARC Site shall use the following prioritization:* • *First priority – building specific actions;* • *Second priority – onsite (within ARC Site) actions;* • *Third priority – community based (within Davis) actions;* • *Fourth priority – pay GHG reduction fees*	

[10] Purchase of off-site mitigation credits shall be negotiated with the City and YSAQMD at the time that credits are sought by future construction within the project areas.

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		(carbon offsets) into a qualified existing local program, if one is in place; and • *Fifth priority – other demonstrated method of reducing emissions.* *Thus, as development progresses within the project area, each individual development would be required to show GHG emissions reductions in keeping with the project-wide reduction requirement. Emissions reductions shall be demonstrated prior to issuance of building permits for each development within the ARC Site.* *Mace Triangle* *3-38(b) Prior to issuance of building permits, each individual development at the Mace Triangle Site shall demonstrate consistency with the City's Climate Action and Adaptation Plan by demonstrating a fair-share reduction of total GHG emissions generated at buildout of the Mace Triangle Site. This SEIR preliminarily estimates that full buildout of the Mace Triangle Site, not including construction emissions, would generate 1,115.89 $MTCO_2e$/yr. Full operational and construction emissions shall be calculated for each individual development, at such time project level details are available, as required below:*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		• *Individual future developments undergoing Design Review, may prepare a Carbon Neutrality Plan for review and approval by the City's Department of Community Development and Sustainability. The Carbon Neutrality Plan must demonstrate the individual development's compliance with the City's net carbon neutrality goal for the year 2040. Compliance with the City's net carbon neutrality goal shall be demonstrated through the use of CalEEMod, or another method or model accepted for this purpose by the City, to demonstrate that emissions from the individual development, to the extent feasible, would reach a level of carbon neutrality by the year 2040.* *Examples of measures that may be used by future development projects include, but are not limited to, the following:* • *Trip and/or VMT reductions due participation in a Transportation Demand Management program or similar program;* • *Electrifying loading docks to reduce emissions from engine idling of Transport Refrigeration Units;* • *Inclusion of on-site renewable energy beyond*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		the level anticipated in this analysis; • *Institution of a composting and recycling program in excess of local standards;* • *Implementation of an Urban Forestry Management Plan or tree planting programs;* • *Use of energy efficient street lighting fixtures;* • *Limit the installation of natural gas infrastructure and appliances;* • *Implement relevant measures from Mitigation Measure 3-11; and* • *Purchase of off-site mitigation credits.*[11] *In general, GHG reduction measures implemented for development within the ARC Site shall use the following prioritization:* • *First priority – building specific actions;* • *Second priority – onsite (within ARC Site) actions;* • *Third priority – community based (within Davis) actions;* • *Fourth priority – pay GHG reduction fees (carbon offsets) into a qualified existing local*	

[11] Purchase of off-site mitigation credits shall be negotiated with the City and YSAQMD at the time that credits are sought by future construction within the project areas.

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		program, if one is in place; and • *Fifth priority – other demonstrated method of reducing emissions.* *Thus, as development progresses within the Mace Triangle Site, each individual development would be required to show GHG emissions reductions in keeping with the project wide reduction requirement. Emissions reductions shall be demonstrated at the time of submittal for building permits for each development within the Mace Triangle Site.*	
3-39 Impacts related to energy associated with construction (reference Impact 4.7-3).	LS	*None required.*	N/A
3-40 Impacts related to energy associated with operations (reference Impact 4.7-4).	S	*ARC Project and Mace Triangle* *3-40 Prior to issuance of building permits for non-residential buildings that include data centers, the applicant shall submit an Energy Management Plan to the City of Davis Department of Community Development and Sustainability demonstrating compliance with principles for energy management for data centers, which could include, but not be limited to the following:* • *IT Systems;* • *Air Management;* • *Centralized Air Handling;*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
			• *Cooling Plant Optimization;* • *On-Site Generation;* • *Uninterruptible Power Supply Systems.* *Other energy efficient technologies and best practices that are available at the time construction drawings are submitted could be included in the Energy Management Plan as well, such as any measures described by US Department of Energy Center of Expertise for Energy Efficiency in Data Centers.*	
3-41	**Conflict, or create an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to GHG emissions and energy conservation (reference Impact 4.7-5).**	LS	*None required.*	N/A
Hazards and Hazardous Materials (reference Section 4.8 of the Certified Final EIR)				
3-42	**Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials (reference Impact**	LS	*None required.*	N/A

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
	4.8-1).			
3-43	**Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment associated with potential on-site tanks, well, or soil contamination (reference Impact 4.8-2).**	S	*ARC Project* *3-43(a) Prior to any ground disturbance activities within 50 feet of a well on the ARC Site, the applicant shall hire a licensed well contractor to obtain a well abandonment permit for any wells not anticipated to be used from the Yolo County Environmental Health Services Department, and properly abandon the on-site wells, pursuant to review and approval by the City Engineer and the Yolo County Environmental Health Services Department.* *3-43(b) If any debris is encountered within the former canal on APN 033-630-009 during construction activities, as shown on the construction plans for the ARC Site, the contractor shall contact the project applicant, who shall retain the services of a qualified environmental hazard firm, to evaluate the debris to determine whether it poses any environmental contamination risks. A written evaluation shall be submitted to the City of Davis Department of Community Development and Sustainability. If the debris is trash or other non-hazardous material, then the contractor shall dispose of the debris and no further mitigation shall be required. If the debris is associated with signs of soil staining or odors indicative of hazardous materials, the environmental hazard firm shall conduct additional*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		evaluation, including but not necessarily limited to soil sampling. If soil samples detect concentrations of hazardous materials above applicable Regional Screening Levels (RSL), then the soils shall be remediated and disposed of at a landfill licensed to accept hazardous waste. If constituent concentrations are below RSLs, then no further mitigation shall be necessary. *Mace Triangle* *3-43(c)* *In conjunction with submittal of a final planned development and/or tentative map for any parcel in the Mace Triangle property, the applicant shall submit a Phase I Environmental Site Assessment for that parcel, which shall evaluate on-site conditions, including but not limited to the presence of any wells, evidence of soil staining, or odors indicative of hazardous substances.* *In addition, due to the past agricultural operations on the easternmost parcel, a soil sampling program shall be implemented to assess potential agrichemical impacts to surface soil within the easternmost parcel, as follows:* *A soil sampling and analysis workplan shall be submitted for approval to Yolo County Environmental Health Department. The sampling and analysis plan will meet the requirements of the Department of Toxic*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Substances Control Interim Guidance for Sampling Agricultural Properties (2008). *If the sampling results indicate the presence of agrichemicals that exceed commercial screening levels, a removal action workplan shall be prepared in coordination with Yolo County Environmental Health Department. The removal action workplan shall include a detailed engineering plan for conducting the removal action, a description of the onsite contamination, the goals to be achieved by the removal action, and any alternative removal options that were considered and rejected and the basis for that rejection. A no further action letter will be issued by County Health for the proposed commercial development upon completion of the removal action. The removal action shall be deemed complete when the confirmation samples exhibit concentrations below the commercial screening levels, which will be established by the agencies.* *If any stained soil or odor-impacted areas are encountered during the Phase I ESA, then soil sampling of these areas shall be included in the above soil sampling workplan, and depending upon the sampling results, included in the removal action workplan as well.*	
3-44 Impair implementation of or physically interfere with an adopted emergency response	LS	*None required.*	N/A

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
	plan or emergency evacuation plan (reference Impact 4.8-3).			
3-45	**Expose people or structure to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands (reference Impact 4.8-4).**	LS	*None required.*	N/A
3-46	**Conflict, or create an inconsistency, with applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigation environmental effects related to hazards and hazardous materials (reference Impact 4.8-5).**	LS	*None required.*	N/A
	Hydrology and Water Quality (reference Section 4.9 of the Certified Final EIR)			
3-47	**Substantially alter the existing drainage pattern of the site or area, or create or contribute runoff water which would exceed the capacity of existing**	S	*ARC Project* *3-47(a) In conjunction with submittal of the first final planned development for the ARC Site, a design-level drainage report shall be submitted to the City of Davis Public*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
or planned stormwater drainage systems, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site (reference Impact 4.9-1).		*Works Department for review and approval. The drainage report shall identify specific storm drainage design features to control the 100-year, 24-day increased runoff from the project site to ensure that the rate of runoff leaving the developed ARC Site does not exceed the original Mace Drainage Channel (MDC) design capacity of 260 cfs. This may be achieved through: on-site conveyance and detention facilities, off-site detention or retention facilities, channel modification, or equally effective measures to control the rate and volume of runoff.* *The design-level drainage report shall include off-site drainage facilities sufficient to detain and control the increased runoff volume when the flow from the MDC into the Yolo Bypass is blocked by high water levels in the Bypass. Preliminary estimates of increased runoff volumes are 78 acre-feet. The final amount of runoff volume to be detained would be determined with the design-level drainage report. This could result in detaining run-off volume for an extended time period. During this time period, additional large storms could occur; thus, the proposed detention storage facilities shall also be able to manage (detain with a controlled release) the 100-year, 24-hour storm event.* *The design-level drainage report shall also include design for detaining and controlling the increased run-*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		off volume from the Mace Triangle Site. Preliminary estimates of increased runoff volumes are as much as 7 acre-feet. The final amount of runoff volume to be detained would be determined with the design-level drainage report prepare for the ARC Site. *Design-level recommendations provided in the drainage report shall be included in the improvements plans prior to their approval by the Davis Public Works Department.* *3-47(b) Prior to approval of the Phase 1 improvement plans for the ARC Site, the Public Works Department shall ensure that the plans include the development of the Phase 2 MDC improvements. The Phase 2 improvements shall consist of removal of the two 24-inch corrugated metal pipes in order to provide a continuous channel between the Phase 1 and Phase 2 improvements.* *Mace Triangle* *3-47(c) In conjunction with submittal of each final planned development for the Mace Triangle Site, a design-level drainage report for the development shall be completed and submitted to the City of Davis Public Works Department for review and approval. The drainage report shall identify specific storm drainage design features to control the 100-year, 24-hour increased*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		runoff from the project site. This may be achieved through: onsite conveyance and detention facilities, offsite detention or retention facilities, channel modification, or equally effective measures to control the rate and volume of runoff. *The design-level drainage report shall include off-site drainage facilities sufficient to detain and control the increased run-off volume when the flow from the Mace Drainage Channel into the Yolo Bypass is blocked by high water levels in the Bypass. Preliminary estimates of increased runoff volumes for the Mace Triangle Site are as much as 7 acre-feet. The final amount of runoff volume to be detained for each proposed development would be determined with the design-level drainage report. This could result in detaining run-off volume for an extended time period. During this time period, additional large storms could occur; thus, the proposed detention storage facilities shall also be able to manage (detain with a controlled release) the 100-year, 24-hour storm event.* *Design-level recommendations provided in the drainage report shall be included in the improvement plans prior to their approval by the Davis Public Works Department.*	
3-48 Violate any water quality standards or waste discharge	S	*ARC Project and Mace Triangle*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation		Mitigation Measures	Level of Significance after Mitigation
	requirements, provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality through erosion during construction (reference Impact 4.9-2).		*3-48*	*Prior to initiation of any ground disturbing activities, the project applicant(s) for each discretionary development application shall prepare a Stormwater Pollution Prevention Plan (SWPPP), and implement Best Management Practices (BMPs) that comply with the General Construction Stormwater Permit from the Central Valley RWQCB, to reduce water quality effects during construction. Such BMPs may include: temporary erosion control measures such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation. The SWPPP shall be kept on-site and implemented during construction activities and shall be made available upon request to representatives of the City of Davis and/or RWQCB.*	
3-49	**Violate any water quality standards or waste discharge requirements, provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality during operations (reference Impact 4.9-3).**	LS	*None required.*		N/A
3-50	**Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such**	LS	*None required.*		N/A

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
	that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g, the production rate or preexisting nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted) (reference Impact 4.9-4).			
3-51	**Place structure within a 100-year flood hazard as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or flood hazard delineation map; or place within a 100-year floodplain structures which would impede or redirect flood flows; or expose people or structures to significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam (reference Impact 4.9-5).**	LS	*None required.*	N/A
3-52	**Impacts related to conflicts, or**	LS	*None required.*	N/A

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
	creation of an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to hydrology and water quality (reference Impact 4.9-6).			
	Land Use and Urban Decay (reference Section 4.10 of the Certified Final EIR)			
3-53	**Physical division of an established community (reference Impact 4.10-1).**	LS	*None required.*	N/A
3-54	**Economic and social change and/or effect that result in urban decay (reference Impact 4.10-2).**	S	*ARC Project* *3-54(a)* *In conjunction with submittal of any final planned development for the ARC Project that includes ancillary retail uses, an analysis shall be submitted to the City of Davis Department of Community Development and Sustainability, which shall demonstrate that the proposed ancillary retail development will not exceed the anticipated demand increase from new employees. The demonstration to the City may be premised upon the number of employees (and/or residents) on-site, the commercial (and/or residential) square footage developed, or other factors relevant to the generation of on-site demand. If the analysis cannot demonstrate that*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		the proposed amount of ancillary retail space will not outpace employee-generated demand, then the ancillary retail uses shall be removed from the final planned development, or scaled back to be commensurate with the projected employee-generated demand. *3-54(b)* *Prior to building permit issuance for the proposed hotel, the applicant shall demonstrate to the City's satisfaction that there is sufficient unmet demand from a combination of hotel demand from ARC Project employees and businesses and/or hotel demand from elsewhere within the Davis marketplace to support the hotel space for which the building permit is requested. The objective of this requirement is to ensure that the hotel developed within the ARC Project will not re-allocate demand from existing Davis hotels, but will instead help the City to provide new hotel offerings that will satisfy currently unmet demand.* *Mace Triangle* *None required.*	
3-55 Conflict, or create an inconsistency, with any applicable land use and urban decay plan, policy, or regulation adopted for the purpose of avoiding or	LS	*None required.*	N/A

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
	mitigating an environmental effect (reference Impact 4.10-3).			
Noise and Vibration (reference Section 4.11 of the Certified Final EIR)				
3-56	**A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without project (reference Impact 4.11-1).**	LS	*None required.*	N/A
3-57	**Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels (reference Impact 4.11-2).**	LS	*None required.*	N/A
3-58	**Transportation noise impacts to existing sensitive receptors in the project vicinity (reference Impact 4.11-3).**	LS	*None required.*	N/A
3-59	**Transportation noise impacts to new sensitive receptors in the project vicinity (reference Impact 4.11-4).**	N/A	*None required.*	N/A
3-60	**Operational noise (reference Impact 4.11-5).**	LS	*None required.*	N/A
3-61	**Conflict, or create an**	LS	*None required.*	N/A

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
	inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to noise (reference Impact 4.11-6).			
Population and Housing (reference Section 4.12 of the Certified Final EIR)				
3-62	**Induce substantial population growth (reference Impact 4.12-1).**	LS	*None required.*	N/A
3-63	**Conflict, or create an inconsistency, with any applicable population and housing plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect (reference Impact 4.12-2).**	LS	*None required.*	N/A
Public Services and Recreation (reference Section 4.13 of the Certified Final EIR)				

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
3-64	**Result in substantial adverse physical impacts associated with the provisions of new or physically altered fire protection facilities, and/or the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection facilities (reference Impact 4.13-1).**	LS	*None required.*	N/A
3-65	**Result in substantial adverse physical impacts associated with the provisions of new or physically altered police protection facilities, and/or the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times,**	LS	*None required.*	N/A

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
	or other performance objectives for police protection facilities (reference Impact 4.13-2).			
3-66	**Result in substantial adverse physical impacts associated with the provisions of new or physically altered school facilities, and/or the need for new or physically altered school facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for school facilities (reference Impact 4.13-3).**	LS	*None required.*	N/A
3-67	**Result in substantial adverse physical impacts associated with the provisions of new or physically altered park facilities, and/or the need for new or physically altered park facilities, the construction of which could cause significant environmental impacts in**	LS	*None required.*	N/A

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
	order to maintain acceptable service ratios, response times, or other performance objectives for park facilities (reference Impact 4.13-4).			
3-68	**Result in substantial adverse physical impacts associated with the provisions of new or physically altered other public facilities, and/or the need for new or physically altered other public facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for other public facilities (reference Impact 4.13-5).**	LS	*None required.*	N/A
3-69	**Conflict, or create an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to public**	LS	*None required.*	N/A

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
	services and recreation (reference Impact 4.13-6).			
	Transportation and Circulation (reference Section 4.14 of the Certified Final EIR)			
3-70	**Conflict with a program, plan ordinance, or policy addressing the circulation system under Existing Plus Project conditions (reference Impacts 4.14-1 and 4.14-2).**	S	*ARC Project and Mace Triangle* *3-70(a)* *In conjunction with submittal of a final planned development, or tentative map, whichever occurs first, for each phase of development, the Master Owners' Association (MOA) for the Project, or applicant (i.e., Mace Triangle project), shall submit a focused traffic impact study to determine if any of the below-listed intersection and roadway improvements are required based on the additional traffic generated by the development phase. The focused traffic study shall address the impact of adding the individual phase of development to existing plus other approved/pending development projects. The traffic study shall use the current version of the City travel demand forecasting model available at the time of the study, and the traffic operations analysis methods utilized in this SEIR. If operations are found to have declined to unacceptable levels based on the relevant criteria under Standards of Significance, the project applicant shall construct physical improvements or pay its fair share as described prior to the issuance of the first certificate of occupancy for the first building in that phase.*	SU

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Intersection improvements *If any of the identified improvements require Caltrans or Yolo County approval, the applicant shall make a good faith effort to work with Caltrans and/or Yolo County and the City for the purpose of identifying and implementing physical improvements to the network which have a nexus to the project's impact.* 1. *Southbound Mace Boulevard: Extend the second eastbound/southbound lane from Harper Junior High School to Alhambra Drive. Add a third southbound lane from 2nd Street to connect with the dedicated right-turn lane onto the I-80 WB on-ramps.* 2. *Northbound Mace Boulevard: Extend the third northbound lane from the I-80 WB off-ramps to connect with a new northbound "trap" right-turn lane at the Mace Boulevard/2nd Street/CR 32A intersection. Add a second northbound/westbound lane from 2nd to the Harper Junior High School signalized intersection.* 3. *Mace Boulevard/Chiles Road and Chiles Road/I-80 EB Off-Ramp Intersections: This pair of tightly spaced intersections (situated 450 feet apart) requires signal coordination/timing adjustments and a lane reassignment on the eastbound Chiles Road approach to Mace*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Boulevard due to the heavy project-related off-ramp volume during the AM. peak hour. Modifying the eastbound through lane to a shared left/through lane would require the east and west approaches to operate with split phasing. Signal coordination (particularly critical during the AM peak hour) would synchronize the green interval for the I-80 off-ramp movement with the eastbound approach on Chiles Road at Mace Boulevard to facilitate the flow of motorists off of I-80. The signal would be modified to operate the southbound left-turn and westbound right-turn during a shared overlap phase. This modification would also require the prohibition of southbound U-turns. 4. <u>*I-80 Eastbound Loop On-Ramp:*</u> *This on-ramp consists of a single entry lane from southbound Mace Boulevard, which widens to a metered general purpose lane and an unmetered HOV bypass lane. During the PM peak hour, the addition of project trips would cause queue spillback from the ramp meter onto the overpass, thereby causing queue spillback to extend further upstream. The recommended modification from an unmetered HOV bypass lane to a metered general purpose lane was found to provide more ramp metering storage,*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		and reduced effects on the surface street. Similar modifications have been considered by Caltrans elsewhere in the Sacramento region. *5. Mace Boulevard/2nd Street/CR 32A Intersection: Modify the northbound approach to add a "trap" right-turn lane. Modify the westbound approach to two left-turn lanes and a shared through-right lane. Modify westbound CR 32A between this intersection and the adjacent CR 32A/Mace Park-and-Ride/West ARC Driveway intersection to two through lanes.* *6. Mace Boulevard/Alhambra Drive/South ARC Driveway Intersection: Modify the westbound approach to two left-turn lanes and a shared through-right lane. Provide a southbound left-turn lane, two through lanes, and a right-turn lane.* *7. Mace Boulevard/CR 30B/North ARC Driveway Intersection: Install a traffic signal. Provide a southbound left-turn lane and two through lanes. Provide a northbound through lane and shared through-right lane.* *8. CR 32A/Mace Park-and-Ride/West ARC Driveway Intersection: Install a traffic signal. Provide a southbound left-turn lane and a shared through-right lane. Provide an eastbound left-turn lane.* *9. UPRR at-grade rail crossing improvements: The*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		UPRR track/CR 32A crossing could be converted from an at-grade crossing to a grade-separated crossing. A near-term improvement prior to provision of the grade separation could consist of relocating the CR32A/CR 105 intersection about 200 feet to the north and installing double gates on the south approach to the grade crossing in order to improve safety and traffic functionality at the grade crossing. *10. <u>I-80/CR 32A interchange improvements:</u> Construct capacity improvements at the CR 32 interchange and along CR 32A to allow this interchange to serve more project traffic.* *3-70(b) At the time of the issuance of the first certificate of occupancy and as a component of the ARC TDM program (refer to Mitigation Measure 3-72(a)), the Master Owners' Association (MOA) for the Project shall establish the baseline peak hour I-80 mainline vehicle trips by which to determine the project's change to peak hour I-80 vehicle trips. Baseline AM and PM peak hour vehicle trips on I-80 shall be calculated on the following segments:* *1. Between Pedrick Road and Kidwell Road* *2. Between Richards Boulevard and Mace Boulevard* *3. East of Chiles Road (i.e., the Yolo Causeway)*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		During the annual TDM reporting, the MOA shall determine the number of AM and PM peak hour project vehicle trips that utilize I-80 on the segments listed above. In instances where these figures exceed baseline levels by five percent or more, the MOA shall institute TDM strategies to reduce project-related peak hour vehicle trips on I-80. The implementation of TDM strategies shall reduce peak hour project vehicle trips on I-80 to an amount less than five percent of baseline levels, to the extent feasible. *TDM strategies that would reduce peak hour vehicle trips on I-80 include strategies to reduce commute and business vehicle trips to and from ARC using I-80. If these TDM strategies are not sufficient to reduce peak hour trips to baseline levels, additional TDM measures or adjustments to existing measures shall be implemented, as needed to reduce peak hour trips to an amount less than five percent of baseline levels.* *3-70(c) The applicant shall contribute a proportional share to the local contribution portion of freeway improvement projects to construct carpool lanes on I-80 between Richards Boulevard and West Sacramento. Responsibility for implementation of this mitigation measure shall be assigned to the ARC and Mace Triangle on a fair share basis.*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
3-71 Impacts to Local Neighborhood Street Traffic (reference Impact 4.14-5).	S	*ARC Project* *3-71 Prior to final map approval, the project applicant shall fund the development of a neighborhood traffic calming plan, the City shall consider adoption of the plan, and the applicant shall fund implementation of the plan. The traffic calming plan will address the potential for the ARC Project to increase peak hour traffic volumes on local streets, including Monarch Lane, Temple Drive, Tulip Lane, Baywood Lane, Whittier Drive, Manzanita Lane, Alegre Way, and Arroyo Avenue. The traffic calming plan will also address the potential for the ARC Project to increase vehicle speeds on collector and minor arterial streets, including Alhambra Drive, Loyola Drive, 2nd Street, 5th Street, East 8th Street, Chiles Road, and Cowell Boulevard. The purpose of the plan will be to minimize, to the extent feasible, the potential for the ARC Project to increase peak hour traffic volumes on local streets and 85th percentile speeds on collector and minor arterial streets, through the use of measures proven in other neighborhoods and jurisdictions to achieve these goals, such as narrow points, neighborhood traffic circles, speed humps, stop signs (where warranted), narrow lane striping, and others. Implementation of a comprehensive traffic calming plan will incentivize traffic to use major routes such as I-80, East Covell Boulevard, Mace Boulevard, and 2nd Street, and avoiding using residential streets as*	SU

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		cut-through routes. *Mace Triangle* *None required.*	
3-72 Increase in Vehicle Miles Traveled (reference Impact 4.14-6).	S	*ARC Project* *3-72(a) Prior to issuance of the first building permit in the first phase of development, the applicant shall develop a TDM program for the entire ARC Project, including any anticipated phasing, and shall submit the TDM program to the City Department of Public Works for review and approval. The TDM program must be designed to achieve the following.* *1. Reduce trips to achieve one and five-tenths (1.5) Average Vehicle Ridership (AVR) in accordance with Davis Municipal Code Section 22.15.060; and* *2. Reduce project-generated VMT such that the project achieves all three VMT significance criteria.* *The Master Owner's Association (MOA) shall be responsible for implementing the TDM Program.* *(a) The MOA shall be responsible for funding and overseeing the delivery of trip reduction/TDM*	SU

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		proposed programs and strategies to achieve the project-generated VMT and AVR objectives, which may include, but are not limited to, the following: *(1) Establishment of carpool, buspool, or vanpool programs;* *(2) Vanpool purchase incentives;* *(3) Cash allowances, passes or other public transit subsidies and purchase incentives;* *(4) Low emission vehicle purchase incentives/subsidies;* *(5) Parking management strategies including limiting parking supply, as may be determined appropriate through subsequent traffic studies for each phase; charging parking fees; unbundling parking costs; and providing parking cash-out programs;* *(6) Full or partial parking subsidies for ridesharing vehicles;* *(7) Preferential parking locations for ridesharing vehicles;* *(8) Computerized commuter rideshare matching service;* *(9) Guaranteed ride-home program for ridesharing;* *(10) Alternative workweek and flex-time*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		schedules; *(11) Telecommuting or work-at-home programs;* *(12) On-site lunch rooms/cafeterias;* *(13) On-site commercial services such as banks, restaurants, groceries, and small retail;* *(14) On-site day care facilities;* *(15) Bicycle programs including bike purchase incentives, storage, maintenance programs, and on-site education program;* *(16) Car share and bike share services;* *(17) Enhancements to Unitrans, Yolobus, or other regional bus service;* *(18) Enhancements to Capitol Corridor or other regional rail service;* *(19) Enhancements to the citywide bicycle network;* *(20) Dedicated employee housing located either on-site or elsewhere in the City of Davis;* *(21) Designation of an on-site transportation coordinator for the project;* *(22) Implement a fair value commuting program where fees charged to single-occupancy vehicle (SOV) commuters (e.g., through parking pricing) are tied*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		to project vehicle trip reduction targets and fee revenue is rebated to non-SOV commuters, or other pricing of vehicle travel and parking; *(23) Support management strategies (e.g., pricing, vehicle occupancy requirements) on roadways or roadway lanes, particularly I-80 over the causeway;* *(24) Contribute to a VMT mitigation bank or exchange to support VMT reductions elsewhere in the City or region; and* *(25) Change the project to increase project trip internalization (e.g., decrease employment uses and/or increase residential uses).* *(b) Single-phase development projects shall achieve project-generated VMT and AVR targets within five (5) years of issuance of any certificate of occupancy. Multi-phased projects shall achieve the project-generated VMT and AVR targets for each phase within three (3) years of the issuance of any certificate of occupancy.* *(c) In conjunction with final map approval, recorded codes, covenants and restrictions*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		(CC&Rs) shall include provisions to guarantee adherence to the TDM objectives and perpetual operation of the TDM program regardless of property ownership, inform all subsequent property owners of the requirements imposed herein, and identify potential consequences of nonperformance. *Each space use agreement (i.e., lease document) shall also include TDM provisions for the site as a means to inform and commit tenants to, and participate in, helping specific applicable developments meet TDM performance requirements.* *(d) Ongoing reporting:* *(1) **Annual TDM Report.** The MOA for the Project shall submit an annual status report on the TDM program to the City Department of Public Works beginning a year after the issuance of any certificate of occupancy and continuing until full project buildout. Data shall be collected in October of each year and the Annual Report submitted by December 31st of each year. The report*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		shall be prepared in the form and format designated by the City, which must either approve or disapprove the program. *i. The TDM performance reports shall focus on the trip reduction incentives offered by the project, their effectiveness, the estimated greenhouse gas (GHG) emissions generated by the project, and the methods by which a continued trajectory towards carbon neutrality in 2040 can be achieved consistent with Mitigation Measure 3-38(a). The report shall:* • *Report the project-generated VMT levels attained;* • *Report the AVR levels attained;* • *Verify the TDM plan incentives that have been offered;* • *Describe the use of those incentives offered by employers;* • *Evaluate why the plan did or did not work to achieve the AVR targets and explain why the revised plan is more likely to achieve the AVR target levels;*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		• *List additional incentives which can be reasonably expected to correct deficiencies;* • *Evaluate the feasibility and effectiveness of trip reduction/TDM program and strategies, as implemented;* • *Estimate the GHG emissions generated by project transportation operations; and* • *Identify off-setting GHG credits to be secured by the project to achieve carbon neutrality.* *ii. The MOA shall develop and implement an annual monitoring program to determine if project-generated VMT and AVR targets are being met. The monitoring program could include employee travel surveys, traffic counts at project site ingress/egress points, and other relevant information.* *iii. If the project-generated VMT and/or AVR targets are not met for any two consecutive years, the applicant or current owner(s) of the site will contribute funding to be*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		determined in a separate study toward the provision of additional or more intensive travel demand management programs, such as enhanced regional transit service to the site, employee shuttles, and other potential measures. *iv. In the event that other TDM objectives are not met as documented in the Annual Monitoring Report submitted by December 31st of each year, the MOA shall:* • *Submit to the City within thirty (30) days of submittal of the annual report, a list of TDM measures that will be implemented to meet the TDM objectives within one hundred eighty (180) days of submittal of annual report. At the end of the one-hundred-eighty-day period, the MOA shall submit a revised performance report to determine compliance with TDM objectives. No further measures will be necessary if the TDM objectives are met.*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Should the TDM objectives not be satisfied by the end of the one-hundred-eighty-day period, the MOA shall pay a TDM penalty fee to the City in an amount determined by resolution of the City Council. Said penalty fee may be used to provide new transit service and/or subsidize existing transit service, construct bicycle facilities, and/or improve street capacity through construction of physical improvements to be selected by the City of Davis from the list of area-wide improvements identified in the City's CIP. *Mace Triangle* *3-72(b) Prior to issuance of a building permit for development within the Mace Triangle Site, each applicant shall develop a TDM program coordinated with, and compliant with, the requirements of the ARC TDM program and any pre-existing TDM programs on the Mace Triangle Site. The program shall be submitted to the City Department of Public Works for review and approval. This includes achievement of the same trip reduction requirements, GHG-reducing transportation*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		strategies, and monitoring and reporting requirements as the ARC, as set forth in Mitigation Measure 3-72(a). This may be satisfied by joining the ARC TDM program as a participating member.	
3-73 Impacts to Emergency Vehicle Access (reference Impact 4.14-7).	LS	*None required.*	N/A
3-74 Impacts associated with Construction Vehicle Traffic (reference Impact 4.14-8).	S	*ARC Project and Mace Triangle* *3-74 Prior to any construction activities for the ARC and Mace Triangle Sites, the project applicant shall prepare a detailed Construction Traffic Control Plan and submit it for review and approval by the City Department of Public Works. The applicant and the City shall consult with Yolo County, Caltrans, Unitrans, Yolobus, and local emergency service providers for their input prior to approving the Plan. The Plan shall ensure that acceptable operating conditions on local roadways and freeway facilities are maintained during construction. At a minimum, the Plan shall include:* • *The number of truck trips, time, and day of street closures;* • *Time of day of arrival and departure of trucks;* • *Limitations on the size and type of trucks, provision of a staging area with a limitation on the number of trucks that can be waiting;*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		• *Provision of a truck circulation pattern that minimizes impacts to existing vehicle traffic during peak traffic flows and maintains safe bicycle circulation;* • *Minimize use of CR 32A by construction truck traffic;* • *Prior to certificate of occupancy or acceptance of any public improvement by the city, the developer shall resurface and/or repair any damage to roadways that occurs as a result of construction traffic;* • *Provision of driveway access plan so that safe vehicular, pedestrian, and bicycle movements are maintained (e.g., steel plates, minimum distances of open trenches, and private vehicle pick up and drop off areas);* • *Maintain safe and efficient access routes for emergency vehicles;* • *Manual traffic control when necessary;* • *Proper advance warning and posted signage concerning street closures; and* • *Provisions for bicycle, pedestrian, and transit access and safety.* *A copy of the Construction Traffic Control Plan shall be submitted to local emergency response agencies and these agencies shall be notified at least 14 days before*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		the commencement of construction that would partially or fully obstruct roadways.	
3-75 Impacts to Pedestrian and Bicycle Facilities (reference Impact 4.14-9).	S	*ARC Project and Mace Triangle* *3-75(a) Prior to issuance of the first certificate of occupancy of the ARC Project, the applicant shall construct the following proposed off-site bicycle and pedestrian facilities to the satisfaction of the Public Works Department, as described in the ARC Project description and shown on the ARC Site plan:* *1) Grade-separated bicycle and pedestrian crossing of Mace Boulevard north of Alhambra Drive* *2) Class I shared-use path on the west side of Mace Boulevard between proposed grade-separated crossing and Harper Junior High School* *3) Pedestrian and landscaping improvements on the access road between the Mace Park-and-Ride and CR 32A* *Responsibility for implementation of this mitigation measure shall be assigned to the ARC Project and Mace Triangle on a fair share basis.* *3-75(b) Prior to issuance of the first certificate of occupancy of the ARC Project, the applicant shall contribute fair*	SU

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		share funding to cover their proportionate cost of the following improvements: *1) Widen CR 32A between CR 105 and the Causeway Bicycle Path Access to meet Yolo County standards for a two-lane arterial (14-foot travel lanes and 6-foot shoulder/on-street bike lanes).* *2) Westbound bicycle crossing improvements at the existing at-grade railroad crossing at CR 32A and CR 105. Potential improvements include a marked bicycle crossing for westbound bicyclists with advanced warning devices for vehicle traffic. These improvements would facilitate westbound bicyclists continuing west onto the shared-use path located between the UPRR mainline and I-80 (e.g., to the west of CR 105). As noted earlier, Yolo County, together with Union Pacific and the City of Davis, are currently evaluating potential modifications to this at-grade crossing to reduce the potential for conflicts with rail operations. Therefore, the ultimate improvements constructed at this crossing should be consistent with the preferred modifications identified in this County-led study.* *3) Eastbound bicycle crossing improvements for bicyclists turning left from CR 32A onto the causeway shared-use path. Potential*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		improvements include the installation of a marked crossing on the east leg of the CR 32A/I-80 WB off-ramp intersection and construction of a two-way path on the north side of CR 32A between the CR 32A/I-80 WB off-ramp intersection and the entrance to the causeway path. *Implementation of these improvements, or a set of improvements of equal effectiveness, would improve bicycle facilities on CR 32A by reducing the potential for bicycle-vehicle conflicts.* *3-75(c) The project applicant shall identify and construct complete streets improvements on the Mace Boulevard corridor, including the following actions:* *1) Prior to approval of the first tentative subdivision map for the ARC Project, the applicant shall fund and complete (in conjunction with City staff) a corridor plan for the Mace Boulevard corridor between Harper Junior High School and Cowell Boulevard.*[12] *At*	

[12] Policy TRANS 2.8 of the *City of Davis General Plan* calls for the preparation of corridor plans for selected corridors throughout the City. The segment of Mace Boulevard referenced in this mitigation measure includes all of corridor #15 (Mace Boulevard – Harper Junior High School to Interstate 80) and portions of corridors #2 (Chiles Road – Drummond Avenue to East City Limit) and #16 (Mace Boulevard – Interstate 80 to South City Limit) as shown in

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		a minimum, the corridor plan shall identify complete streets improvements that achieve the following goals: *a. Provide safe and comfortable access for pedestrian and bicyclists* *b. Minimize the potential for bicycle-vehicle and pedestrian-vehicle conflicts* *c. Provide fast and efficient transit operations* *d. Minimize cut-through traffic on residential roadways* *e. Avoid operating conditions that degrade roadway safety (e.g., off-ramp queue spillback to freeway mainline)* *The corridor plan shall be prepared to the satisfaction of the City of Davis Public Works Department and be approved by the City of Davis City Council. The corridor plan should include a thorough public engagement process to understand the transportation priorities of the surrounding community. This should include an initial hearing before the Planning Commission*	

Map 5 of the *General Plan* Circulation Element. Corridors #2 and #15 do not currently have corridor plans. Corridor #16 south of Cowell Boulevard was recently modified based on prior corridor planning efforts. The segment of Corridor #16 between Cowell Boulevard and Interstate 80 was excluded from those efforts and does not currently have a corridor plan.

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		and the Bicycling, Transportation, and Street Safety Commission (BTSSC) to solicit initial input and a second hearing for review of the draft plan. *2) In conjunction with submittal of a final planned development or tentative map, whichever occurs first, for each ARC Project phase, the MOA for the ARC Project shall submit a focused transportation impact study for the phase under review. This could be the same study as required under Mitigation Measure 3-70(a), but must also include the information set forth in this measure. The study shall document current conditions at the time and identify the anticipated transportation system effects associated with the development proposed for the phase under review and the necessary transportation system improvements to ameliorate these effects in accordance with the methods and significance thresholds used in this transportation impact analysis. Improvements should be consistent with the complete streets goals and improvements identified in the Mace Boulevard Corridor Plan to be funded and completed by the applicant as described above. The study shall also address the degree to which improvements would address any significant*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		impacts caused by the ARC Project at buildout as identified in the Transportation Impact Analysis prepared for the ARC Project by Fehr & Peers (2020). Potential improvements include, but are not limited to, the following: *a. Improvements to on- and off-street bicycle facilities on Mace Boulevard and connecting roadways, including Covell Boulevard, Alhambra Drive, 2nd Street, CR 32A, and Chiles Road.* *b. Improvements to bicycle and pedestrian crossings at the following intersections:* *i. Mace Boulevard/Alhambra Drive;* *ii. Mace Boulevard/2nd Street/CR 32A;* *iii. Mace Boulevard/I-80 WB Ramps;* *iv. Mace Boulevard/I-80 EB Ramps; and* *v. Mace Boulevard/Chiles Road.* *Crossing improvements shall reduce the potential for bicycle-vehicle and pedestrian-vehicle conflicts and provide for safe and comfortable access for pedestrians and bicyclists. Potential crossing improvements include, but are not limited to bike lane conflict markings, intersection crossing markings, reductions to crossing distances, and physically separating bicyclists from*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		vehicles (e.g., conversion to a protected intersection). Additionally, crossing improvements shall include the modification of existing channelized right-turn lanes to either a) remove and replace the lanes with standard right-turn lanes, or b) retrofit the lanes to reduce vehicles speeds and increase yield compliance rates. *Improvements identified in the focused transportation impact study should achieve the following performance measures:* *a. Reduce the number and/or severity of bicycle-vehicle and pedestrian-vehicle conflict points at intersections and intersection approaches.* *b. Eliminate otherwise anticipated increases in transit travel times and/or adverse changes to transit on-time performance that would be caused by the ARC Project in accordance with standards established by Unitrans, Yolobus, and other potential future transit operators.* *c. Eliminate otherwise anticipated adverse effects to emergency vehicle response times that would be caused by the ARC Project in accordance with standards established by the City of Davis Fire and Police Departments.* *d. Eliminate otherwise anticipated increases in cut-through traffic on residential roadways that would be caused by the ARC Project.*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		e. Eliminate otherwise anticipated vehicle queuing that would be caused by the ARC Project that would adversely affect roadway safety, including off-ramp queue spillbacks to the freeway mainline, queue spillbacks that block bicycle and/or pedestrian facilities, and queue spillbacks that exceed available turn pocket storage and block adjacent through travel lanes. *The focused transportation impact study should also identify the funding and implementing responsibilities for each improvement, including whether the improvement should be constructed by the applicant or if the applicant should contribute fair share funding to cover their proportionate cost for the improvements. The applicant shall construct the improvement and/or contribute fair share funding prior to the issuance of the first certificate of occupancy for each project phase under review.*	
3-76 Impacts to Transit Services (reference Impact 4.14-10).	S	*ARC Project and Mace Triangle* *3-76(a) Prior to the issuance of the first certificate of occupancy of the first ARC Project phase, the project applicant shall fund and construct new bus stops with turnouts on both sides of Mace Boulevard at the new primary project access point at Alhambra Drive. The project applicant shall prepare design plans, to be reviewed and approved by the City Public Works Department, and*	SU

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		construct bus stops with shelters, paved pedestrian waiting areas, lighting, real time transit information signage, and pedestrian connections between the new bus stops and all buildings on the ARC Site. Responsibility for implementation of this mitigation measure shall be assigned to the ARC Project and Mace Triangle on a fair share basis. Upon completion of the ARC Project transit plaza, in consultation with Unitrans and Yolobus, the bus stops shall be moved to the ARC transit plaza at the expense of the ARC Project applicant. *3-76(b) Implement Mitigation Measure 3-75(c).*	
3-77 Conflict, or create an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to transportation/traffic (reference Impact 4.14-9).	LS	*None required.*	N/A
Utilities (reference Section 4.15 of the Certified Final EIR)			
3-78 Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality	LS	*None required.*	N/A

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
	Control Board (reference Impact 4.15-1).			
3-79	**Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed (reference Impact 4.15-2).**	LS	*None required.*	N/A
3-80	**Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments (reference Impact 4.15-3).**	S	*ARC Project* *3-80(a) Prior to approval of improvement plans for Phase 2 of development, and all subsequent phases, the applicant shall provide funding for the City to perform a WWTP analysis to identify the then-current City of Davis WWTP BOD loading capacity. If the WWTP analysis determines that adequate BOD loading capacity exists at the WWTP to serve the ARC Project phase under review, further action is not required for the phase under review. If the analysis finds that the WWTP BOD loading capacity is not sufficient to serve the particular development phase under review, that phase of development shall not be approved until a plan for financing and constructing additional BOD loading capacity improvements has been prepared and approved, the additional BOD loading capacity improvements have been constructed, and the City Engineer has verified that sufficient capacity exists to serve said phase.*	LS

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		3-80(b) *The applicant shall provide for annual wet-weather monitoring of the existing off-site 42-inch or 21-inch sanitary sewer line, depending upon which off-site sewer alignment is chosen for the project, over the course of project buildout to confirm that there is capacity within the line to serve the ARC Project, in combination with existing and future projected General Plan buildout. If the wet weather monitoring fails to confirm capacity within the chosen existing sanitary sewer line, the applicant shall either upsize the existing sewer line, subject to reimbursement, or install a parallel line, subject to review and approval by the City Engineer.* *3-80(c)* *If the applicant pursues a connection to the existing 8-inch sewer line in Mace Boulevard to serve Phase 1 of the ARC Project, then prior to approval of Improvement Plans for Phase 1, the applicant shall prepare and submit to the Davis Public Works Department, a sewer study, which shall determine the available capacity in the 8-inch sewer pipe in Mace Boulevard. If the 8-inch line has adequate capacity for Phase 1 of the ARC Project, then no further mitigation is needed. If the sewer study determines that the 8-inch line does not have adequate capacity to serve Phase 1, then the applicant shall upsize the sewer pipe within Mace Boulevard, or pursue construction of the northerly or easterly off-site sewer pipe connection alternative. The design of the sewer pipe*	

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		improvements shall be reviewed and approved by the City Engineer prior to approval of Phase 1 Improvement Plans. *Mace Triangle* *None required.*	
3-81 Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs or fail to comply with federal, State, and local statutes and regulations related to solid waste (reference Impact 4.15-4).	LS	*None required.*	N/A
3-82 Gas and electric facilities (reference Impact 4.15-5).	LS	*None required.*	N/A
3-83 Adequate telecommunication facilities (reference Impact 4.15-6).	LS	*None required.*	N/A
3-84 Conflict, or create an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or	LS	*None required.*	N/A

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
	mitigation environmental effects related to utilities (reference Impact 4.15-7).			
	Cumulative Impacts (reference Chapter 5)			
3-85	**Cumulative impacts related to long-term changes in visual character of the region (reference Impact 5-1).**	CC	*None available.*	SU
3-86	**Cumulative impacts related to the creation of new sources of light or glare associated with development of the proposed project in combination with future buildout in the City of Davis (reference Impact 5-2).**	CC	*ARC Project and Mace Triangle* *3-86 Implement Mitigation Measure 3-3.*	LCC
3-87	**Impacts related to cumulative loss of agricultural land (reference Impact 5-3).**	CC	*ARC Project and Mace Triangle* *3-87 Implement Mitigation Measures 3-5(a) and (b), and 3-7(b).*	SU
3-88	**A cumulatively considerable net increase of any criteria pollutant (reference Impact 5-4).**	CC	*ARC Project and Mace Triangle* *3-88 Implement Mitigation Measure 3-11.*	SU
3-89	**Cumulative loss of habitat in the City of Davis area for special-status species**	CC	*ARC Project and Mace Triangle* *3-89 Implement Mitigation Measures 3-16, 3-17, 3-18, 3-19,*	LCC

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
	(reference Impact 5-5).		*3-20(a-c), and 3-21.*	
3-90	**Cumulative impacts to movement corridors in the City of Davis area (reference Impact 5-6).**	LCC	*None required.*	N/A
3-91	**Cumulative loss of cultural resources (reference Impact 5-7).**	CC	*ARC Project* *3-91(a) Implement Mitigation Measures 3-28(a) and (b).* *ARC Project and Mace Triangle* *3-91(b) Implement Mitigation Measure 3-28(c).*	LCC
3-92	**Cumulative increase in the potential for geological related impacts and hazards (reference Impact 5-8).**	LCC	*None required.*	N/A
3-93	**Cumulative impacts related to greenhouse gas (GHG) emissions and global climate change (reference Impact 5-9).**	CC	*ARC Project* *3-93(a) Implement Mitigation Measure 3-11, 3-38(a), and 3-72(a) and (b).* *Mace Triangle* *3-93(b) Implement Mitigation Measure 3-38(b).*	SU
3-94	**Cumulative impacts related to energy (reference Impact 5-10).**	LCC	*None required.*	N/A

LS = *Less than Significant*; S = *Significant*; SU = *Significant and Unavoidable;* LCC = *Less than Cumulatively Considerable*; CC = *Cumulatively Considerable*; N/A = *Not Applicable*

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
3-95	**Increase in the number of people who could be exposed to potential hazards or hazardous materials and an increase in the transport, storage, and use of hazardous materials due to development of the proposed project in combination with future buildout in the City of Davis (reference Impact 5-11).**	LCC	*None required.*	N/A
3-96	**Cumulative impacts associated with increases in volume runoff and effects to on- and off-site flooding within the City of Davis planning area (reference Impact 5-12).**	CC	*ARC Project and Mace Triangle* *3-96 Implement Mitigation Measures 3-47(a) through 3-47(c).*	LCC
3-97	**Cumulative impacts to water quality within the City of Davis (reference Impact 5-13).**	LCC	*None required.*	N/A
3-98	**Cumulative land use incompatibilities (reference Impact 5-14).**	LCC	*None required.*	N/A
3-99	**Cumulative urban decay (reference Impact 5-15).**	CC	*ARC Project* *3-99 Implement Mitigation Measures 3-54(a) and 3-54(b).*	LCC

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Mace Triangle *None required.*	
3-100 Cumulative impacts on noise-sensitive receptors (reference Impact 5-16).	LCC	*None required.*	N/A
3-101 Cumulative population and housing impacts (reference Impact 5-18).	LCC	*None required.*	N/A
3-102 Cumulative impacts to fire protection services from the proposed project in combination with future developments in the City of Davis (reference Impact 5-19).	CC	*ARC Project and Mace Triangle* *3-102 Prior to issuance of building permits for each phase of development, the project applicant shall contribute the project's fair share funding towards one of the following mitigation options, as determined by the City of Davis Department of Community Development and Sustainability and Davis Fire Department:* *1. Construct a fourth fire station within the City of Davis.* *2. Modify existing Davis fire facilities, which may include renovation of existing fire stations.* *Once the mitigation option is selected, the identified improvement project(s) shall be included in the City's Capital Improvement Program and the City's Fire Impact Fee updated accordingly. In addition, each improvement project shall be subject to its own*	SU

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		environmental review process, unless the improvement can be determined by the City to be exempt from CEQA.	
3-103 Cumulative impacts to public services and recreation from the proposed project in combination with existing and future developments in the City of Davis (reference Impact 5-20).	LCC	*None required.*	N/A
3-104 Conflict with a program, plan, ordinance or policy addressing the circulation system under Cumulative Plus Project conditions (reference Impacts 5-21 and 5-22).	CC	*ARC Project and Mace Triangle* *3-104(a) Implement Mitigation Measure 3-70(a).* *3-104(b) Implement Mitigation Measure 3-70(b).* *3-104(c) Implement Mitigation Measure 3-70(c).*	SU
3-105 Cumulative Increase in Vehicle Miles Traveled (reference Impact 4.14-6).	CC	*ARC Project* *3-105(a) Implement Mitigation Measure 3-72(a).* *Mace Triangle* *3-105(b) Implement Mitigation Measure 3-72(b).*	SU
3-106 Cumulative impacts to pedestrian, bicycle, and transit facilities.	CC	*3-106 Implement Mitigation Measures 3-75(a) thru (c) and 3-76(a) and (b).*	SU

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
3-107 Cumulative water system impacts (reference Impact 5-27).	LCC	*None required.*	N/A
3-108 Cumulative wastewater treatment and collection system impact (reference Impact 5-28).	CC	*ARC Project* *3-108 Implement Mitigation Measures 3-80(a) through (c).* *Mace Triangle* *None Required.*	LCC
3-109 The project may contribute to cumulative impacts on utilities, including solid waste, natural gas, electric, and telecommunications (reference Impact 5-29).	LCC	*None required.*	N/A

3. AGGIE RESEARCH CAMPUS ANALYSIS

3 AGGIE RESEARCH CAMPUS ANALYSIS

3.1 INTRODUCTION

The Aggie Research Campus Analysis chapter of the SEIR includes a detailed description of the Aggie Research Campus Project (ARC Project), and subsequently, an equal-weight analysis of the potential environmental impacts that may result from implementation of the ARC Project.

3.2 PROJECT SETTING AND SURROUNDING USES

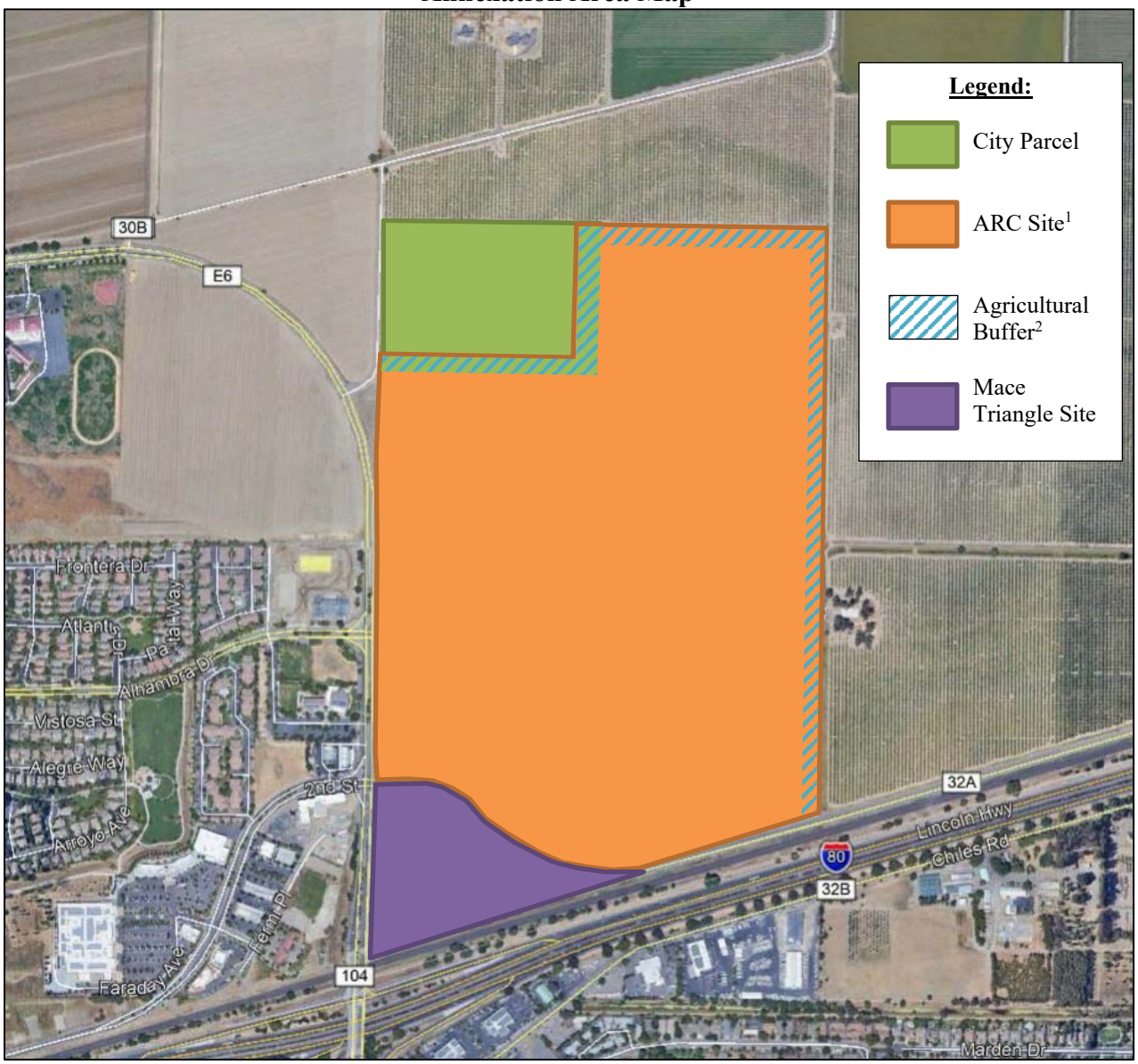
The proposed annexation area includes the 187-acre privately-owned ARC Site, the 25-acre City parcel ("City Parcel"), and the 16.5-acre Mace Triangle Site ("Mace Triangle Site"), which are collectively the 228.5 acres proposed for annexation (the "Project Site") (see Figure 3-1). For CEQA purposes, the "ARC Site" is comprised of approximately 194 acres, and defined as the 187-acre, privately-owned property containing the Aggie Research Campus development footprint, and a proposed 6.8-acre easement on the City Parcel to satisfy the City's 150-foot Agricultural Buffer requirements along a portion of the project's northern boundary.[1]

The annexation area is located immediately east of the City of Davis city limits, near the "Mace Curve", in unincorporated Yolo County, approximately 2.5 miles east of Downtown Davis. Regional access to the Project Site is provided by the Interstate 80 (I-80)/Mace Boulevard interchange, located southwest of the Project Site. Mace Boulevard makes up the majority of the western boundary of the overall Project Site. The City Parcel abuts County Road (CR) 30B. The ARC Site and the Mace Triangle Site are bisected by CR 32A, which becomes 2nd Street, west of Mace Boulevard.

The ARC Site is identified by Assessor's Parcel Numbers (APNs) 033-630-009 and 033-650-009, and a portion of the 25-acre City Parcel, identified by APN 033-650-026. The Mace Triangle Site is identified by APNs 033-630-006; -011; and -012. The ARC Site has been historically used for agricultural operations, including but not limited to row crops. The ARC Site was most recently planted with sunflowers and the City Parcel has been dry farmed. Tall, dense, and dry weed grasses occur along the perimeter of the sites and along a City drainage ditch, known as the Mace Drainage Channel (MDC), which runs west-to-east through the central portion of the ARC Site. A detention basin is located south of the MDC, in the east-central portion of the ARC Site. An irrigation well, pad-mounted electrical transformer, and associated pump equipment exist in the southwestern corner of this portion of the ARC Site.

[1] Applicant has proposed to use 6.8 acres of the 25-acre City Parcel, but the City has not agreed to transfer any rights over this property at this time. If the project is approved by City Council, the City will negotiate with applicant regarding use of the site.

Figure 3-1
Annexation Area Map



[1] *The ARC Site, as depicted above, and described on the preceding page, includes the 187-acre privately-owned Aggie Research Campus development footprint, as well as a 6.8-acre easement on the City Parcel to satisfy the City's 150-foot Agricultural Buffer requirements.*

[2] *The Agricultural Buffer area represented in the figure includes a total of 22.6 acres. Of the 22.6 acres, 15.8 acres are located within the privately-owned property containing the ARC development footprint and an additional 6.8 acres of easement area is located within the City Parcel. All 22.6 acres are considered to be part of the ARC Site for the purposes of this analysis. The figure is intended for illustrative uses and is not meant to represent the exact extent or area of the Agricultural Buffer areas.*

The 16.5-acre Mace Triangle Site consists of three parcels located east of Mace Boulevard and south of CR 32A. The northernmost parcel, APN 033-630-011, is partially developed with an Ikeda's Market and a gravel parking lot. The southwestern parcel, APN 033-630-006, is developed with a City-owned water tank and a Park-and-Ride lot. The third and easternmost parcel, APN 033-630-012, is undeveloped but disturbed as a result of ongoing agricultural operations. Vehicular access is provided to the Mace Triangle Site by two driveways from CR 32A: one for Ikeda's Market and one for the Park-and-Ride lot.

Surrounding Land Uses

Immediately west of the ARC Site, on the opposite side of Mace Boulevard, are an existing ARCO gas station and car wash with an AM/PM, the University Covenant Church, and office uses that are under construction, north of Alhambra Drive. Directly west of Mace Triangle is the newly constructed Residence Inn. The ARC Site is surrounded to the north and east by a 360-acre agricultural easement property, which is planted with almond trees. The City-owned Howat Ranch property, totaling approximately 774 acres, is located immediately east of the 360-acre easement and stretches from CR 105 to the causeway. The Mace Triangle Site, Union Pacific Railroad (UPRR) tracks, and I-80 are located to the south of the project site.

The 25-acre City-owned City Parcel is located to the northwest of the ARC Site, contiguous with the site boundaries. The 25-acre property is bordered by CR 30B to the west, the ARC Site to the south and east, and the agricultural easement property to the north.

The nearest residential area consists of the Alhambra and Seville Apartments, located approximately 725 feet west of the project site, on the opposite side of Mace Boulevard. In addition, a single-family residential community is located approximately 1,100 feet west of the project site, opposite and adjacent to the Apartments. Frances Harper Junior High School is located approximately 0.28 miles west of the project site; and the Fred T. Korematsu Elementary School & Garden at Mace Ranch is located approximately 0.75-mile west of the project site.

The Mace Triangle Site is located immediately south of the project site and north of the UPRR tracks and I-80. Mace Boulevard forms the western boundary of the Mace Triangle Site and the curve of CR 32A makes up the eastern boundary. Directly to the west, across Mace Boulevard, is a newly completed hotel (Residence Inn Marriott), and existing commercial development located within the Mace Ranch Planned Development (PD 4-88).

3.3 ARC Project Description

The "Aggie Research Campus" is now the proposed project. Thus, the following section provides an equivalent level of detail as the description of the originally proposed Mace Ranch Innovation Center (MRIC) Project contained in Chapter 3 of the Certified Final EIR. As a general summary, the ARC Project, which is one part of the overall Project analyzed in this SEIR, is substantially

similar to the Mixed-Use Alternative previously analyzed in Chapter 8 of the Certified Final EIR[2]; it includes the same non-residential land uses and square footage, and also includes 850 residential units, intended to support the innovation center's employee-generated demand for housing, consistent with what was analyzed in the Mixed-Use Alternative. The differences between the originally evaluated Mixed-Use Alternative and the ARC Project are described in detail in Chapter 1 of this SEIR, and among other things, include a reduced development footprint, due to the exclusion of the City Parcel in the northwestern corner from the proposed development area. As discussed in Section 3.4 of this chapter, the City-owned 25-acre property is still included in the proposed annexation area, and thus part of the overall Project analyzed herein. Additionally, 6.8 acres along the periphery of the City 25-acre parcel is intended to serve as a portion of the project's Agricultural Buffer. However, the City Parcel is no longer proposed for any development or urbanized use, although it would be pre-zoned as Agriculture (City zoning).

On the Mace Triangle Site, the SEIR analysis assumes the same development assumptions identified for the Mace Triangle in the Project Description chapter and technical sections of the Certified Final EIR.[3]

According to Davis Municipal Code Section 40.22.060, the Planned Development (PD) for the ARC Project shall contain basic information, such as land uses proposed for the zone, location of parks and trails, proposed street layout, and a preliminary study of facilities required such as drainage, sewage, and public utilities. The following section describes the PD proposed for the ARC Project, along with a summary of the requested entitlements and project objectives.

Proposed Land Uses

At full build-out, the ARC Project would include approximately 2,654,000 square feet (sf) of innovation center/business uses, of which up to 260,000 sf may be developed with supportive commercial uses. The ARC Project also incorporates up to 850 workforce housing units on-site. The housing would consist of 570 multi-family units within multi-story buildings, as well as 280 units of single-family attached product. The innovation center/business uses would include space for offices, research and development (R&D) uses, laboratories, advance manufacturing, prototyping, limited supportive retail, and a hotel and conference center. The ARC Project PD has identified alternative land uses within an urban framework designed to:

- Deliver office and corporate spaces that are highly flexible and technologically advanced. The spaces would include collaborative spaces, flex spaces, as well as dry and wet labs.

[2] All references to the "Certified Final EIR", unless otherwise noted, refer to "final EIR" as defined in CEQA Guidelines Section 15132. In general, this consists of the Draft EIR, responses to public comments on the Draft EIR, and revisions made to the Draft on account of public comments. Davis City Council certified the Final EIR on September 19, 2017.

[3] The City's water tank Park-and-Ride property would be designated Public-Semi-Public to allow for the continuation of existing uses. New uses on the City property are not proposed. The Ikeda's parcel and other agricultural parcel would be designated General Commercial to allow for the continuation or expansion of the existing agricultural retail (Ikeda's Market) and/or for the development of up to 71,056 sf of new commercial uses.

- Develop space for research/incubator start-ups that may be small, independent entrepreneurs or subsidiaries of larger, more established companies in Davis, Sacramento, and/or the Bay Area.
- Include programs that are scientific, technical and research-focused. The programs are anticipated to be University of California, Davis (UC Davis) spin-off research labs and internships.
- Be suitable for private research programs in the fields of agricultural technology, medical/biotechnology, and clean technology.
- Integrate spaces for prototyping and manufacturing with research facilities to allow for greater ease of advanced product development.
- Permit manufacturing facilities on-site to allow for the establishment of "research-to-market" companies.
- Include a variety of workforce housing units, diverse in both size and affordability, designed to meet the needs of the innovation center employees, further spur collaboration and technology start-ups, create a hive of activity with people living and working on-site, and reduce project-related vehicular trips.
- Accommodate corporate travelers and educational conferences.

As shown in Table 3-1 below, approximately 57 percent of the proposed commercial development is identified for office/R&D/laboratory use types, 33 percent is dedicated to advanced manufacturing, and up to 10 percent may be used for support retail uses including a hotel and conference center. The up to 260,000 sf of supportive commercial uses is anticipated to include up to 160,000 sf of hotel/conference center use and up to 100,000 sf of ancillary retail located throughout the ARC Site (see Figure 3-2 through Figure 3-4 and Table 3-1).

The hotel/conference center would be located in the southwestern portion on the project site, near the intersection of Mace Boulevard and 2nd Street. Most of the supportive retail would be on the ground floor of the proposed research/office and the multi-family residential surrounding the Oval park and along the transit plaza area, resulting in vertically integrated mixed-use buildings. However, because the amount of business uses on-site is capped at 2,654,000 sf, the proposed square footage of ancillary retail and research/office/R&D are inversely proportional. For example, if there is less demand for ancillary retail than the allotted 100,000 sf and only 50,000 sf of retail is developed, the square footage of research/office/R&D could increase by 50,000 sf to 1,560,000 sf, thereby filling the available space. This SEIR evaluates a 150 room (160,000 sf.) hotel and up to 100,000 sf of ancillary retail space. If some of this ancillary retail space is ultimately used as research/office/R&D, such uses would be less intensive, and the potential impacts are therefore less impactful and within the scope of the impacts disclosed in this SEIR.

The ancillary retail space within the project area is intended to provide employees, residents, and visitors with basic convenience such as lodging/accommodations, health and fitness space, and convenient coffee and dining opportunities all within walking distance of the ARC Project's primary businesses and workforce housing.

Table 3-1 Summary of Proposed Uses by Type	
ARC Site	
Land Use	**Maximum Size**
Research; Office; R&D	1,510,000 sf
Manufacturing; Research	884,000 sf
Residential (average density 30 du/ac)[1]	850 units
Ancillary Retail	100,000 sf
Hotel/Conference	160,000 sf (150 rooms)
Green Space	49.2 acres[2]
Transit Plaza	0.6 acres
Total Acres	*194 acres*
Total square footage of commercial uses	*2,654,000 sf*
Total number of residential units	*850 units (maximum)*
Mace Triangle	
Land Use	**Size**
Research; Office; R&D	*45,901 sf*
Ancillary Retail	*25,155 sf*
Total Acres	*16.49 acres*
Total square footage	*71,056 sf*

[1] It is important to note that, while the Certified Final EIR included in this table the descriptor of "Multifamily Residential", the Mixed-Use Alternative has always envisioned both single-family attached and multifamily residential products, as can be clearly seen from the conceptual lot layout shown on Figure 8-1 of the Certified Final EIR.

[2] The Green Space total includes the 6.8-acre easement on the City Parcel, which the applicant proposes to use as an agricultural buffer area. The addition of the easement area to the 187-acre privately-owned ARC development site increases the total area of impact to 194 acres; however, the General Plan land use designation and zoning of the easement area would remain Agricultural as part of the proposed project.

Figure 3-2
ARC Project – Site Plan



Figure 3-3
ARC Project– Illustrative Site Plan



Figure 3-4
ARC Project – Aerial View Site Plan



The proposed mix of uses in the ARC Project would provide a campus-like environment in which the project workforce can live, work, and play. The campus model would result in daily interaction between individuals such as IT professionals, research analysts, mechanical engineers, and entrepreneurs, and provide opportunities and synergies for collaboration and innovation both during and after normal business hours.

Permitted and Conditional Uses

As noted previously, the ARC Project would include site-specific zoning through a PD. The purpose of the PD district for the ARC Project is to provide a setting in which leading-edge institutions and local, regional, and international companies can cluster and connect with start-ups, business incubators, and accelerators, as well as UC Davis, to create a productive research and development center. The PD for the ARC Project identifies the following principally permitted uses:

(a) Offices: including administrative, executive, headquarters, medical, coworking, and incubator space.
(b) Laboratories: including but not limited to research, design, analysis, development and/or testing of a product.
(c) Light manufacturing, assembly, or packaging of products, including but not limited to electrical, pharmaceutical, biomed and food products and devices, and associated warehousing and distribution.
(d) Any other technical, research, development, or light manufacturing use determined by the Planning Director to be of the same general character as the permitted uses.
(e) Residential: workforce housing with an average density at or above 30 dwelling units per acre (du/ac). The anticipated density range is between 15 and 50 du/ac, or higher, depending on product type.
(f) Renewable energy generation and storage facilities, not including wind turbines.
(g) Support retail, single users at or less than 25,000 sf, including but not limited to food and beverage, restaurant, dry cleaners, fitness center, or gym.
(h) Lodging or Hotel.
(i) Conference Space.
(j) Agriculture, including open-air or greenhouse cultivation of crop and the tasting and/or sale of any products cultivated or produced on the premises, except the raising of fowl or animals for commercial purposes.
(k) Higher education, including extensions or graduate programs, either public, semipublic, or private.

The following accessory uses would be permitted in the Aggie Research Campus zoning district:

(a) Home occupations, subject to the provisions of Sections 40.01.010 and 40.26.150.
(b) Antenna and telecommunications, including 5G infrastructure.
(c) Child care/day care facility.
(d) Parking garage.
(e) Stand-alone corporate signage.

Proposed conditional uses are as follows:

(a) Support Retail, single users larger than 25,000 sf.
(b) Public and semi-public, including public utility uses necessary and appropriate to the Aggie Research Campus district.

It should be noted that special events that require amplified noise may be allowed on-site in both private and public spaces. Prohibited uses include major retail or highway commercial, heavy manufacturing, exclusive distribution, exclusive warehousing, home occupations that involve product distribution resulting in increased traffic, and surface mining and mineral extraction, including, but not limited to, natural gas extraction.

Conceptual ARC Site Layout by Use Type

The PD submitted for the ARC Project includes an exhibit identifying the anticipated building locations by use type. As indicated in Figure 3-2 above, the PD places advanced manufacturing uses along the northern and eastern periphery of the ARC Site, while the office/R&D/laboratory uses are centrally located along the internal circulation loop and proximate to the transit plaza. Workforce housing would be primarily clustered near the main park feature, the Oval, and along the MDC, proximate to the office/R&D uses and the transit plaza, ensuring it is appropriately buffered from the research/manufacturing uses. The proposed hotel/conference center would be located at the southwestern corner of the ARC Site, northeast of the intersection of Mace Boulevard and 2nd Street. According to Figure 3-2, the layout for the ancillary commercial uses concentrates the uses within the office/R&D and residential buildings located around the Oval park and the transit plaza, within the central and western portions of the ARC Site. A stand-alone commercial use is included within the Oval, which will serve as a point of community gathering and placemaking.

It should be noted that although an anticipated configuration has been proposed for review and approval, the building locations are conceptual and subject to change during the final planned development process, per Municipal Code Section 40.22.090. If the currently requested entitlements are approved, in accordance with the City's PD zone requirements, the project applicant would need to file one or more final planned developments for the ARC Project, which will be subject to discretionary review and approval by the City of Davis, and if necessary, additional environmental review under CEQA. The final planned developments will need to identify site-specific details, such as locations of buildings on the land, including all dimensions necessary to indicate size of structure, setbacks and yard areas; elevations and design details sufficient to determine consistency with Design Guidelines; proposed tentative subdivision map or parcel map; landscaping, fencing, and screening; types and/or areas for commercial uses and other uses to be established by the district; etc.

Notwithstanding the potential for building locations to shift during the final planned development process, the applicant's PD for the ARC Project includes a logical and foreseeable placement of uses and structures, such that a meaningful analysis of the ARC Project can be conducted at this stage of entitlements. Figure 3-2 illustrates a logical layout of uses proposed in the PD with limits

on maximum square footages and/or number of residential units. However, the precise size and location of a building or residential structure may shift or condense as long as the use proposed therein would not result in an exceedance of square footage or maximum number of units permitted for a given use type.

Building Heights

The tallest buildings included in the ARC Project – the housing buildings and hotel – would be a maximum of 85 feet. The office/R&D buildings for the ARC Project would be up to 65 feet tall. The ARC Project advanced manufacturing uses would be limited to a maximum height of 45 feet, although certain features extending to a height of up to 65 feet would be permitted. Taken in context, the ARC Project would generally place the buildings with the greatest height near Mace Boulevard and the existing urbanized area, and then gradually imposes a height reduction as the project moves out toward neighboring agriculturally zoned land.

Floor Area Ratio

The ARC Project would have an overall net floor-area ratio (FAR) of 0.93. Residential densities would range from 15 to 50 du/ac, with an average net density of 30 du/ac. Similar to the building heights, density is concentrated to the west and is reduced along the north and east as the site approaches neighboring agricultural uses.

Parks and Green Space

The ARC Project would incorporate several privately-maintained parks and open space areas throughout the site, totaling approximately 49.2 acres of green space (see Figure 3-5). The park and open space areas would be accessible from all structures and residences and would include greenways, commons, and courtyards. A 150-foot-wide section of buffer land, located along the northern and eastern boundaries of the site, would minimize conflicts with adjacent agricultural activities; otherwise, all parks and open spaces would be for the use of the ARC Project employees, residents, and the public. The greenways and open spaces would be anchored by a 5.1-acre lightly programmed recreational park ("the Oval"), which would be privately maintained but made available for public uses. As shown in Figure 3-5, the Oval is envisioned with a commercial corner or defining feature to solidify the park as a community attraction and provide a place to gather.

The North-South Commons create a pedestrian passage between office/R&D pads where one of the internal roadways ends, and provides a space in which to congregate and provides the visual connection to the agricultural fields to the north. The East-West Greenway consists of three acres and would align and be enhanced by the MDC and would include recreational fields on the east. Private courtyards, plazas, and commons, would comprise an additional approximately 11.5 acres, and would connect people and places and create localized places for employees and residents to gather. Where possible, courtyards would be designed to connect with and be open to the commons, establishing walking links throughout the site, and thereby minimizing the pedestrian interface with vehicular roadways.

Figure 3-5
ARC Project – Open Space Plan



In addition to the three acres of greenways, the project would include a total of 12.7 acres of parks distributed throughout the ARC Site. The largest park areas would be located to the east and west of the greenway, providing a strip of connected green space areas through the center of the site.

Consistent with the City's agricultural buffer requirements (Municipal Code Section 40A.01.050), the minimum 150-foot agricultural buffer/agricultural transition area would be comprised of two components: a 50-foot-wide agricultural transition area located contiguous to a 100-foot-wide agricultural buffer located contiguous to the agricultural area. The following uses are permitted in the publicly accessible 50-foot agricultural transition area: bike paths that encircle the campus and connect to off-site facilities, pedestrian walking trails, community gardens, emphasis on native plants and pollinators, benches, and pedestrian-scale lighting. The 100-foot-wide agricultural buffer would be primarily designed to provide drainage and habitat amenities. It should be noted that 6.8 acres of the agricultural buffer area would be located within an easement on the City Parcel to the northwest of the privately-owned portion of the ARC Site. The remainder of the 25-acre property would remain agricultural.

The agricultural buffer for the ARC Project would include planned and natural spaces, utilized in part for drainage swales, on-site detention, bio swales, visual and noise attenuation, energy generation, and owl habitat, as well as cycling and pedestrian trails. The 22.6-acre agricultural buffer would abut active agricultural operations located along the north and east sides of the site.

The project applicant, in consultation with a biological expert, would build three artificial burrow complexes for burrowing owls within the agricultural buffer along the perimeter of the ARC Site. The burrow complexes would be located within the 150-foot wide agricultural buffer, but not within the drainage swales, or the 50-foot wide agricultural transition area, where bike paths, community gardens, and other potential uses could occur. A burrowing owl site management plan would be prepared consistent with applicable portions of Appendices E and F of the 2012 California Department of Fish and Wildlife (CDFW) Staff Report on Burrowing Owl Mitigation.

In recognition of the fact that burrowing owls require relatively short vegetation with sparse shrubs and taller vegetation and burrows for nesting, the ARC Project will implement the following measures within the external 100-foot buffer area to ensure that the existing and created habitat within this area will be beneficial for burrowing owls:

- Reduce or cluster trees to allow large expanses of grassland within the buffer,
- Implement seasonal mowing, or preferably, stock grazing of grassland areas in the buffer to maintain short grass height preferred by burrowing owls,
- Preserve any California ground squirrels that colonize the buffer grasslands, including their burrows, and
- Establish the three artificial burrow systems currently proposed in the buffer area. The buffer on the north side of the ARC Site, east of CR 104 is a particularly suitable location to establish one or more of the artificial burrows. Nearby, occupied burrowing complexes exist along CR 104, on the Mace Boulevard curve, and along CR 30B.

Circulation Network

The circulation framework for the ARC Project features a modified grid with three primary roadway connections and two secondary connections to the existing bordering roadway system. The primary southern access point would be located along CR 32A, where CR 32A intersects with the existing Park-and-Ride lot access road. The road would provide light-duty vehicular access to the dense office/R&D uses in the southwestern section of the ARC Site, to the transit plaza, and to centrally-located residential units. A secondary southern access point, located at the approximate center of the southern ARC Site boundary, would connect to CR 32A and would be the principal point of entry for transport vehicles and goods movement traffic. Another primary access point would intersect with Mace Boulevard at Alhambra Drive, extending the existing east-west roadway to the transit plaza and into the center of the ARC Site, thereby linking the site to the adjacent neighborhoods. Internal roadways would provide two additional connections to Mace Boulevard, one located north of the Oval (right-in/right-out) and another serving the uses in the northern third of the ARC Site and utilizing CR 30B as a final point of connection.

Transit

The ARC Site is proximate to a Yolobus stop at the Park-and-Ride lot, from which a landscaped pedestrian connection would be improved to the site and the primary north-south pedestrian promenade. In addition, an existing transit stop is located on Mace Boulevard, adjacent to the ARC Site, and a transit plaza would be provided in the center of the ARC Project campus to allow for a centralized transit terminal to accommodate all users and residents with a variety of transit modes.

The transit plaza is anticipated to provide Unitrans bus stops, terminus for a dedicated Aggie Research Campus shuttle that would run between the ARC Site, the Davis Amtrak station, and the UC Davis main campus, and space for other rideshare drop-off/pick-ups. The transit plaza would also accommodate dedicated space for bikeshare and scooter services. Additional transportation demand management strategies which may occur at the transit plaza include a primary drop-off/pick-up area for local shuttles to downtown Davis and the Davis Amtrak station, and other more direct destination shuttles (UC Davis, Sacramento Airport). In addition, to the extent feasible, car-share parking spots and dedicated carpool/vanpool drop-offs would be located at the site to facilitate the use of alternative modes of transportation by both employees and residents at the ARC Site.

Bicycle and Pedestrian Paths

The ARC Project would include on-site bicycle and pedestrian features, implementation of off-site safety improvements, and new connections to existing pedestrian trails systems and regional bike trails. For example, the ARC Project would provide a grade-separated bike/ped crossing of Mace Boulevard, to be located near the MDC alignment, and feeding into the East/West Greenway on the ARC Site. The ARC Project includes a 2.25-mile bike path and adjacent pedestrian trail within the 50-foot transition zone of the agricultural buffer along the northern and eastern site boundary, which would connect to the existing Class II bike lane on CR 32A at the project's southeastern corner. The Class II bike lane on CR 32A provides connectivity to the following: 1) Old Lincoln Highway Class I (separated) bike path along I-80 via the UPRR train tracks at-grade crossing; 2)

Class II (striped) bicycle lanes on CR 32A east of CR 105 and the UPRR crossing; and 3) Class I bicycle path on the Yolo Causeway. In addition, the ARC Project would extend the existing bike lane around the Mace Curve, completing the connection and bringing more employees to the site or children safely to school.

Additional on-site bicycle amenities would be provided, including bicycle parking provided near all entrances to office and multi-family residential buildings, bicycle storage lockers, and bike repair kiosks provided near the transit plaza to facilitate any bike repairs that may be needed by users.

Parking

The parking ratios for the office/commercial components of the ARC Project would be a considerable reduction from the ratios required by the City's Municipal Code. Similarly, at a ratio of 1:0.8, the ARC Project's residential units are proposed to be parked at a standard less than the City average, and in a manner that reflects the walkability of the site and trending shifts in personal transit preferences. The overall parking ratios proposed are shown in Table 3-2 below.

Table 3-2
ARC Project Parking Ratios

Use	Size	Ratio	Parking Spaces Provided
Office/R&D/Ancillary Retail	1,610,000 sf	1/418	3,848
Advanced Manufacturing	884,000 sf	1/707	813
Hotel	150 rooms	1/1.35 rooms	111
Commercial Total			*4,772*
Housing	850 units	1/0.8 units	1,086
Project Total			**5,858**

Sources: Institute of Transportation Engineers, Parking Generation Manual, 5th Edition (2019); Fehr & Peers, 2020.

The ARC Project would include creation of a parking reservoir to allow the allotted 4,772 non-residential parking stalls to be distributed throughout the ARC Site as needed, rather than strict parking ratios being applied at the issuance of each building permit based upon use type. For example, if an advanced manufacturing use is more employee-dense than typical manufacturing and, as such, requires parking for employees at a number that exceeds the 1/707 ratio shown in the table above, the proposed project may accommodate that particular user's need. However, the 4,772-stall maximum allowed capacity within the project's envelope would not increase; therefore, future users may be parked at a level below the allotted ratio. Effectively, the parking envelope allows the proposed project to collectively park the site as is determined necessary during build-out, based upon an evaluation of user needs and transit patterns.

It should be noted that currently, transit service is not provided at the ARC Site. The City anticipates that upon buildout of the ARC Project, local transit providers would agree to provide service to the site, thereby allowing for reduced parking ratios relative to those shown in the table above. However, in order to provide a conservative, worst-case analysis, this SEIR assumes

inclusion of up to 5,858 on-site spaces, in the event that additional transit service is not extended to the ARC Site.

Residential parking within the ARC Site would be provided by new private garages. Multi-family units would have shared parking facilities within the building, identified for exclusive use of residents with assigned stalls, while single-family attached units would have private garages. Some single-family units may include two-car garages, and multi-family uses, particularly micro-units or studios, may be parked at a ratio of 0.5 stalls/1 unit. Shared parking arrangements would be permitted on-site between commercial and residential uses at appropriate locations. The shared corporate and multi-family residential parking areas would result in more efficient use of land, given that demand for business parking is greatest between 8:00 AM and 5:00 PM, five days per week, and residential parking demand peaks between 5:00 PM and 8:00 AM on weekdays and on weekends.

All off-street parking areas would be designed to incorporate shade orchards and solar arrays to the maximum extent feasible. Where possible, permeable surfaces would be utilized to assist in drainage and groundwater recharge. Parking areas may be converted to parking structures over time to accommodate buildout of the allowed densities, but the overall maximum will not exceed the number shown in Table 3-2. On-street parking stalls would not be withdrawn from the parking envelopes available to residential or non-residential uses, as such stalls are primarily intended to accommodate visitors to the ARC Site, rather than employees or residents.

Infrastructure

Infrastructure would be extended from nearby utilities to serve the site with public water, wastewater collection, and storm water detention. The following discussion pertains to the proposed water, wastewater, drainage, and other infrastructure-related improvements. Table 3-3 reflects the applicant's proposal for infrastructure ownership and maintenance. The infrastructure for the Mace Triangle Site is discussed further below.

Water – ARC Project

Domestic water would be supplied by extending the existing 12-inch diameter City water main located along Mace Boulevard. The main would be looped throughout the site to supply potable water to internal businesses and workforce housing. The loop would provide the site's interior-use service connections for the planned office/R&D/industrial, residential, and fire-fighting uses. The improvements required to tie the proposed site loop to the City's existing water infrastructure are anticipated to be at three or four locations on Mace Boulevard. The water improvements could likely be coordinated with proposed surface improvements along the site's western frontage. Alternatively, the project may consider the option of making one of the loop connections to the existing 20-inch main that connects to the booster pumping station at the four-million-gallon (MG) City water tank.

Table 3-3
ARC Site Infrastructure Ownership and Maintenance

No.	Infrastructure Facility	Facility Location	Land Ownership Proposal	Facility Ownership/ Maintenance Proposal	Public Access (Y/N)
1	Street Pavement Between Curbs	Street Corridor	Dedicated Public R/W	Public	Y
2	Median Landscape	Street Corridor	Dedicated Public R/W	Public or Private	Y
3	Parkway Planter Landscape	Street Corridor	Dedicated Public R/W	Public or Private	Y
4	Street Sidewalk and/or Bike Path	Street Corridor	Dedicated Public R/W	Public	Y
5	Bike Path (Non-Street Corridors)	Per Site Plan	Dedicated Public R/W	Public	Y
6	Transit Plaza	Per Site Plan	Private	Private	Y
7	Water Distribution Mainline Piping	Street Corridor	Public R/W	Public	N/A
8		Non-Street Corridor	Private With Easement	Public	N/A
9	Sewer Collection Mainline Piping	Street Corridor	Public R/W	Public	N/A
10		Non-Street Corridor	Private With Easement	Public	N/A
11	Sewer Lift Station	Off-Street	Dedicated Public Lot	Public	N/A
12	Irrigation Well	The Oval	Private	Private	N/A
13	Irrigation Distribution Mainline Piping	Street Corridor	In Public R/W	Private	N/A
14		Non-Street Corridor	Private	Private	N/A
15	Ag Buffer With Green Space + Ponds/Drainage Channel	Site North & East Perimeter	Private/Public Ownership/ Maintenance	Private	Y
16	The Oval	Per Site Plan	Private	Private	Y
17	Other Parks, Green Space, and Open Space	Various, Per Site Plan	Private	Private	Y
18	Onsite Reach of MDC	Through Site	Private With Easement	Public	N/A
19	Offsite Reaches of MDC	East of Site	Private With Easement	Public	N/A
20	Onsite Detention Storage	Adjacent to Channel, Eastern Quadrant	Private With Easement	Private	N/A
21	Storm Drain Pipes/Inlets	Street Corridor and Public Utilities Easement	N/A	Public	N/A
22	Street Lights	Street Corridor	N/A	Public or Private	N/A
23	Internal Areas Lights	Internal Building Areas, Walkways, Parking Lots	Private	Private	N/A

[1] Public access will be restricted in the 100 feet adjacent to neighboring agriculture; the remaining 50 feet will be publicly accessible.
[2] R/W = right-of-way

The project applicant proposes to install a new irrigation well in the west-central portion of the site in order to meet approximately 80 percent of the project's non-potable, irrigation water needs. The well would be located within the proposed Oval park area adjacent to Mace Boulevard. The irrigation well would serve the proposed parks and recreation field areas, as well as other open space areas on-site, using a dedicated irrigation distribution piping system. The well may also be used for irrigating street landscaping within the proposed street corridors on-site, as well as other public common areas. As an alternative to installing a new irrigation well, the project may utilize an existing agricultural well, provided the well proves adequate for the intended use.

The existing water supply infrastructure available to the site does not include a recycled water distribution system nor is a source for this water needed to service the demands of the project. However, in order to conserve water resources, the future landowners and users at the site may desire to utilize recycled water if and when it is made available from the City's Wastewater Treatment Plant (WWTP). In order for recycled water to be provided to the ARC Site, off-site distribution infrastructure would need to be installed from the WWTP to the site. While this off-site distribution infrastructure is not proposed by the applicant, the applicant has proposed to install recycled water/purple pipe infrastructure within the project, with pipe stubs at the property boundaries, in the event that the City, or another entity, constructs this infrastructure at some future date. Should the necessary off-site infrastructure be installed, recycled water from the City's WWTP can be supplied to the site at a future date.

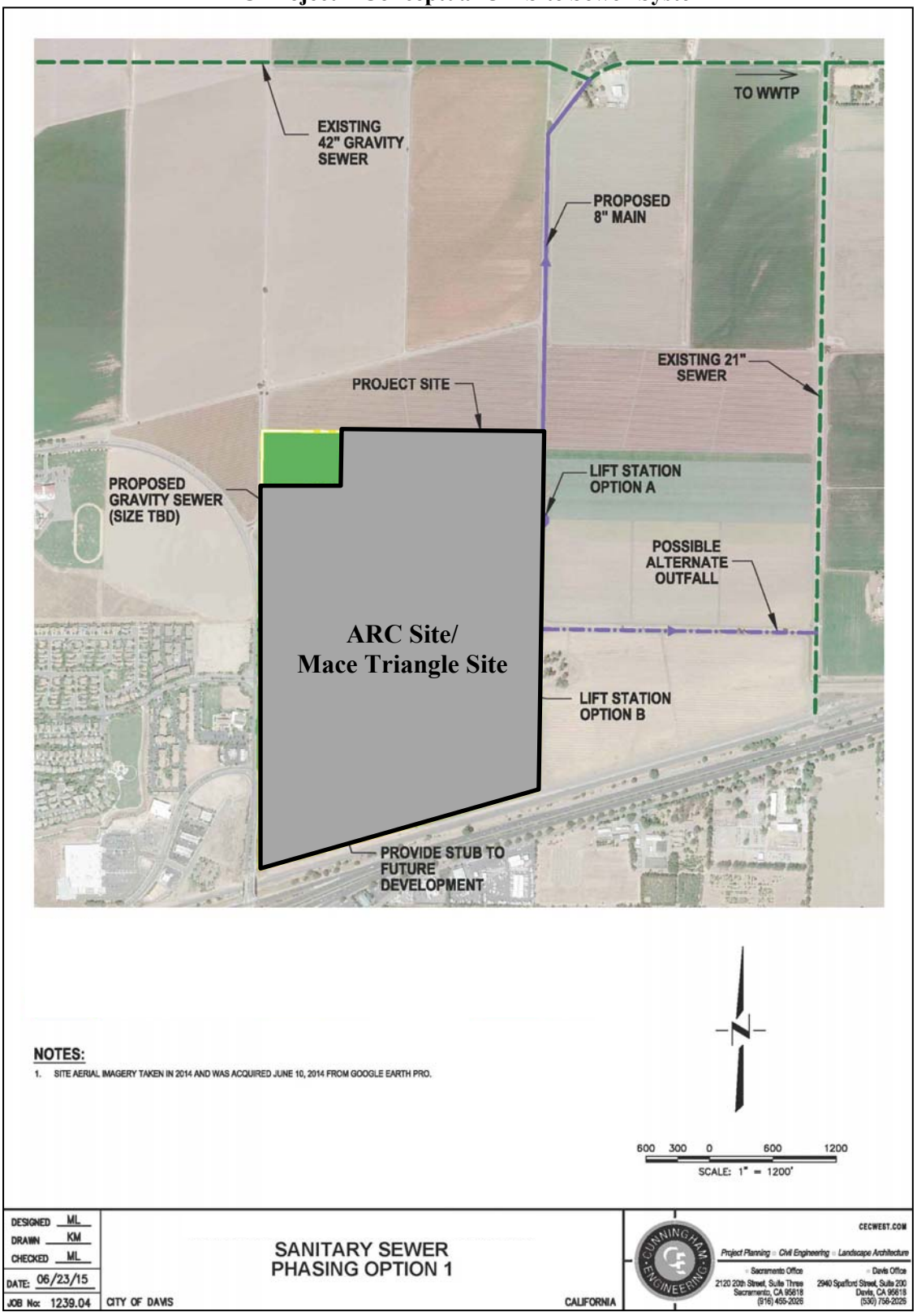
Wastewater – ARC Project

The ARC Project includes installation of a gravity sewer pipe within the internal road rights-of-way. The gravity sewer line would collect wastewater generated on-site and route the wastewater to the northeastern corner of the site. From the northeastern corner, an off-site wastewater delivery pipe would be installed within an existing easement, the alignment of which would run north of the ARC Site, approximately 0.7-mile. Here, the pipe would connect to an existing manhole along CR 30, near an existing rural residence (see Figure 3-6). Wastewater from the ARC Site would then flow east through an existing 42-inch gravity sewer line, along CR 30, to the intersection of CR 30/CR 105, where the pipe extends north along CR 105 to the City's WWTP.

An alternative off-site sewer alignment has also been identified for the ARC Project and is evaluated in this SEIR for potential resultant environmental impacts. The alternative sewer alignment would extend east from the site, along the MDC, within an existing easement, and would connect to the existing 21-inch sewer pipe in CR 105, from which point the project's wastewater would flow north to the City's WWTP.

Prior to installing the new off-site sewer alignment, during the first phase of development, the project includes the ability to tie into the existing sewer main located in Mace Boulevard. The temporary connection to and use of existing sewer infrastructure would require the use of a lift station and a force main to be replaced with the off-site gravity fed sewer line with the implementation of Phase 2.

Figure 3-6
ARC Project – Conceptual Off-Site Sewer System



Drainage – ARC Project

The existing MDC, which transverses the center of the project site, would predominantly remain in place and continue to serve drainage flows from the ARC Project. The ARC Project would enhance the MDC through the project site, adding aesthetic and habitat value. The detention basin located at the eastern ARC Site boundary would be modified in shape and slope to ensure safety and functionality. Both the channel and detention basin are anticipated to be reconfigured to be more attractive and compatible with the ARC Project development.

Internal drainage corridors, and perimeter drainage retention areas, swales, and corridors, including the 150-foot agricultural buffer, providing distributed detention storage and water quality treatment, would be constructed at the ARC Site for purposes of collecting surface drainage, maximizing groundwater recharge, and systematically routing the drainage to the existing, centrally-located drainage channel. Treated storm water would then flow off-site through the existing MDC to the east, where the runoff would eventually enter the Yolo Bypass.

During major storm events, when the Yolo Bypass is flowing at a high level, ponding near the Yolo Bypass levee area currently occurs. The extent and duration of ponding is completely dependent on both local runoff and the water elevation in the Bypass. The ponding occurs on City-owned property and a recorded flood easement already exists. In order to address the projected increase in total volume of runoff during major storm events, additional storage and/or conveyance would be necessary. Two engineering solutions have been identified at this time, which include an off-site replacement storage area or a small pump station.

The preferred location for an off-site replacement storage area is the easternmost parcel owned by the City of Davis, adjacent to the MDC and Yolo Bypass levee. If the off-site replacement storage option is chosen, the topsoil would be removed and stockpiled, the selected area excavated to the design depth, and the topsoil then spread back over the lowered area. The excavated soil would be exported to the existing detention basin located near the eastern boundary of the ARC Site, which would be a maximum distance of approximately two miles away.

If the pumping alternative is chosen, either a permanent pump station facility or a portable pump station of sufficient capacity to mitigate increased runoff would be necessary. The pump intake would be in the channel and convey stormwater over the Bypass levee. If a portable trailer-mounted, self-contained pump is used, it would be stored at the City facilities when not in use, and could be set up for pumping in several hours.

Other – ARC Project

High speed internet capability with bandwidth sufficient to service the technology sector is available for immediate extension to the ARC Site. Existing fiber optics infrastructure within the UPRR right-of-way would be extended to the project site and would proceed in a manner consistent with overall project phasing.

Water – Mace Triangle

Existing water facilities adjacent to the site include a 12-inch City of Davis water main located in Mace Boulevard, and the City's recently constructed four MG Southeast Water Tank and booster pumping station, located on the western side of the site. The pumping station discharges to a 20-inch pipe, which traverses adjacent to the Park-and-Ride lot and connects to existing distribution piping in Mace Boulevard, near the intersection of Mace and 2nd Street.

For preliminary planning purposes, future development of the Mace Triangle Site would include the installation of an internal domestic water system that could be supplied through a connection to the City's existing 12-inch water main on Mace Boulevard or through a connection to the existing 20-inch water line that connects to the booster pumping station at the City's water tank. Alternatively, the Mace Triangle Site could connect to the proposed looped water system, if said system is in place at such time the Mace Triangle properties develop. The actual location for connection to the City's water system will be determined with final design of the Mace Triangle water system.

Sewer – Mace Triangle

The nearest existing City sewer main is an 8-inch line, located in Mace Boulevard, which is unlikely to have capacity to support the ultimate development of the ARC Project, as discussed in the Utilities section of this SEIR. The ARC Project applicant proposes to connect either to the City's existing 42-inch trunk main, located just over a half-mile north of the ARC Site, or to an existing 21-inch main, located approximately one-half mile east of the ARC Site, in CR 105. It is expected that the Mace Triangle would also discharge to the 42-inch main or 21-inch main – doing so via the ARC Project's collection system. If the Mace Triangle develops ahead of the ARC Project, then the developer could possibly connect to the existing 8-inch line within Mace Boulevard.

Drainage – Mace Triangle

Currently, runoff from the Mace Triangle Site flows south or southeast to the existing drainage channel located between CR 32A and the railroad embankment. The collected runoff then flows east along the existing channel that discharges into the MDC east of CR 105 via a storm drain culvert. The existing railroad channel also conveys runoff from an undetermined relatively small drainage area(s) west of Mace Boulevard via a culvert under the Mace Boulevard overcrossing embankment.

Conceptual design criteria and facilities for the Mace Triangle drainage system have been identified as follows:

1. The increased rate of flow as a result of development will be attenuated to mimic existing conditions.
2. Onsite drainage facilities will be some combination of surface and pipe conveyance to a detention basin at the east end of the Mace Triangle.

3. The outfall pipe from the detention basin is sized to restrict outflow to be equal or less than existing conditions.

The detention basin and storm drain facilities would be designed to meet City design standards in place at the time of development. The railroad channel would be maintained to provide adequate conveyance.

Phasing

The ARC Project is anticipated for build-out gradually over the course of approximately 20 to 25 years. The initial development would likely occur along the western edge at Mace Boulevard and the southern portion along CR 32A, as infrastructure will be gradually extended into the ARC Site from the urbanized edges of the site. Once established, subsequent phases are anticipated to fill in the project's central core and then move north and east. The ARC Project development pattern represents a logical sequencing with structures gradually extending from the current urbanized area out toward the City's new urban boundary, although the exact pattern of build-out would be driven by user demand and infrastructure costs. Furthermore, while construction of proposed buildings is anticipated to gradually extend from the urbanized edges of the site, to provide an efficient approach to construction, the ARC Site would likely be graded in two sections, with the first graded section including the 106 southernmost acres of the ARC Site. Following grading of the 106 acres, infrastructure would be placed in the graded area to allow for phased construction of the proposed buildings and uses as discussed below. Following buildout of the southern 106 acres of the ARC Site, the remaining portion of the ARC Site would be graded and buildings would be subsequently constructed in line with the phasing presented below. For purposes of assigning some upfront mitigation measures, the Certified Final EIR discusses site build-out in the context of four phases; that framework is continued within this chapter for the proposed ARC Project.

Phase 1 is anticipated to consist of approximately 45 acres in the western portion of the site and would include 540,000 sf of non-residential building space and up to 270 residential units comprised of attached single- and multi-family housing types. Construction of the residential units would be timed to slightly trail the employment-generating development so that jobs are created on-site prior to offering housing. Housing would be permitted at the ARC Site at a ratio of one unit for every 2,000 sf of non-residential development. Construction of residential units would not be allowed until a minimum of 200,000 sf of employment generating space is developed at the ARC Site. The goal, if possible, is to time the availability of the homes to be concurrent with the creation of the jobs so that the likelihood that employees at the proposed project will occupy the units is maximized, thereby maximizing the environmental benefits of including housing at the ARC Site. The housing is planned to include a variety of mixed-use, rental, and for-sale residential options catering to the needs and demands of future project employees. However, the housing at the ARC Site would not be restricted to employees only but would, consistent with Fair Housing Act requirements, be available to the community at large.

Two access points would be provided for Phase 1: 1) an enlarged intersection at Mace Boulevard and Alhambra Boulevard, and 2) a new southern access point, which would connect to CR 32A, east of the existing Park-and-Ride lot driveway. The two roadways would connect within the ARC Site thereby creating through-site circulation for vehicles and pedestrians alike. In addition, Phase

1 would include the transit plaza which would serve as the focal point of the phase. It is noted that the most concentrated period of heavy truck traffic is anticipated to occur during this phase when excavated soil from the off-site storage pond is transported over to the ARC Site.

Phase 2 is projected to include 700,000 sf of employment generating space, including the proposed hotel/conference center, various research/office/R&D proximate to the Oval park, and additional ancillary retail space. In addition, Phase 2 includes the construction of up to 350 housing units, continuing the direct linkage between the creation of jobs and the construction of homes. The central feature of Phase 2 would be the Oval park, which would be a defining component of the ARC Site located adjacent to Mace Boulevard. This phase would also see commencement of improvements to the East-West Greenway.

Phase 3 would include an additional 700,000 sf of building space, comprised of research/office/R&D and manufacturing/research uses, and the final 230 housing units. Phase 3 completes improvements to the MDC and the campus's core area, and establishment of the North-South Commons. Concurrent with the MDC improvements, Phase 3 finalizes the East/West Greenway and adds a second park along the eastern boundary of the site.

Phase 4 is anticipated to include approximately 714,000 sf of manufacturing/office/R&D uses. All on-site housing would be complete prior to the start of Phase 4. At the completion of Phase 4, the site will include up to 2,654,000 sf of jobs-creating space and up to 850 units of workforce housing.

Planned Development Design Guidelines

Consistent with the City's Site Plan and Architectural Review process, the project applicant will prepare Design Guidelines for the ARC Project at a future date when the applicant seeks Architectural Review approval from the City. The purpose of the Aggie Research Campus Project Design Guidelines will be to provide a comprehensive overview of the design criteria and development standards required to implement the desired physical form of the project and the key features, as identified in the PD for the ARC Project. Generally, the Aggie Research Campus Design Guidelines are anticipated to address and further refine land use, site design, sustainability, architectural character, landscaping, circulation, and parking. Given that most of these topics have been addressed above, the following includes a brief summary of the proposed sustainability features for the ARC Project.

Proposed Sustainability Features

- Develop a strategic mix of employment and residential uses on-site, introduced in phases to maximize utility, to ensure that the project does not detrimentally impact the jobs/housing balance in Davis. The mix of uses will allow employees at the innovation center to live within walking distance of work, thereby minimizing vehicular usage and reducing project-related greenhouse gas (GHG) emissions.
- Provide electrical energy and/or its functional equivalent using renewable generation resources and advanced technologies. On-site energy generation and energy conversion systems, which may include solar photovoltaic production and heat transfer technologies,

shall supply and/or supplant a material portion of the electrical energy requirements of the proposed project.

- Incorporate the use of shading and passive solar techniques to minimize heat gain and the heat island effect. Orient buildings to maximize solar exposure from natural daylight resulting in energy conservation.
- Make use of parking lots, rooftops, drainage features, and other areas deemed appropriate for dual-purposes, for the installation of solar panels to generate energy for on-site uses.
- Include the necessary infrastructure to utilize, to the fullest extent possible, solar panels as a means for energy generation on-site and energy exchange throughout the ARC Site including the potential for on-site energy storage.
- Utilize drought-tolerant plantings and incorporate native species adapted to the local climate. Include stormwater management features such as dispersed detention basins and bio swales. Use the agricultural buffer areas to help enhance the efficacy of these measures, particularly as they relate to protecting and enhancing natural and ecological systems.
- Maximize the use of permeable surfaces to reduce storm water runoff and assist in groundwater recharge.
- Utilize the latest building technology mechanical/electrical systems for energy efficiency, including remote monitoring and setting modification systems, and energy reductions on plug-loads and ventilation systems.
- Make use of building orientation and natural daylight to promote overall energy efficiency across the site.
- Use natural ventilation for buildings when feasible.
- Promote water conservation and reductions, where feasible, including the utilization of smart and/or high-efficiency fixtures and appliances.
- Incorporate a multitude of Transportation Demand Management (TDM) strategies such as carpooling, bus transit, shuttles, car share, and other smart phone technologies to assist in providing transportation options for employees.
- Dedicate drop-off and pick-up zones for buses, dedicated shuttles, and have carpool uses integrated into the proposed project. This includes a specific "Transit Plaza" to help facilitate alternative modes of transportation to and from the ARC Site for employees and residents.
- Support a Transportation Manager who will coordinate transportation options for the site and help to facilitate the use of alternative modes for all workers and residents.
- Install bicycle supportive facilities such as racks, storage lockers, a repair station and showers to encourage and help establish the use of bicycles as a predominant mode of transportation to the site.

Project Objectives

The project applicant has provided the following objectives for the ARC Project:

1. Expeditiously provide a suitable space in which to retain existing local businesses, and to attract and grow innovative high-value added, technology-oriented companies.
2. Provide an integrated, high-quality campus-like environment offering a variety of commercial lot sizes that will respond to the current and future needs of technology start-

ups, industry leaders, research and development, and products manufacturing firms; allowing for a full range of research to market uses.
3. Develop a strategic mix of residential unit types and sizes on-site, including affordable housing, as required by City Ordinance, introduced in phases to coincide with the creation of jobs.
4. Provide sufficient land to meet the demand in Davis for innovation centers over a 25-year time horizon.
5. Utilize land immediately adjacent to the City boundary with adequate and easily-extended infrastructure, including but not limited to fiber optics and the roll-out of 5G providing high-speed internet capable of serving technology-sector needs.
6. Develop a critical mass of users at a given location sufficient to render economically feasible the delivery of infrastructure necessary for development to occur.
7. Contribute to both job creation and tax base enhancement while supporting the University of California, Davis as a research institution.
8. Utilize a site with existing access to I-80 for the convenience and benefit of employees, collaborators, suppliers, and goods movement.
9. Support and build upon the City of Davis's existing successes by offering a logical extension to the 2nd Street technology corridor.
10. Develop an aesthetically pleasing site plan and architectural building design that incorporates energy and water efficiency, provides for non-automotive forms of transit, and is situated to receive and utilize recycled water when available.
11. Create a viable retail component, including hotel and conference center, which will primarily serve the needs of the innovation center, increase retail-related employment opportunities and contribute to tax revenue generation.
12. Encourage recreation and non-automotive modes of transportation by creating trail connections and improvements that enhance and encourage pedestrian/bicycle circulation and connectivity between the ARC Site and surrounding areas.
13. Preserve and protect agriculture through the planning and development of property which will result in a distinct permanent urban edge.
14. Provide a business-oriented site design with a complementary mix of land uses that will encourage user interaction, collaboration, and the exchange of ideas, thereby serving as a catalyst to rapidly achieve economic growth.
15. Reflect the feedback captured through the Innovation Park Task Force's planning, research and outreach, and incorporate as many of the consensus concepts as are feasible.

In addition, the ARC Project would be subject to the same objectives set forth by the City of Davis, which include the following:

City Objectives for Innovation Centers

The City of Davis proposes to achieve the following objectives with a new innovation center. These reflect findings of the 2010 Business Park Land Strategy; Innovation Park Task Force, 2012, Davis Innovation Center Report (Studio 30); adopted 2012 Dispersed Innovation Strategy; the 2014 Davis Innovation Center Request for Expressions of Interest (RFEI) and 2014 Guiding Principles for Davis Innovation Center(s).

1. Land and Building Supply
   a. Position City to capture greater share of local/regional business growth. (Studio 30 report, Sect. 3 pgs. 15-20)

      Most remaining small, dispersed sites in the City are not adequate to meet needs of growing businesses and mid-sized companies. The Innovation Centers studied by Studio 30 for the Davis Innovation Center Report averaged around 200 acres in size and offer a variety of parcel sizes and ownership opportunities, flexible use/size of space and lease terms; and physical and virtual business support services allowing successful businesses to remain as they grow.
   b. Provide expansion capability for the City suitable in location and size for larger innovation centers with potential to accommodate commercial and research facilities. (Studio 30 & RFEI)
   c. Maintain a steady supply of developable land for future business development to meet needs of growing businesses and accommodate medium-scale and large scale (~150 employees) businesses over a long term 20+/- year period. (BPLS)

      A 200 acre innovation center supporting several million sf of development could accommodate such business growth over a long term 20+/- year period (Studio 30 and RFEI).
   d. Provide a mix of building types, sizes and heights meeting needs of new startups and growing mid-sized companies, including potential for headquarter buildings. (RFEI)
   e. Increase the supply of flexible business space. (Studio 30)
   f. Take into account the specific needs of any identified or targeted tenants.

2. Density

   Due to the relative scarcity of developable land in Davis, an innovation center should focus on guidelines to maximize density to accommodate long-term business growth while taking into account the specific needs of identified tenants within the specific project where applicable. The review process must be cautious to not impose unilateral requirements solely for the sake of achieving "density", without consideration of other objectives.

   a. Maximize density to accommodate long-term business growth offering flexible space (scalability) and viable range of space options.
   b. Goal of at least 0.5 floor area ratio (FAR).
   c. Pursue opportunities for densification over time (i.e. parking structures and new buildings).

3. Sustainability
   a. Apply Low Impact Development Principles.
   b. Ensure minimal GHG impacts at the project level.
   c. Allow flexibility and adaptation over the project lifespan and as new building techniques and energy production technologies emerge, explore opportunities to bolster the goals of the Climate Adaptation & Action Plan. (CAAP)
   d. Comply with the minimum City requirement of the CalGreen Tier 1 energy code for buildings.
   e. Mitigate with agricultural land on a 2 to 1 acre basis.

f. Budgetary impacts of any proposed City maintenance areas will be carefully evaluated in the fiscal analysis.
g. Utilize energy and resource efficient design, materials, operations and infrastructure.
h. Integrate open space and habitat opportunities.
i. Maximize the use of trees and native landscaping.

4. Transportation
   a. Establish bicycle/pedestrian connectivity.
   b. Develop partnerships with the City, UC Davis Unitrans, Yolo County Transit and Amtrak.
   c. Create a comprehensive multi-modal system and transportation plan with safe, dynamic, well-planned automobile, bicycle, pedestrian, mass transit and emergency vehicle access connections.

5. Work Environment
   a. Provide facilities and services that support innovation. (Studio 30)
      i. Provide a built environment and operations offering the ability to draw a critical mass of innovators and creative synergy enabling opportunities for ongoing formal and informal interdisciplinary connections.
      ii. Provide a flexible range of desired work environments, small co-working, incubator/accelerator spaces, specialized maker-spaces, meeting/conference rooms, research and development, manufacturing facilities, larger companies and corporate headquarters.
      iii. Include elements of "work, live, play" that encourage an engaged and inviting workplace, including ancillary amenities and activities that serve employees such as mixed use, cafés, coffee shop, restaurant, copy shop, recreation, fitness center, child care (as a few examples). (Studio 30)
      iv. Provide shared business support services and “cutting edge” business center amenities (teleconferencing etc.) including broadband fiber connectivity.
      v. Provide design elements that include dual use spaces, and shared facilities such as recreation, meeting, and gathering spaces (like amphitheater seating) that serve business needs during the weekdays and community needs during the evening and weekends.
   b. Accommodate a range of lease and ownership options reflecting an array of formal and informal work styles and settings.
   c. Use building designs incorporating LEED standards for healthy work environments (daylight, fresh air, good indoor air quality).

6. Uses
   a. Support research and development; manufacturing facilities, larger companies and corporate headquarters.
   b. Focus largely on expansion needs of research and technology development and creation of research, technology and advanced manufacturing jobs, and revenue generating uses.
   c. Provide a mix of professional office, high-tech, R&D, industrial flex space, grow labs, commercial services.

d. Provide some ancillary project-serving retail and services.
e. Target hotel/conference spaces to serve the business needs of the innovation center over time.
f. Allow warehouse uses auxiliary only to research and manufacturing.
g. Discourage distribution centers, call centers or large-scale food processing plants.
h. Minimize and carefully manage heavy truck deliveries.

7. Timing and Project Phasing
   a. Demonstrate sufficient resources to ensure completion of the project.
   b. Phasing should meet with anticipated market demand for space and be adaptable to respond to changing market conditions over time.
   c. Building density, project phasing, and total job creation must consider community growth and CEQA mitigations.
   d. Phasing needs to be responsive to actual and potential tenants.

8. Fiscal Consideration and Net Community Benefit
   a. Achieve fiscal neutrality with regard to City services.
   b. Provide substantial surplus annual revenue.
   c. Provide positive economic impacts/multipliers citywide, and net community benefits (including social and environmental).

9. Partnerships
   a. Facilitate technology and business development.
   b. Facilitate collaborative partnerships.
   c. Provide opportunities for increased university and research engagement.
   d. Increase access to STEAM (science, technology, engineering, arts and agriculture, and math) and educational opportunities.

Mace Triangle Site Objectives

1. Avoid becoming an unincorporated island.
2. Avoid becoming an agricultural island.
3. Create opportunity to expand existing agricultural retail business.
4. Complement existing and future urban uses.
5. Allow for efficient master planning of infrastructure and services.

Detailed discussions of impacts to each environmental resource area as a result of buildout of the site per the ARC Project are presented below.

3.4 REQUIRED PUBLIC APPROVALS

The following entitlements are required for the proposed project.

Lead Agency Approvals – – City of Davis

1. General Plan Amendment to create a new City of Davis land use designation of Innovation Center (included below), relocate the Urban Agricultural Transition Area along the eastern boundary of the ARC Site, and assign City land use designations to the ARC Site and the 25-acre City Parcel, as follows (see Figure 3-7):
    i. ARC Site + City Parcel: Agriculture (City Parcel), new Innovation Center designation (171.2 acres), and Urban Agricultural Transition Area (15.8 acres); and
    ii. Mace Triangle Site: General Commercial and Public/Semi-Public.

2. Prezoning to determine the zoning in the event of subsequent annexation (Zoning Code, §40.34.010) as follows (see Figure 3-8):
    i. ARC Site + City Parcel: from County Agricultural-Intensive (A-N) to City Aggie Research Campus Planned Development (PD) (187 acres) and Agriculture (City Parcel); and
    ii. Mace Triangle Site: from County A-N and Agricultural Commercial (A-C) to City Mace Triangle PD.

3. Development Agreement for the proposed ARC Project in order to provide certainty and mutual assurances between the City and the project applicant (Government Code, §65864 et seq.).

4. Action by the City Council to set the baseline features of the project and call for an election (Zoning Code, §41.01.020).

Responsible Agency[4] Approvals – Yolo Local Agency Formation Commission (LAFCo)

The proposed project would require the following approvals from Yolo LAFCo as part of the requested annexation:

1. Combined Municipal Service Review (MSR) and Sphere of Influence (SOI) Amendment in order to bring the 229-acre project site, including the Mace Triangle Site, within the City of Davis's SOI (Government Code, §56428).
2. Annexation of the entire 229-acre project site, including the Mace Triangle Site (comprised of APNs 033-630-006, -009, -011, -012, 033-650-009, and -026), into the City of Davis (Government Code, §56737) (see Figure 3-9).
3. Detachment of the entire 229-acre project site, including the Mace Triangle Site, from the East Davis County Fire Protection District.

[4] Per CEQA Guidelines Section 15381, a "Responsible Agency" means a public agency which proposes to carry out or approve a project, for which a lead agency is preparing or has prepared an EIR. For the purposes of CEQA, the term "responsible agency" includes all public agencies other than the lead agency which have discretionary approval power over the project.

Other Agency Approvals and Permits

The proposed project will not require additional agency approvals and permits until such time that the project applicant(s) receive approval of additional discretionary entitlements from the City of Davis, thereby enabling on-site construction. At this later stage, subsequent to City of Davis approval of a final planned development and tentative subdivision map(s), the following agency approvals and permits would likely be required for the project:

1. Central Valley Regional Water Quality Control Board – Stormwater Pollution Prevention Plan (SWPPP) approval prior to construction activities.
2. Yolo-Solano Air Quality Management District – Approval of permit(s) to operate for stationary sources, as may be required by the District.
3. Yolo County – Potential approval of a surface mining permit, reclamation plan, and financial assurances in accordance with the Yolo County Agricultural Surface Mining and Reclamation Ordinance of Yolo County (Title 10, Chapter 5 of County Code), depending upon whether the off-site storage pond is constructed, and if the storage pond excavation is not considered exempt under County Code.
4. Caltrans – Issuance of an encroachment permit for any work or traffic control that would encroach onto the State right-of-way.

Proposed Innovation Center General Plan Land Use Designation

Intent: To provide sites for an array of technology companies conducting research and development activities, such as product development, engineering, sales and administration, as well as ancillary light manufacturing and wholesale uses, and to provide adjacent housing and supportive uses to serve the housing needs of center employees. It is the desire of the City of Davis to advance technology sector employment activities, and provide adequate space in which to allow for the growth and evolution of such companies so as to respond to advancements in technology, changing market demands and to capitalize on new opportunities. It is the intent to holistically design these innovation center spaces to encourage interaction and crosspollination between individuals and companies, emphasizing the concept of "live, work, play." It is also the intent of the City of Davis to foster collaboration and the transfer of technology between University of California, Davis and the Innovation Centers.

The Innovation Center shall be of adequate size to accommodate numerous users and be designed so as to create a campus-like environment. The research park shall be characterized by superior site planning, architectural and landscape architectural design, traffic management, and environmental controls. In order to achieve this goal, planned development zoning and design guidelines shall be utilized. It is the intent that an Innovation Center will maximize the internalization of trips by incorporating a mix of uses, developing many of its own support services and featuring proximate freeway access to minimize impacts on the local roadway system.

Allowable Uses: Offices (including, but limited to headquarters, business, professional and medical), light industrial, research and development, light manufacturing, laboratory, and warehousing (as an ancillary use), provided they meet City standards regarding pollution, health and safety factors. Residential – Medium and High Density, including a variety of housing types,

unit sizes, prices and rents, designs, and architecture diversity. Onsite housing is intended to serve the needs of a diverse Innovation Center workforce. Retail uses shall be limited to support commercial uses, which may include lodging, conference space, restaurant, fitness and other convenience services. Said uses should not compete with the downtown and neighborhood shopping centers and shall be appropriately limited in size to achieve the objective of serving the Innovation Center and reducing the need for offsite vehicular trips. Related amenities and green spaces serving the research park are encouraged.

Prohibited Uses: Major retail or highway commercial; heavy manufacturing; exclusive distribution and exclusive warehousing.

Floor Area Ratio: Innovation Center development should achieve a fifty percent floor area ratio (0.5 FAR) taking into consideration the unique needs of a diversity of industry types.

Size: A single Innovation Center shall not exceed 250 acres.

Policies:

Policy LU S.1 Innovation Center should include sophisticated land use planning, a complementary mix of uses to foster innovation, high quality architectural and landscape design, building flexibility, a variety of amenities and environmental controls.

Policy LU S.2 An Innovation Center should include residential units to, in collaboration with existing housing supply, accommodate sufficient employees so as not to negatively impact the jobs/housing balance of the City. All housing should be designed and priced to accommodate the diverse needs of an Innovation Center workforce.

Policy LU S.3 A maximum of ten percent of the non-residential square footage may be commercial use provided that the commercial is supportive of the Innovation Technology Center businesses and residents, and that it does not cause significant negative impacts or disturbance of the overall business environment.

3.5 ARC Project Analysis

The following section provides an analysis of the potential environmental impacts resulting from the ARC Project. The discussions and mitigation measures presented below apply to both the ARC Site and the 16.5-acre Mace Triangle, unless otherwise stated. For each impact section and impact statement a reference to the relevant Chapter 4 analysis of the Certified Final EIR is provided.

Figure 3-7
ARC Project General Plan Amendment

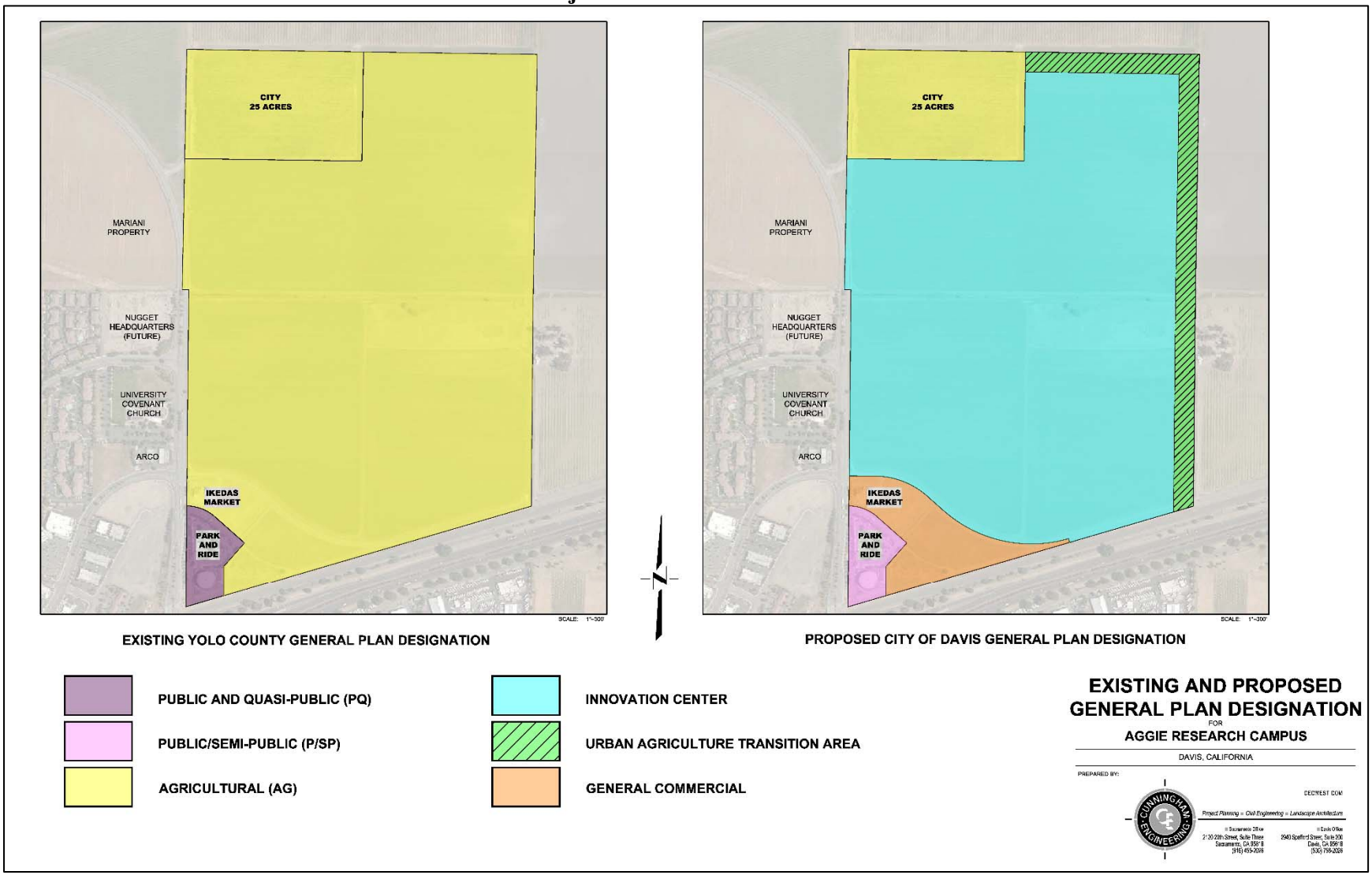


Figure 3-8
ARC Project Prezoning

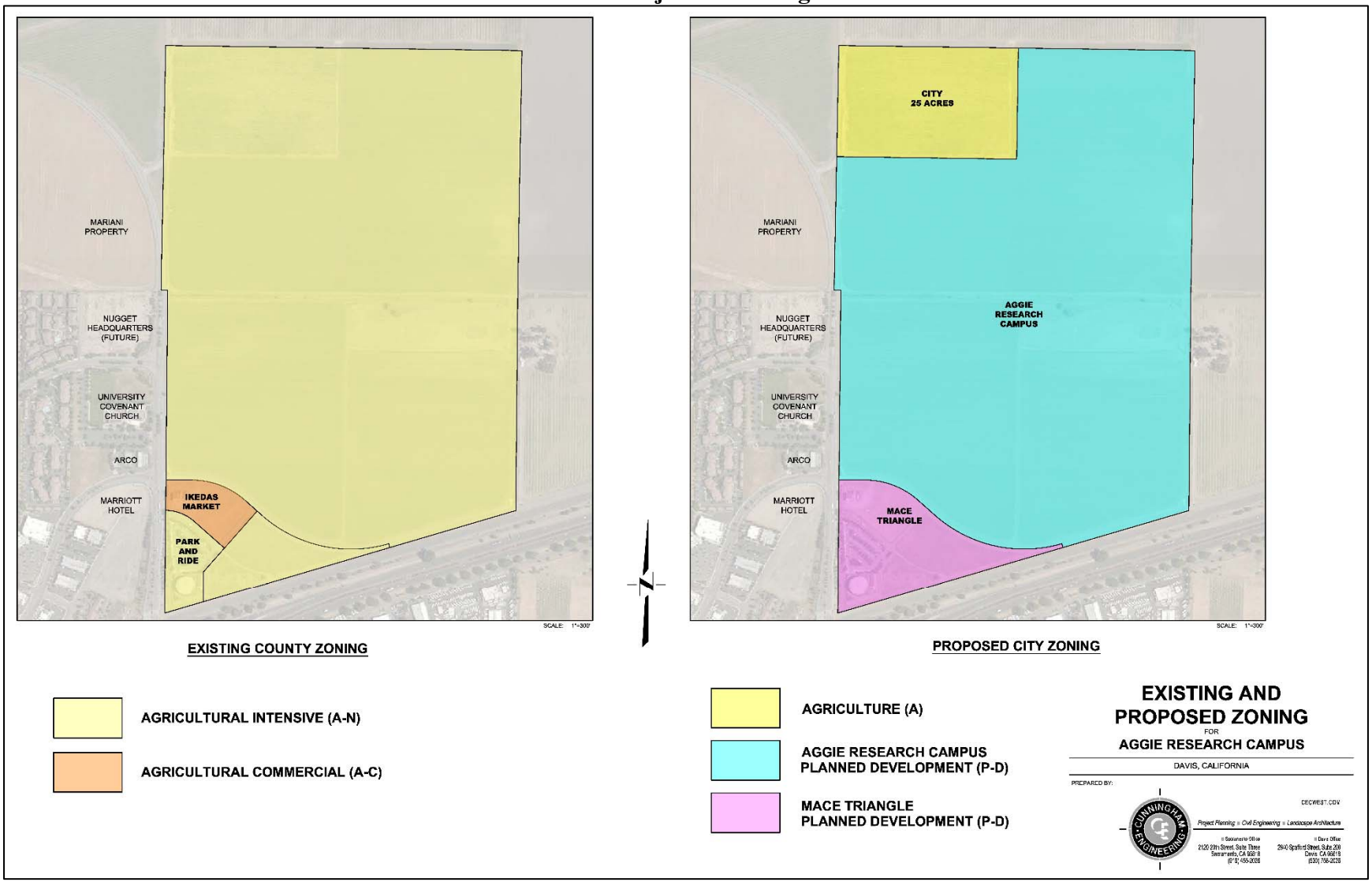
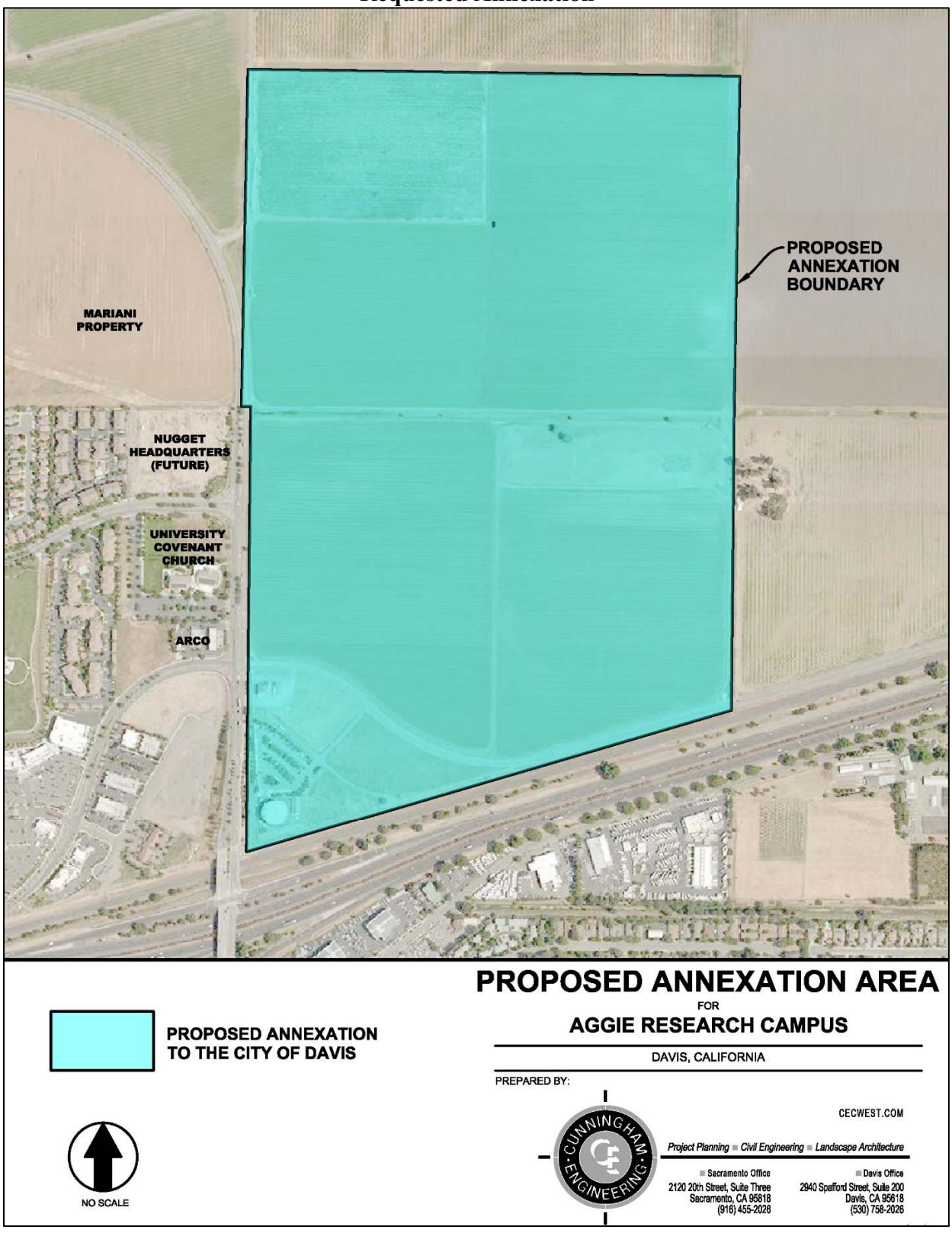


Figure 3-9
Requested Annexation



Aesthetics and Visual Resources (reference Section 4.1 of the Certified Final EIR)

The impacts related to aesthetics and visual resources as a result of buildout of the ARC Site and Mace Triangle, in comparison to that of the MRIC Project, are presented below.

Changes in Circumstances

Since the release of the Certified Final EIR, the project site has remained vacant and undeveloped. However, construction of a new hotel (Residence Inn) has been recently completed to the southwest of the Mace Boulevard/2nd Street intersection. In addition, construction of a new office park located northwest of the Mace Boulevard and Alhambra Drive intersection has begun. The office park will include three office buildings with up to 2,000 sf of ancillary retail. Two rural residential homes have also been constructed north of the project site, just north of CR 30B, which represent new residential receptors having views of the project site. Such new development has altered the visual character of the ARC area, but the changes in circumstances are not considered substantial which will require major revisions of the previous EIR.

Changes in the Project

Relative to the MRIC Project and the Mixed-Use Alternative, the ARC Project would involve a slightly reduced development area due to the exclusion of the 25-acre City-owned property to the northwest of the ARC Site. The ARC Project would include similar project components as the MRIC Project, plus up to 850 units of single- and multi-family uses. In addition, the non-residential buildings included in the ARC Project would be taller than the MRIC Project. However, both the maximum number of residential units and the maximum building height would remain unchanged from the Mixed-Use Alternative previously evaluated in the EIR.

3-1 Substantial adverse effect on a scenic vista (reference Impact 4.1-1).

Officially designated scenic highways, corridors, vistas, or viewing areas do not exist within the City's planning area and established scenic vistas are not located on or adjacent to the ARC Site. Impacts related to adverse effects on a scenic vista were determined to be less-than-significant for the MRIC Project. Impacts related to potential effects on such under the ARC Project would also be ***less than significant***.

Mitigation Measure(s)
None required.

3-2 Substantially degrade the existing visual character or quality of the project site and its surroundings (reference Impact 4.1-2).

ARC Project

The ARC Project would involve similar development as the MRIC Project, but with the inclusion of 850 residential units, as well as a reduced development footprint due to the exclusion of development of the City-owned 25-acre property to the northwest of the ARC Site. Impacts related

to degradation of the existing visual character were determined to be significant and unavoidable for the MRIC Project. Specifically, the EIR concluded that development of the MRIC Site would have the potential to substantially degrade the visual quality of the site as viewed from I-80 and sections of Mace Boulevard, even with implementation of landscaping improvements and compliance with the MRIC Design Guidelines. The same conclusion is applicable to the ARC Project.

In order to incorporate a residential component, the residential buildings would be a maximum of 85 feet in height, and would be clustered along Mace Boulevard and in the center of the site. The office/R&D buildings for the ARC Project would be up to 65 feet tall. The ARC Project advanced manufacturing uses would be limited to a maximum height of 45 feet, although certain features extending to a height of up to 65 feet would be permitted. Thus, the ARC Project R&D, manufacturing, and ancillary retail uses would be slightly taller (45 to 65 feet as compared to 45 to 55 feet for the MRIC Project) than the buildings included in the MRIC Project. Under the MRIC Project, the hotel use was anticipated to be developed with a maximum height of 75 feet. Under the ARC Project, the maximum height of the hotel use would equal that of the residential uses, at a maximum allowable height of 85 feet. Due to the reduced development acreage and inclusion of residential units, with the exception of advanced manufacturing uses, all proposed uses would be allowed greater maximum building heights. The Certified Final EIR concluded that impacts to visual character resulting from implementation of the MRIC Project would be significant and unavoidable. Thus, while the ARC Project could result in an increase in impacts related to a change in visual character as compared to the MRIC Project, the impacts would ultimately remain significant and unavoidable as analyzed in the Certified Final EIR. It is important to note that the Mixed-Use Alternative analyzed in the Certified Final EIR similarly anticipated the need for increased building heights within the Project site in order to accommodate residential units as well as the non-residential developments. The anticipated maximum heights under the Mixed-Use Alternative are equivalent to the maximum heights now proposed for the ARC Project, and, as a result, impacts related to implementation of the ARC Project would be the same as those anticipated for the Mixed-Use Alternative.

The height of proposed structures warrants the consideration of potential solar shading that could occur with implementation of the ARC Project. The City has not adopted standards regarding shadows cast by buildings; however, other jurisdicitions within the State, such as the City of Los Angeles, have recommended that shadows created by new structures would create impacts if the new structures cast shadows on shadow-sensitive uses for extended periods of time throughout the day.[5] Considering the location of the proposed structures and the allowable heights presented above, the structures would be anticipated to cast shadows towards the west during the morning hours, and towards the north and east, where no receptors are located, during the later portions of the day until evening. For the purposes of CEQA analysis, the project's potential to cast shadows off-site (i.e., to the west) would be the principal concern. Shadows from structures near Mace Boulevard would reach their greatest extent when the sun is lowest in the sky, for instance during the winter months. The nearest existing uses would be those across Mace Boulevard, including the University Covenant Church, commercial office space, and an ARCO gas station. Structures within the ARC Site would be setback from Mace Boulevard, and, as such, any shadows cast by

[5] City of Los Angeles. *L.A. CEQA Thresholds Guide*. 2006.

proposed structures would be primarily cast along the on-site setbacks and Mace Boulevard. Should shadows extend to the existing off-site uses, shadows would only be expected to occur during the early morning hours during winter, and would not be expected to occur for an extended period of time, due to the sun's arc relative to the ARC Site. Furthermore, the ARCO gas station and the commercial office spaces are not considered shadow-sensitive uses. The University Covenant Church may be considered more sensitive to shadows, but the Church is setback from Mace Boulevard, and outdoor areas of the church are located on the western side of the church site, farthest from the ARC Site. Consequently, even if shadows from proposed structure reach nearby uses, the shadows would not be cast on shadow-sensitive uses or shadow-sensitive areas.

Landscaping and agricultural buffers would be included for the ARC Project, similar to the MRIC Project. The ARC Site is not currently planned for future development and is not within the City's LAFCo SOI; therefore, impacts resulting from development of land uses other than the current agricultural use would be considered a significant change in the visual character or quality of the site. The ARC Project would convert an agricultural field to commercial and residential uses in an area that is outside of the City's SOI.

Mace Triangle

Potential future development of the Mace Triangle would be visible from motorists traveling along I-80; however, future development would generally not be visible from residential areas north of I-80. Development on the ARC Site or the Mace Triangle Site would change the setting for the existing mural and kinetic element on the East Area Tank and utility building, but would not block views of the artwork from I-80 or the nearby bicycle path. As a result, changes in visual character/quality of the Mace Triangle Site associated with any future development would not be anticipated to result in significant impacts given the viewer exposure to these changes would be limited (i.e., motorists, bicyclists, workers).

Conclusion

Similar to the MRIC Project, the ARC Project would be considered to substantially degrade the existing visual character or quality of the ARC Site and/or the site's surroundings; and a ***significant and unavoidable*** impact would occur.

Mitigation Measure(s)
None feasible.

3-3 Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area (reference Impact 4.1-3).

Impacts related to light or glare were determined to be less-than-significant with mitigation for the MRIC Project. While the ARC Project would include a reduced development area due to the exclusion of development on the 25-acre City-owned property, potentially more sources of light and glare would be expected for the ARC Project than the MRIC Project, due to lighting and windows associated with the inclusion of residential units. For example, the ARC Project would include development of taller structures in proximity to Mace Boulevard. Light emanating from

windows on the upper floors of proposed residences and offices would likely be visible from existing residences and other uses off-site. As such, light and glare under the ARC Project could result in adverse effects to nearby sensitive receptors; and mitigation measures would be required to reduce impacts to a ***less-than-significant*** level.

Mitigation Measure(s)

ARC Project and Mace Triangle

3-3 *In conjunction with submittal of improvement plans for the Mace Triangle and each phase of development for the ARC Site, the applicant shall submit a lighting plan to the Department of Community Development and Sustainability for review and approval. The lighting plan shall be designed to limit light trespass and glare onto off-site properties to a reasonable level through the use of shielding, directional lighting methods (including, but not limited to, fixture location and height), and application of a low-emissivity coating on exterior glass surfaces of proposed structures. If low-emissivity coating is used, the low-emissivity coating shall reduce the reflection of visible light that strikes the exterior glass and prevent interior light from being emitted brightly through the glass. The Plan shall comply with Chapter 6 of the Davis Municipal Code - Article 8: Outdoor Lighting Control.*

3-4 Conflict, or create inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to aesthetics and visual resources (reference Impact 4.1-4).

Impacts related to conflicts with plans, policies, or regulations related to aesthetics and visual resources, as they pertain to the MRIC non-residential innovation center uses, were evaluated for the MRIC Project in Section 4.1, Table 4.1-5, and determined to be ***less than significant*** with implementation of mitigation. The mitigation was included to ensure that the future design guidelines encourage incorporation of various design measures, consistent with General Plan policy direction (e.g., street trees and high-quality design materials per Policies UD 2.2 and 2.6). Similar design features will need to be incorporated into the ARC Project and future Mace Triangle development.

For the ARC Project, additional City of Davis housing policies and regulations are applicable to the residential component. These additional housing policies and regulations are evaluated in the appropriate sections of this SEIR, namely, the Land Use and Urban Decay section (Impact 3-55), and the Population and Housing section (Impact 3-63).

Mitigation Measure(s)

ARC Project and Mace Triangle

3-4 *At or prior to final planned development, or tentative map submittal, whichever occurs first, the applicant shall submit landscape and architectural details to the Department of Community Development and Sustainability showing the following:*

Landscaping

- *Research/office/R&D and manufacturing areas shall have access connections at regular intervals along the perimeter of the project area to adjacent bike and pedestrian pathways and easily-accessible, landscaped pedestrian and bicycle access between various areas.*
- *Arterial and collector streets shall have planted medians, but with widths sized to accommodate tree and shrub plantings. Medians on collector streets shall be limited to locations where the median contributes to a specific purpose or solves a specific problem, such as enhancing an entry, calming traffic, or providing a needed pedestrian refuge at intersections. Removal of street trees to accommodate an increase in vehicular traffic shall occur only as a last resort, after review by appropriate boards and commissions.*
- *Trees that are planted in the future shall have wide canopies, sufficient to eventually provide, at maturity, at least 50 percent shade coverage of the pavement area of local streets and 30 percent shade coverage of the pavement area of collector and arterial streets.*

Architecture

- *A scale transition between intensified land uses and adjoining lower intensity land uses shall be provided, as applicable.*
- *Taller buildings shall be stepped back at upper levels in areas with a relatively smaller-scale character.*
- *Buildings shall be varied in size, density and design.*
- *Stored materials, goods, parts or equipment shall be screened from adjacent public streets or highways.*
- *Loading facilities shall be designed as an integral part of the building(s) which they serve and shall be located in an inconspicuous manner.*
- *Roof mounted equipment shall be screened from view of any ground level area accessible to the general public.*
- *Trash enclosures, noise generating equipment, and other nuisances shall be adequately screened or located away from any adjacent residential use.*

Agriculture and Forest Resources (reference Section 4.2 of the Certified Final EIR)

The impacts related to agriculture and forest resources as a result of buildout of the ARC Project and Mace Triangle, in comparison to that of the MRIC Project, are presented below.

Changes in Circumstances

Since the certification of the Final MRIC EIR, the project site has remained vacant and undeveloped. No changes have occurred to the Mace Triangle. Agricultural production continues to occur on the properties to the north and east of the ARC Site. At the time of the preparation of the Certified Final EIR, the adjacent 360-acre agricultural easement property to the east was being planted with what was assumed to be almond trees. This 360-acre easement property is currently planted with almond trees. Substantial changes in circumstances that would affect the analysis in the Certified Final EIR related to agriculture and forest resources have not occurred.

Changes in the Project

Relative to the MRIC Project and the Mixed-Use Alternative, the ARC Project would involve a slightly reduced development area due to the exclusion of development of the 25-acre City-owned property to the northwest of the ARC Site. This results in environmental benefits when compared to the MRIC Project and Mixed-Use Alternative. For example, reduced prime agricultural land conversion, and reduced conflicts with existing agricultural zoning. Project changes that would adversely affect the analysis in the Certified Final EIR related to agriculture and forest resources have not occurred.

3-5 Impacts related to the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Important Farmlands) to non-agricultural use, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency (reference Impact 4.2-1).

ARC Project

Impacts related to conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Important Farmlands) were determined to be significant and unavoidable for the MRIC Project. Specifically, the MRIC Site includes approximately 159 acres of Prime Farmland and 39 acres of Farmland of Statewide Importance, a substantial portion of which the EIR concluded would be converted to urban uses with buildout of the MRIC Project. Unlike the MRIC Project, the ARC Project would not include any urban development on the 25-acre City-owned property to the northwest of the ARC Site, which is currently designated as Prime Farmland. While the applicant proposes to establish a 6.8-acre easement on this property to satisfy the City's 150-foot Agricultural Buffer requirements along a portion of the project's northern boundary, agricultural buffers required by Section 40A.01.050(c) of the City Code shall not be included in the calculation for purposes of determining the amount of land that is required for mitigation. Thus, the ARC Project would result in slightly reduced agricultural conversion compared to the MRIC Project. Although the ARC Project would incorporate 49.2 acres of open space and parks, the ARC

Project would involve the conversion of Prime Farmland, Potential Local Farmland, and Farmland of Statewide Importance to non-agricultural uses.

Mace Triangle

The California Department of Conservation (DOC) Important Farmland Map designates the entire 16.5-acre Mace Triangle Site as Urban and Built-up Land. Therefore, development of the Mace Triangle Site would result in a less-than-significant impact with respect to the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Important Farmlands), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

Conclusion

Similar to the MRIC Project, impacts related to important farmland conversion would be ***significant and unavoidable*** under the ARC Project.

Mitigation Measure(s)

The following mitigation measures would reduce the ARC Project's impact related to conversion of Prime Farmland and Farmland of Statewide Importance. Mitigation Measure 3-5 sets forth the agricultural land mitigation requirements in Davis Zoning Code, Chapter 40A.03, with which future development of the ARC Project shall be conditioned. While implementation of Mitigation Measure 3-5 would reduce the above-identified impact through preservation of agricultural land at a 2:1 ratio, the impact would not be reduced to a less-than-significant level due to the fact that active agricultural land would still be permanently converted to urban uses. Consistent with the Davis General Plan EIR, feasible mitigation measures do not exist to reduce the above impact to a less-than-significant level. Therefore, the impact would remain *significant and unavoidable*.

ARC Project

3-5(a) *Prior to initiation of grading activities for each phase of development at the ARC Site, the project applicant for the ARC Site shall set aside in perpetuity, at a minimum ratio of 2:1 of active agricultural acreage, an amount equal to the current phase. The applicant may choose to set aside in perpetuity an amount equal to the remainder of the ARC Site instead of at each phase. The agricultural land shall be elsewhere in unincorporated Yolo County, through the purchase of development rights and execution of an irreversible conservation or agricultural easement, consistent with Section 40A.03.025 of the Davis Municipal Code. The location and amount of active agricultural acreage for the proposed project is subject to the review and approval by the City Council. The amount of agricultural acreage set aside shall account for farmland lost due to the conversion of the ARC Site, as well as any off-site improvements, including but not necessarily limited to the off-site sewer pipe. The amount of agricultural acreage that needs to be set aside for off-site improvements shall be verified for each phase of the ARC Project during improvement plan review. Pursuant to Davis Code Section 40A.03.040, the agricultural mitigation land shall be comparable in soil quality with the*

agricultural land whose use is being changed to nonagricultural use. The easement land must conform with the policies and requirements of LAFCo including a LESA score no more than 10 percent below that of the project site. The easement instrument used to satisfy this measure shall conform to the conservation easement template of the Yolo Habitat Conservancy.

3-5(b) *The ARC Master Owners' Association (MOA) shall encourage, and exercise control over, interim agricultural operations on-site through specific terms of agricultural leases. Terms shall specify duration of leases and require each new leasee to coordinate with the Yolo County Agricultural Commissioner to determine appropriate types of agricultural crops and uses for urban/ag interface areas. The MOA shall work cooperatively with the farmer(s) to minimize incompatibilities between ongoing agricultural operations on-site and ARC businesses, such that the ARC Site can continue to be farmed successfully until the ARC Project is fully built out. Minimization measures should include the appropriate timing of on-site agricultural operations (i.e., use of equipment) to avoid early morning or nighttime noise generation; prohibiting disking operations during periods of high winds; minimization of pesticide applications; etc.*

Mace Triangle

None required.

3-6 Impacts related to conflicting with existing zoning for agricultural use (reference Impact 4.2-2).

Impacts related to conflicts with existing zoning for agricultural use were determined to be less-than-significant for the MRIC Project. Specifically, the EIR notes that while the current County zoning for the project site is A-N, consistent with the Cortese-Knox-Hertzberg Local Government Reorganization Act, prezoning shall be applied to annexation areas (see Gov. Code Section 56375). The EIR notes that the project site would be prezoned to the City's PD District, which would be consistent with the proposed Davis General Plan land use designation of Innovation Center for the project site.

Because the ARC Project would retain agricultural zoning on the 25-acre City-owned property once annexed to the City, the overall conflicts with existing zoning for agricultural use would be reduced slightly compared to the MRIC Project. The ARC Site is currently in agricultural use and is zoned A-N. Current County zoning for the Mace Triangle Site is A-N, A-C, and Public and Quasi-Public (PQP). Approval of the project is a discretionary action of the City Council. Should the City Council deny the project, a conflict with existing zoning for agricultural use would not occur. Should the City Council approve the project, the requested prezoning to PD would be approved concurrently and a conflict with existing zoning for agricultural use would not occur. Therefore, upon approval of the requested prezoning, the ARC Project would result in a ***less-than-significant*** impact in regard to land that is currently zoned for agricultural use.

Mitigation Measure(s)
None required.

3-7 Result in the loss of forest or agricultural land or conversion of forest or agricultural land to non-forest or non-agricultural use (reference Impact 4.2-3).

ARC Project

Because the ARC Site is in agricultural use, as defined by City Code, agricultural mitigation is required for the development of the site with urban uses. While implementation of Mitigation Measures 4.2-3(a) and (b) provide for preservation of agricultural land at a 2:1 ratio, consistent with City of Davis Code requirements, the impact would not be reduced to a less-than-significant level due to the fact that active agricultural land would still be permanently converted to urban uses. Thus, impacts related to the loss of forest or agricultural land were determined to be significant and unavoidable for the MRIC Project. Because the ARC Project would involve a slightly reduced disturbance area compared to the MRIC Project, implementation of the ARC Project would result in a reduced amount of land conversion from agricultural lands to non-agricultural uses.[6]

Mace Triangle

Although the Mace Triangle properties are not currently in agricultural use, the easternmost parcel, and a portion of the Ikeda's parcel, have been used for such purposes in the recent past. Accordingly, these undeveloped portions of the Mace Triangle would be subject to agricultural mitigation per the City's ordinance. The agricultural portions of the Mace Triangle consist of the 8.4-acre easternmost parcel, and approximately 2.5 acres of the Ikeda's parcel, for a total of 10.9 acres. It should also be noted that the 8.4-acre easternmost parcel has a current City of Davis General Plan designation of Agriculture, and Class I soils.

Conclusion

Similar to the MRIC Project, impacts associated with the loss of forest or agricultural land or conversion of forest or agricultural land to non-forest or non-agricultural use would remain ***significant and unavoidable***.

Mitigation Measure(s)
The following mitigation measures would reduce the ARC Project's impact related to conversion of agricultural lands. Mitigation Measures 3-7(a) and (b) set forth the agricultural land mitigation requirements in Davis Zoning Code, Chapter 40A.03, with which future development on the ARC

[6] Calculated as follows: 187 acres less the required 15.8 acres (portion of Ag buffer on project site) x 2:1 = 342.4 ac. Compared to MRIC Project agricultural conversion acreage of 379 acres (FEIR, pg. 2-15). In addition, the applicant will be required to mitigate for a yet undetermined amount of off-site agricultural acreage that would be impacted during construction of the off-site sewer pipe. The off-site impact acreage cannot be definitively calculated at this time because the location of the pipe has not been engineered. It is anticipated, however, based upon preliminary calculations, that the off-site sewer line could impact a maximum of up to approximately 11 acres of agricultural land, depending upon the final alignment selected.

Site and agricultural/fallow portions of the Mace Triangle Site shall be conditioned. While implementation of these measures would reduce the above-identified impact through preservation of agricultural land at a 2:1 ratio, the impact would not be reduced to a less-than-significant level due to the fact that active agricultural land would still be permanently converted to urban uses. Consistent with the Davis General Plan EIR, feasible mitigation measures do not exist to reduce the above impact to a less-than-significant level. Therefore, the impact would remain *significant and unavoidable*.

ARC Project

3-7(a) *Implement Mitigation Measures 3-5(a) and (b).*

Mace Triangle

3-7(b) *Prior to initiation of grading activities for APN 033-630-012 or APN 033-630-011 within the Mace Triangle Site, the future project applicant(s) shall set aside in perpetuity, at a minimum ratio of 2:1 of active agricultural acreage, the following approximate acreages of protected farmland for agricultural purposes:*

- *APN 033-630-011 (Ikeda's): Mitigate conversion of approximately 2.5 acres at a 2:1 ratio = 5 acres*
- *APN 033-630-012 (Easternmost Parcel): Mitigate conversion of approximately 8.4 acres at a 2:1 ratio = 16.8 acres*

The agricultural land shall be elsewhere in unincorporated Yolo County, through the purchase of development rights and execution of an irreversible conservation or agricultural easement, consistent with Section 40A.03.025 of the Davis Municipal Code. The location and amount of active agricultural acreage for the proposed project is subject to the review and approval by the City Council. The amount of agricultural acreage set aside shall account for farmland lost due to the conversion of the Mace Triangle Site as well as any off-site improvements. Pursuant to Davis Code Section 40A.03.040, the agricultural mitigation land shall be comparable in soil quality with the agricultural land whose use is being changed to nonagricultural use. The easement land must conform with the policies and requirements of LAFCo including a LESA score no more than 10 percent below that of the Mace Triangle Site. The easement instrument used to satisfy this measure shall conform to the conservation easement template of the Yolo Habitat Conservancy.

3-8 Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use (reference Impact 4.2-4).

ARC Project

Impacts related to other changes in the existing environment which could result in conversion of Farmland were determined to be significant and unavoidable for the MRIC Project. The project site is still being used for agricultural purposes, and existing agricultural uses occur to the north, northwest, and east of the site. The existing agricultural uses in the vicinity could continue to be farmed after implementation of the ARC Project, which could have effects on the ARC Site. Similar to the MRIC Project, the ARC Project would incorporate agricultural buffers along the perimeter of the site. In addition, the ARC Project would, similar to the MRIC Project, be required to comply with existing law, including provision of a deed restriction per the City's Municipal Code.

The Yolo County Agricultural Commissioner has established conditions covering the use of restricted materials, the purposes of which are to minimize undue hazards and risks associated with the application and handling of restricted materials and the potential for pesticide drift to proximate urbanized areas and sensitive uses.[7] Condition #1 addresses the use of restricted materials in the proximity of environmentally sensitive areas. Examples given for environmentally sensitive areas include residential areas (cities, towns, rural neighborhoods), schools, playgrounds, bus stops (when in use), parks, hospitals, shopping centers, occupied labor camps, organic crops, estuaries, reservoirs, lakes, waterways, livestock, state wildlife management areas, and critical habitats of rare, endangered or threatened species. According to Condition #1, restricted pesticides shall not be applied in close proximity to environmentally sensitive areas unless the minimum distance between the closest operating nozzle and the sensitive area is maintained as follows:

TYPE OF PESTICIDE APPLICATION EQUIPMENT	MINIMUM DISTANCE BETWEEN CLOSEST OPERATING NOZZLE AND THE NON-TARGET AREA	
	DANGER	WARNING/CAUTION
AIRCRAFT	500 FEET	300 FEET
AIR BLAST ORCHARD SPRAYER	300 FEET	..50 FEET
GROUND RIGS (except when applying baits)**	100 FEET	..50 FEET

The almond orchard to the east of the ARC Site is not aerially sprayed. The orchard uses an air blast orchard sprayer for pesticide application, which may be applied within 300 feet of sensitive areas on the ARC Site.

The ARC Project includes two potentially sensitive areas: the agricultural transition area and the proposed residences. The effects of the environment on the project's future residents and users is

[7] Yolo County, Yolo County Agricultural Commissioner. *Conditions Covering the Use of Restricted Materials*. January 1, 2014.

outside of the scope of CEQA review. Thus, the following discussion is included here insofar as it may relate to induced conversion of adjacent, off-site agricultural lands.

Condition #1 does not include bicycle/pedestrian trail within its definitions for environmentally-sensitive areas and the City Municipal Code specifically identifies bike paths, lighting and benches as appropriate uses within the 50-foot agricultural transition area (Municipal Code Section 40A.01.050(d).) As discussed in the Certified Final EIR (p. 4-85), the City does not consider the proposed recreational trail to be "environmentally sensitive". Users will not be compelled to use the trail, use will be completely voluntary, and users with concerns about agricultural operations on adjoining fields on any given day can avoid or leave the trail during periods of any given agricultural activity, whether that be noise during a harvest, dust during field preparation, or proximity of use during application of chemicals. The City has a long history of requiring agricultural buffers with trails, and considers trails to be an important design feature with valuable community benefits. The City's agricultural buffer requirements are codified in Section 40A.01.050 of the Zoning Ordinance. The City views the trails and buffer areas as defining components of the community's pro-agriculture and open space values. Moreover, the City has consistently implemented agricultural buffers of the same minimum size and conceptual design in other locations for many years. The 150-foot width is a City minimum and this SEIR appropriately relies on this minimum distance. It warrants noting, however, that the Yolo County Agricultural Commissioner has indicated that he would consider recreational uses proximate to a farm operation that applies restricted materials to be potentially incompatible. Nevertheless, the pedestrian/bike path would be located further than 100 feet from the project's eastern and northern property lines, and thus, outside of the range of any ground rig spraying that could occur on the neighboring agricultural property. Furthermore, an approximately 20-foot agricultural access road is located on the neighboring agricultural property, along its boundary with the ARC Site. Therefore, the nearest possible distance at which ground rigs might spray pesticides would be approximately 120 feet from the proposed ARC pedestrian/bike trail, which, per the Yolo County Agricultural Commissioner's conditions, would be considered acceptable for ground rig application.

Unlike the aforementioned recreational trail, residential communities are considered sensitive areas according to the City. The ARC Project includes housing that would introduce a sensitive use identified in Condition #1 to the ARC Site. The majority of the residences are setback from the existing agricultural operations to the north and east at a distance greater than 300 feet. However, one residential area would be located central to the site, south of the MDC, and only slightly beyond the 150-foot agricultural buffer separating the ARC Project from the agricultural operations to the east. These residences would be within 300 feet of the neighboring almond orchard where pesticides are applied (the homes would be set back approximately 170 feet if they abut the agricultural buffer).

As noted in the above chart, air blast orchard sprayer application of "danger" labeled pesticides requires a 300-foot buffer from environmentally-sensitive areas. Accordingly, a total setback of 300 feet would be required from residential uses. To achieve the identified 300-foot setback, approximately 130 feet of the required setback would need to encroach into the adjacent farmer's orchard. Therefore, without mitigation, during times when application of pesticides is deemed necessary by the adjacent farmer, the proposed ARC Project could indirectly result in what might be considered "induced" conversion of off-site agricultural land by disrupting the ability to farm a

portion of the adjacent property in the manner desired, which could be considered a significant indirect effect. However, with implementation of mitigation, the significant impact would be reduced to a less-than-significant level.

Mace Triangle

Should additional development of the Ikeda's parcel and easternmost Mace Triangle parcel occur in the future, effects to off-site farmland would not be expected to occur because the Mace Triangle Site is surrounded by the ARC Site. Unlike the ARC Site, the Mace Triangle Site would not be subject to adjacent agricultural operations.

Conclusion

Development of the ARC Project could result in other changes in the existing environment which, due to their location or nature, could result in induced conversion of off-site farmland, which would be considered a significant impact. The Mace Triangle, however, would not result in other changes in the existing environment that could lead to adverse impacts to off-site farmland. With implementation of mitigation, the identified significant impact would be reduced to a ***less-than-significant*** level.

Mitigation Measure(s)

ARC Project

3-8(a) *Prior to the construction of residential uses within 300 feet of neighboring orchards, the ARC Project applicant shall mitigate for potential pesticide drift through the implementation of barrier plantings. The applicant shall utilize the Natural Resources Conservation Services'*[8] *best practices for establishing an appropriate windscreen between residential structures and adjacent agricultural operations to the satisfaction of the Yolo County Agricultural Commissioner. Written confirmation of compliance shall be provided to the Community Development and Sustainability Director prior to issuance of residential building permit within 300 feet of neighboring agriculture.*

3-8(b) *Prior to the public use of the recreational bicycle and pedestrian trails located within the agricultural transition area, the ARC Project applicant shall mitigate for potential pesticide drift. Mitigation shall be achieved pursuant to utilization of a windscreen in a manner consistent with MM 3-8(a). Alternatively, applicant shall enter into an agreement with the neighboring property owner pursuant to which the agricultural operator provides notice to the ARC Project applicant or the MOA of the days on which pesticide application will occur and the applicant shall close the recreational trails during the period in which pesticides are applied within 300*

[8] See Natural Resources Conservation Service, *Windbreak/Shelterbelt Establishment, Conservation Practice Job Sheet 380*. April 2013. As noted, when used as a living screen, windbreaks control views, reduce noise, and intercept airborne particulate matter, chemicals and odors.

feet of the trail. Notice of closure shall be provided by the MOA to disseminate to employees and residences, and closure notice shall be posted at all points of access onto the impacted portion of trail during the period of pesticide application.

Mace Triangle

None required.

3-9 Conflict, or create an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to agricultural resources (reference Impact 4.2-5).

Impacts related to conflicts with plans, policies, or regulations related to agricultural resources, as they pertain to the non-residential uses included in the ARC Project, were evaluated for the MRIC Project in Section 4.2 (Table 4.2-4) and determined to be ***less than significant***. For the ARC Project, additional City of Davis housing policies and regulations are applicable to residential uses These additional housing policies and regulations are evaluated in the appropriate sections of this analysis, namely, the Land Use and Urban Decay section (Impact 3-55), and the Population and Housing section (Impact 3-63). The consistency discussion provided in Table 4.2-4 of the Certified Final EIR with respect to City agricultural policies remains applicable to the the ARC Project, as it generally pertains to the City's agricultural buffer requirements, which would be required for both MRIC and ARC.

Mitigation Measure(s)
None required.

Air Quality (reference Section 4.3 of the Certified Final EIR)

The impacts related to air quality as a result of buildout of the ARC Project and Mace Triangle, in comparison to that of the MRIC Project, are presented below.

Changes in Circumstances

With respect to air quality, several circumstances have changed since the certification of the Final MRIC EIR. For instance, Yolo-Solano Air Quality Management District (YSAQMD) adopted a 2012-2014 Triennial Assessment and Plan Update to the 1991 Air Quality Attainment Plan in July of 2016 and a 2015-2017 Triennial update in May of 2019. The main elements included in the 2015-2017 Triennial update include information related to emissions reductions achieved between 2015 and 2017, districtwide emissions inventory and emissions forecasts, air quality data trends through 2017, and proposed commitments for the 2018 and 2020 period.[9] In addition to the Triennial updates, slight changes to the *$PM_{2.5}$ Implementation/Maintenance Plan and Re-designation Request for Sacramento $PM_{2.5}$ Nonattainment Area*[10] ($PM_{2.5}$ Implementation/Maintenance Plan) have been implemented by the Sacramento Metropolitan Air Quality Management District (SMAQMD) in coordination with YSAQMD and other air districts within the Sacramento Valley Air Basin (SVAB). The changes represent the incorporation of errata, and do not represent changes substantial enough to alter the approach to analysis or conclusioons of the Certified Final EIR. Although updates and incorporation of errata have occurred for the aforementioned plans, major legislative changes related to air quality that could have significant bearing on the analysis of air quality impacts has not occurred since certification of the Final MRIC EIR.

The Certified Final EIR presented certain information related to the attainment status of the region (presented in Table 4.3-3 of the Certified Final EIR) and local air quality monitoring (presented in Table 4.3-4 of the Certified Final EIR) that was obtained during the years 2014 and 2015. Table 3-4 and Table 3-5 below provide updated information based on more recent data.

Furthermore, the California Emissions Estimator Model (CalEEMod) has been updated several times since the certification of the Final MRIC EIR. The updates to CalEEMod have included changes to the calculation of emissions, and the emission rates of certain activities. As further discussed in the Transportation and Circulation section of this document, certain changes have been made in the calculation of project-related VMT and project-related trip generation rates.

[9] Yolo-Solano Air Quality Management District. *2019 Triennial Assessment and Plan Update*. May 8, 2019.

[10] Sacramento Metropolitan Air Quality Management District. *$PM_{2.5}$ Implementation/Maintenance Plan and Re-designation Request for Sacramento $PM_{2.5}$ Nonattainment Area*. October 24, 2013 with Errata incorporated February 5, 2014.

Table 3-4
Attainment Status

Pollutant	Designation/Classification	
	Federal Standards	**State Standards**
Ozone – 1-Hour	Revoked in 2005	**Nonattainment**
Ozone – 8-Hour	**Nonattainment**	**Nonattainment**
Carbon Monoxide	Attainment	Attainment
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide	Attainment (Pending)	Attainment
PM_{10}	Attainment	**Nonattainment**
$PM_{2.5}$ – 24-Hour	**Nonattainment**	No State Standard
$PM_{2.5}$ – Annual	**Unclassified/NonAttainment**	**Nonattainment**
Lead	Unclassified/Attainment	Attainment
Sulfates	No Federal Standard	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Visibility Reducing Particles	No Federal Standard	Unclassified

Sources: YSAQMD. Ambient Air Quality Standards. Available at: https://www.ysaqmd.org/wp-content/uploads/2016/06/Attainment_Detailed.jpg. Accessed May 2019; California Air Resources Board. Air Quality Standards and Area Designations. Available at: https://www.arb.ca.gov/desig/desig.htm. Accessed May 2019.

Table 3-5
Air Quality Monitoring Data Summary for Project Area

Pollutant	Standard	Days Standard Exceeded During:		
		2016	**2017**	**2018**
Ozone	1-Hour State	0	0	0
	8-Hour State	1	1	1
	8-Hour Federal	1	1	1
PM_{10}[1]	24 Hour State	2	3	4
	Annual Mean State	19.7	22.0	26.1
	24 Hour Federal	0	0	1
$PM_{2.5}$[1]	Annual Mean State	6.4	8.7	12.8
	Annual Mean Federal	6.3	8.6	12.7
	24 Hour Federal	0	2	2
Nitrogen Dioxide	Annual Mean State	*	*	*
	1-Hour State	0	0	0
	1-Hour Federal	0	0	0

[1] Obtained from the Woodland-Gibson Road monitoring station.
* Data not available.

Source: California Air Resources Board. Aerometric Data Analysis and Management (ADAM): Top Four Summary. Available at: http://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed February 2020.

Another change in methodology since certification of the Final MRIC EIR is the U.S. Environmental Protection Agency's (USEPA) recent shift in the preferred and recommended model for analysis of localized CO impacts. The USEPA now recommends the use of the American Meteorological Society/Environmental Protection Agency (AMS/EPA) Regulatory Model (AERMOD) in place of the Caltrans CALINE4 model, which was used for the Certified Final EIR analysis.

In addition to the updates in methodologies discussed above, in 2018, the California Supreme Court ruled that EIRs prepared under CEQA must make "a reasonable effort to substantively connect the Project's air quality impacts to likely health consequences."[11] Although the Certified Final EIR discussed the potential health effects of criteria pollutants in Section 4.3, Air Quality, in light of the recent California Supreme Court ruling, there is a need to specifically analyze potential health risks related to the ARC Project's emission of criteria pollutants.

Since certification of the Final MRIC EIR, Appendix G of the CEQA Guidelines has been updated. In terms of air quality, the CEQA Guidelines now ask whether a project would "result in other emissions (such as those leading to odors) affecting a substantial number of people)." The Certified Final EIR included an analysis of the potential for the MRIC Project to result in impacts related to odors; however, the Certified Final EIR did not include an analysis of other emissions. The analysis presented below demonstrates that the ARC Project would not result in any new or significantly more severe impacts related to odors, nor would the ARC Project result in other emissions that would affect a substantial number of people.

At the time of preparation of the Certified Final EIR, the ARC Site was used for agricultural purposes. Agricultural activity continues to occur within the ARC Site; however, for the purposes of this analysis of potential impacts to air quality, existing criteria pollutant emissions from current agricultural operations within the ARC Site have not been considered.

With respect to physical changes in the surrounding area, two new residences have been constructed north of CR 30B, approximately 1,130 feet northeast of the nearest ARC Site boundary, since certification of the Final MRIC EIR. The two new residences are considered, where applicable, within this analysis. Although two new residences have been constructed in proximity to the ARC Site, the nearest sensitive receptor to the ARC Site continues to be the University Covenant Church, located opposite the project site, across Mace Boulevard.

The foregoing changes to methodologies and regulations have been considered with regard to the potential impacts of the proposed ARC Project and are implemented throughout this analysis. As a result of the changes described above, a substantial increase in severity of the previously identified significant and unavoidable air quality impact related to MRIC and Mixed-Use Alternative operations has been identified. In addition, a new significant effect related to construction emissions (NO_X) has been identified.

[11] California Supreme Court. *Sierra Club V. County of Fresno* (2018) 6 Cal. 5th 502.

Changes in the Project

Relative to the MRIC Project and the Mixed-Use Alternative, the ARC Project would involve a slightly reduced development area due to the exclusion of development of the 25-acre City Parcel to the northwest of the ARC Site, less the 6.8-acre agricultural buffer proposed on the City Parcel. The proposed land uses included within the ARC Project are similar to the land uses included in the Mixed-Use Alternative previously analyzed in the Certified Final EIR. However, the phasing plan for the proposed ARC Project is different than the phasing previously anticipated for the MRIC Project and the Mixed-Use Alternative. For instance, the project applicant now anticipates that the southern portion of the ARC Site, totaling approximately 106 acres, would be graded in one phase, followed by placement of utilities throughout the 106-acre portion of the site. After grading and placement of utilities, construction of buildings would then occur within the 45-acre Phase 1 boundaries (see more detailed phasing discussion in Section 3.3 of this SEIR). While such changes are limited, the analysis presented below reflects the ARC Project, as currently proposed. All updated analysis and modeling is included as Appendix B to this SEIR.

Overall, substantial changes in the MRIC Project have occurred, due to inclusion of residential units, which require major revisions of the Certified Final EIR due to the involvement of new significant air quality effects or substantial increase in severity of a previously identified significant air quality impact. However, as previously discussed, the residential component was already considered in the Mixed-Use Alternative analysis performed in the Certified Final EIR.

3-10 Violate any air quality standard or contribute substantially to an existing or projected air quality violation during construction (reference Impact 4.3-1).

Similar to the analysis presented in the Certified Final EIR, the following discussion will be based on the analysis guidelines and standards of significance of adopted by the YSAQMD. The YSAQMD's thresholds of significance for criteria pollutants are presented in Table 3-6 below.

Table 3-6
YSAQMD Thresholds of Significance

Pollutant	Construction Thresholds	Operational Thresholds
ROG	10 tons/yr	10 tons/yr
NO_X	10 tons/yr	10 tons/yr
PM_{10}	80 lbs/day	80 lbs/day

Source: YSAQMD. Handbook for Assessing and Mitigating Air Quality Impacts. July 11, 2007.

The analysis presented in the Certified Final EIR for the MRIC Project presented the potential emissions related to construction of the MRIC Project over one continuous development phase. Under such assumptions, the MRIC Project was determined to result in a less-than-significant impact with regard to construction-related emissions. Subsequent to the release of the Draft MRIC EIR, the MRIC Project was further analyzed in the Final MRIC EIR to determine potential impacts that could result from implementation of the project in phases. The emissions from the most intense phase of development, at that time Phase 4, were modeled during preparation of the Final MRIC EIR, and impacts were again shown to be less-than-significant related to violation of an air quality standard during construction of the MRIC Project. Because the ARC Project would involve

development activity over a similar area of disturbance as the MRIC Project, though on a somewhat reduced scale due to the exclusion of development of the City's 25-acre property, the emission of construction-related criteria air pollutants would likely be similar to the levels anticipated for the MRIC Project. However, several changes have occurred since the analysis of the MRIC Project was prepared. One notable change is that the CalEEMod software has been updated, with the most recent version being 2016.3.2, and now includes updated emissions rates for many sources of emissions. Furthermore, the anticipated phasing plan has been modified for the ARC Project, as described in Section 3.3 above. Phasing for the ARC Project is still anticipated to involve four distinct phases, but the project applicant has indicated that market conditions at the time of development may lead to adjustments of the timing of the phasing schedule. As such, the City has determined that in order to provide a conservative analysis, construction of the ARC Project should be anticipated to involve some overlap of phasing or construction activity. Implementation of the ARC Project would first involve grading of the southern approximately 106 acres of the ARC Site. Grading of the remaining northern portion of the project site would proceed once the southern portion of the ARC Site is built out. If the off-site detention basin option is selected, the disturbance of approximately 100 acres and excavation of all 130,000 cubic yards (CY) of soil would be completed with project initiation in Spring of 2022. All excavated material from the off-site detention basin would be imported to the project site and used for project grading. Due to the grading of the entire southern portion of the ARC Site, as well as the off-site detention basin work that would occur during project initiation, Phase 1 of the project was anticipated to represent the most intensive phase of the project. It should be noted that if the off-site detention basin is not implemented, emissions related to project construction would be less than the levels presented within this SEIR. Considering the update to the CalEEMod software, as well as the unique character of the ARC Project, an analysis of construction of Phase 1 of the project has been prepared. Phase 1 of the project was modeled under the following assumptions:

- Demolition would not be required;
- Construction of the ARC Project was assumed to commence in Spring 2022;
- Grading of the southern 106 acres of the ARC Site would occur prior to building construction for Phase 1;
- Construction of all structures included in Phase 1, as well as grading of the entire 106-acre southern portion of the ARC Site, was anticipated to occur over five years;
- The duration of site preparation, grading, building construction, and architectural coating for the ARC Project was adjusted based on applicant provided information;
- Phase 1 of the ARC Project was anticipated to include buildout of 540,000 sf of R&D uses, 0.60 acres for the transit plaza, 568 surface parking lot spaces, 723 parking garage spaces, 181multi-family residential units, and 28 townhouse units;
- Phase 1 of the ARC Project was anticipated to include a total disturbance area of 217 acres, which includes 11 acres for off-site sewer improvements as well as 100 acres for off-site detention basin work;
- 130,000 CY of soil was assumed to be required to be exported in association with the off-site detention basin, all such material would be imported to the project site, which is approximately 2.15 miles from the off-site detention basin location; and
- To provide a conservative analysis, the assumption was made that construction activity could commence on two different portions of the ARC Project during one construction

year. Therefore, during the most intensive year of building construction-related emissions (2023), an additional set of building construction and architectural coating construction phases were added to represent the potential for overlap of construction activity to occur, either during a single phase or between phases.

Although the general information for construction of the ARC Project is known or can be reasonably estimated, a similar level of information for the Mace Triangle Site is not currently available and cannot be reasonably estimated. Currently, an application for development of the Mace Triangle Site has not been submitted, and development plans for the Mace Triangle Site do not exist. Due to the lack of project-specific information for the Mace Triangle Site, any construction emissions modeling prepared for the Mace Triangle Site would be speculative, and would not allow for a meaningful analysis of potential future development of the Mace Triangle Site. Consequently, construction emissions resulting from speculative future development of the Mace Triangle Site have not been modeled at this time. Although speculative, it is reasonable to assume construction of Mace Triangle would occur after Phase 1 of the ARC Project, given that a developer for the Mace Triangle Site has not been identified at this time. Given that construction within the Mace Triangle Site is not anticipated to overlap with Phase 1 of the ARC Project, and that the size of the future Mace Triangle development is much smaller relative to the development included in each phase of the ARC Project, even if construction of the Mace Triangle Site occurs simultaneous with future phases of the ARC Project, the total amount of emissions occurring at one time would not exceed the worst-case scenario described above.

The foregoing assumptions create a conservative approach to analysis by assuming that significant overlap in construction activity would occur during the most emissions intensive portion of project construction. In practice, construction activity may not overlap to such a degree, in which case project-related emissions would be lower than the levels presented herein. Nevertheless, the construction emissions for buildout of Phase 1 are presented in Table 3-7 below. Although off-site detention basin work could occur simultaneous with implementation of Phase 1, the ground disturbance activity associated with the off-site detention basin work was modeled separately in CalEEMod. The emissions from off-site detention basin work were added into the emissions for the year 2022, as noted in Table 3-7.

It should be noted that the amount of construction activity occurring in the years 2024, 2025, and 2026 is equivalent (i.e., the same number of construction work days, equipment usage hours, etc.). Considering that construction activity is not changing, the declines in emissions presented in Table 3-7 are a result of State mandated improvements to off-road construction-equipment and the resulting reductions in emissions intensities of such equipment. Considering that mandated improvements to construction equipment would result in declining emissions, the approach taken within this analysis, of modeling Phase 1 and assuming an overlap in building construction during the first full year of project construction, represents a worst-case approach to the analysis of construction emissions. Furthermore, the following estimation of construction assumes that the off-site detention basin option would be chosen; should the off-site detention basin option not be implemeneted, emissions would be lower than those presented in the following table.

Table 3-7
Phase 1 Unmitigated ARC Project Construction-Related Emissions

Construction Year	ROG (tons/yr)	NO_X (tons/yr)	PM_{10} (lbs/day)
2022[1]	2.31	6.89	28.89
2023[2]	7.50	12.19	13.64
2024	1.96	5.89	7.58
2025	1.71	5.63	6.63
2026	1.69	5.58	6.63
2027	0.60	1.85	6.63

Notes:
[1] Emissions for the year 2022 include both on-site construction work and off-site work related to the detention basin.
[2] Emissions for the year 2023 include two concurrent building construction and architectural coating phases.

Source: CalEEMod, February 2020.

Based on the estimated emissions presented in Table 3-7, the highest annual emissions of ROG and NO_X would occur in the year 2023, assuming that two concurrent building construction and architectural coating phases were occurring. The highest per day emissions of PM_{10} would occur in 2022. Emissions during both years are presented against the YSAQMD's thresholds of significance in Table 3-8 below.

Table 3-8
Maximum Unmitigated ARC Project Construction-Related Emissions

	ROG (tons/yr)	NO_X (tons/yr)	PM_{10} (lbs/day)
2022[1]			
	2.31	6.89	28.89
YSAQMD Threshold	**10**	**10**	**80**
Exceed?	**NO**	**NO**	**NO**
2023[2]			
	7.50	12.19	13.64
YSAQMD Threshold	**10**	**10**	**80**
Exceed?	**NO**	**YES**	**NO**

Notes:
[1] Emissions for the year 2022 include both on-site construction work and off-site work related to the detention basin.
[2] Emissions for the year 2023 include two concurrent building construction and architectural coating phases.

Source: CalEEMod, February 2020.

As shown in Table 3-8, despite the overlap in off-site and on-site construction emissions and the conservative assumption that on-site construction could involve overlap as well, construction-related emissions would not exceed the YSAQMD's standards for ROG or PM_{10}. It should be noted that the emissions presented in Table 3-7 and Table 3-8 do not include YSAQMD's best management practices for dust. All projects under YSAQMD's jurisdiction are required to implement YSAQMD's best management practices, and as such, emissions of PM_{10}, a large part of which is composed of dust, would likely be lower than the levels preseted in Table 3-7 and Table 3-8. However, construction emissions would have the potential to result in emissions in

excess of the YSAQMD's standards for NO_X. Therefore, unlike the MRIC Project, the ARC Project could contribute to the region's nonattainment status of ozone and violate an air quality standard, and a ***significant*** impact associated with construction-related emissions of NO_X could result.

Mitigation Measure(s)
Implementation of the following mitigation measure would reduce the construction-related emissions of NO_X from an unmitigated annual maximum of 12.19 tons/yr to a mitigated maximum of 9.75 tons/yr, which would be below the YSAQMD's applicable threshold. Consequently, with implementation of the following mitigation measure construction-related emissions would be below the YSAMQD's applicable threshold of significance and a *less-than-significant* impact would occur.

ARC Project and Mace Triangle

3-10 *Prior to approval of any grading or demolition plans, the project applicant shall show on the plans via notation that the contractor shall ensure that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet average 20 percent NO_X reduction compared to the year 2023 California Air Resources Board (CARB) fleet average. A fleet average reduction of less than 20 percent may only be acceptable when the project applicant has demonstrated, to the satisfaction of the City's Department of Community Development and Sustainability, that the achieved reductions would be sufficient to ensure that project-related emissions would remain below YSAQMD's thresholds.*

In addition, all off-road equipment operating at the construction site must be maintained in proper working condition according to manufacturer's specifications. Idling shall be limited to 5 minutes or less in accordance with the Off-Road Diesel Fueled Fleet Regulation as required by CARB. Clear Signage regarding idling restrictions should be placed at the entrances to the construction site.

Portable equipment over 50 horsepower must have either a valid District Permit to Operate (PTO) or a valid statewide Portable Equipment Registration Program (PERP) placard and sticker issued by CARB.

3-11 Violate any air quality standard or contribute substantially to an existing or projected air quality violation during operations, and a conflict with or obstruction of implementation of applicable air quality plans (reference Impact 4.3-2).

The Certified Final EIR presented an estimate of potential emissions that would occur during operation of the MRIC Project. Through comparison of the estimated emissions to the YSAQMD's operational thresholds of significance, impacts related to violation of an air quality standard during operations were determined to be significant and unavoidable for the MRIC Project.

The ARC Project would not include any development of the 25-acre City-owned property to the northwest of the ARC Site, with the exception of grading for the ARC Project's 150-foot Agricultural Buffer, comprising approximately 6.8 acres of the 25-acre City property. The uses proposed in the ARC Project are substantively similar to the uses proposed in the Mixed-Use Alternative that was analyzed in the Certified Final EIR. Because updates to the CalEEMod software have been released since preparation of the Certified Final EIR, and Fehr and Peers has completed new trip generation and VMT estimates for the ARC Project, the potential emissions resulting from operation of the ARC Project have been analyzed independently for this SEIR.

Emissions related to operations of the ARC Project were modeled in CalEEMod under the following assumptions:

- Project land uses were based on the land uses presented in Section 3.3 above;
- Project-related trip rates and the VMT were adjusted based on project-specific information from Fehr and Peers;
- The percentage of paved roads within the project area was adjusted to 100 percent based on the location of the project in an urbanized area;
- Future residences would not include hearths; and
- In compliance with YSAQMD rules and regulations, only low-volatile organic compound containing cleaning products would be used on-site.

In addition to the emissions modeling of the ARC Project, operations of a potential future buildout scenario for the Mace Triangle Site were also modeled in CalEEMod. The emissions modeling for the Mace Triangle Site relied on the following assumptions:

- Mace Triangle land uses were based on those assumed in the Certified Final EIR and summarized in Section 3.3 above;
- Mace Triangle-related trip rates and the VMT were adjusted based on project-specific information from Fehr and Peers;
- The percentage of paved roads within the project area was adjusted to 100 percent based on the location of the project in an urbanized area; and
- In compliance with YSAQMD rules and regulations, only low-volatile organic compound containing cleaning products would be used on-site.

As noted in the list of assumptions above, CalEEMod was adjusted to reflect information from Fehr and Peers. Fehr and Peers prepared an operational analysis of the project under two scenarios, an existing plus project scenario and a cumulative plus project scenario. Although the trip generation rates did not vary between the two scenarios, the VMT rates did vary. Consequently, operations of the proposed project have been modeled under both scenarios. It should be noted that due to the speculative nature of potential future development of the Mace Triangle Site, construction emissions were not modeled for the Mace Triangle Site; however, operations of the Mace Triangle Site were estimated for both the existing plus project scenario and the cumulative plus project scenario. Based on the construction schedule for the ARC Project, the first year of operations of the entire built out ARC Project (i.e., all four ARC Project phases) would not be anticipated to occur until approximately 2042. Although the first year of full ARC Project

operations would likely not occur until 2042, for the purposes of air quality analysis the year 2035 was selected as the year for which project modeling was conducted. To maintain consistency between the emissions modeling prepared for the ARC Project and the Mace Triangle Site, an operational year of 2035 was also used for the Mace Triangle Site.

Several factors led to the selection of the year 2035 for operational emissions modeling. First, Fehr and Peers used a cumulative year of 2036 for the VMT analysis. CalEEMod does not allow the selection of the year 2036 for future emissions calculations; rather, the nearest available years to 2036 are 2035 and 2040. Various sources of emissions, such as vehicle fleets and electricity generation are assumed by CalEEMod to become less emissions intensive with time, thus, the selection of the year 2035 as the operational year represents a conservative approach to analysis as opposed to the year 2040.

Based on the assumptions presented above, the ARC Project would result in operational emissions as shown in Table 3-9. It should be noted that the change in circumstances related to updated trip generation, VMT, and CalEEMod have all contributed to the estimate of emissions, presented in Table 3-9, and potential differences in emissions estimates as compared to the emissions estimates presented in the Certified Final EIR.

Table 3-9
Maximum Unmitigated ARC Project and Mace Triangle Site Operational Emissions

	ROG (tons/yr)	NO_X (tons/yr)	PM_{10} (lbs/day)
Existing Plus Project Conditions			
ARC	19.41	42.25	230.47
Mace Triangle	0.44	1.35	7.29
Total	19.85	43.60	237.76
YSAQMD Threshold	**10**	**10**	**80**
Exceed?	**YES**	**YES**	**YES**
Cumulative Plus Project Conditions			
ARC	19.04	39.31	188.92
Mace Triangle	0.43	1.23	5.74
Total	19.47	40.54	194.66
YSAQMD Threshold	**10**	**10**	**80**
Exceed?	**YES**	**YES**	**YES**

Source: CalEEMod, February 2020.

As shown in Table 3-9, and similarly to the MRIC Project, emissions of ROG, NO_X, and PM_{10} would exceed the applicable YSAQMD thresholds of significance under the existing plus project conditions (refer to Impact 3-91 of this Chapter for a further discussion of impacts under cumulative conditions). Accordingly, the ARC Project would result in a contribution to the region's nonattainment status of ozone and PM, and could violate an air quality standard or contribute substantially to an existing or projected air quality violation, and a ***significant*** impact would occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would ensure that project-related operational emissions are reduced to the maximum extent feasible. However, significant uncertainty exists as to the degree to which the individual emissions reduction actions presented below can be implemented in the ARC Project. Consequently, given the uncertainty of implementation of the following mitigation measures, and similar to the conclusions reached for the MRIC Project, the impact of the ARC Project is anticipated to remain *significant and unavoidable*.

ARC Project and Mace Triangle

3-11 *Prior to issuance of any entitlement or permit, the project applicant shall work with the City of Davis, the YSAQMD, and/or other air districts within the region (as appropriate) to develop and implement a strategy to mitigate ROG and NOx, and PM_{10}. The strategy must reduce emissions from project operation to levels at or below the applicable YSAQMD thresholds of significance to the maximum extent feasible. Feasible on-site actions to reduce emissions shall receive highest priority for implementation. Emissions that cannot be reduced through on-site actions shall be mitigated through off-site action. The strategy and all actions shall be subject to review and approval by the City in consultation with the YSAQMD, and, if applicable, the air quality management district or air pollution control district within which the off-site mitigation project is located. On-site actions may include, but shall not be limited to the following:*

- *Reducing the total amount of paved area within the ARC Site in order to reduce off-gassing, emissions from restriping and painting, and the urban heat island effect;*
- *Using concrete or other non-emitting materials for parking lots instead of asphalt;*
- *Reducing vehicle trips through implementation of a Traffic Demand Management program, such as that required in Mitigation Measure 3-72(a);*
- *Using passive heating and cooling systems for buildings;*
- *Using natural lighting in buildings to the extent practical;*
- *Installing mechanical air conditioners and refrigeration units that use non-ozone depleting chemicals;*
- *Providing electric outlets outside of buildings, sufficient to allow for use of electric landscaping equipment;*
- *Hiring landscaping companies that use primarily electric landscaping equipment;*
- *Using zero-VOC paints, finishes, adhesives, and cleaning supplies on all buildings on the project site;*
- *Employing vehicle fleets that use only cleaner-burning fuels;*
- *Prohibiting the installation of natural gas fueled space and water heating equipment, and/or other large appliances such as ranges and stoves, within portions of the project; and*

- *Providing electrical vehicle charging stations in excess of local and/or State standards in each phase of the project.*

Off-site actions may include, but shall not be limited to, the following:

- *Retrofitting stationary sources such as back-up generators or boilers with new technologies that reduce emissions;*
- *Replacing diesel agriculture water pumps with alternative fuels;*
- *Funding projects within an adopted bicycle/pedestrian plan;*
- *Replacing non-USEPA wood-burning devices with natural gas or USEPA-approved fireplaces;*
- *Providing energy efficiency upgrades at government buildings;*
- *Installing alternative energy supply on buildings;*
- *Replacing older landscape maintenance equipment with newer, lower-emission equipment;*
- *Payment of mitigation fees into an established air district emissions offset program.*

The Reduction Strategy shall include requirements to ensure that the Reduction Strategy document is enforceable and measurable. A mechanism for oversight, monitoring and reporting through the project Master Owners Association (MOA) to the City shall be included as a part of the strategy. Because ROG, NO_X, and PM_{10} are pollutants of regional concern, the emissions reductions for these pollutants may occur anywhere within the lower Sacramento Valley Air Basin (e.g., within YSAQMD, the Sacramento Metropolitan Air Quality Management District, or the Placer County Air Pollution Control District).

In General, emissions reduction measures implemented for development within the ARC Site shall use the following prioritization:

- *First Priority – building specific actions;*
- *Second priority – onsite (within ARC Site) actions;*
- *Third priority – community based (within Davis) actions;*
- *Fourth priority – within YSAQMD jurisdiction;*
- *Fifth priority – within the Sacramento Federal Nonattainment Area; and*
- *Sixth priority – within California.*

3-12 Expose sensitive receptors to substantial pollutant concentrations (reference Impact 4.3-3).

The principal categories of pollutants of concern are carbon monoxide (CO), toxic air contaminants (TACs), and criteria pollutants. Each category of pollutants is discussed separately below.

CO Emissions

Impacts related to exposure of sensitive receptors to substantial pollutant concentrations were determined to be less-than-significant for the MRIC Project. As discussed in the Transportation and Circulation section below, as a result of the changes in methodology for calculating vehicle trip generation rates and VMT, vehicle trip generation associated with the ARC Project would increase relative to the MRIC Project. According to Fehr & Peers, the ARC Project would generate 23,888 new daily (external) vehicle trips, with 2,232 trips occurring during the AM peak hour and 2,479 trips occurring during the PM peak hour. For comparison, the MRIC Project would generate 15,550 new daily, 2,361 AM, and 2,175 PM trips. Due to the increase in vehicle trips as a result of the ARC Project, in comparison to the MRIC Project, the potential for the ARC Project to cause localized CO concentrations would be greater than the MRIC Project. In addition, a modified set of study intersections has been chosen to evaluate the ARC Project, relative to the intersections analyzed in the Certified Final EIR. Furthermore, as noted above, the USEPA currently recommends the use of AERMOD in place of CALINE4, which was used for the Certified Final EIR analysis. For the aforementioned reasons, the potential for the ARC Project to result in localized CO emissions that could violate the CO AAQS has been evaluated in detail.

As explained in the Certified Final EIR, per the YSAQMD screening methodology, if either of the following occurs associated with any intersection affected by a project, then that project has the potential to result in localized CO emissions that could violation CO standards:

- A traffic study for the project indicates that the peak-hour Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to an unacceptable LOS (typically LOS E or F); or
- A traffic study indicates that the project will substantially worsen an already existing peak-hour LOS F on one or more streets or at one or more intersections in the project vicinity. "Substantially worsen" includes situations where delay would increase by 10 seconds or more when project-generated traffic is included.

A detailed analysis of the project's impacts to study intersections is presented below, under the Transportation and Circulation section of this document. Based on the analysis within the Transportation and Circulation section, the increase in traffic due to implementation of the ARC Project would cause either or both of the above-listed conditions to occur at a number of intersections under both the Existing Plus Project and Cumulative Plus Project Conditions. Although the ARC Project would meet the screening criteria for a number of intersections, only the worst-case intersections (i.e., the intersections with the worst LOS, highest delay, and highest traffic volumes) were modeled, as all other intersections would experience less traffic volumes and less delay. Thus, all other intersections that would be potentially affected by the ARC Project would not be expected to experience CO concentrations in excess of the highest predicted CO concentrations associated with the worst-case intersections analyzed.

For the ARC Project, the worst-case intersections were determined to be I-80 WB Ramps/Mace Boulevard during the PM peak hour and I-80 EB Off-Ramp/Chiles Road during the AM peak hour under Cumulative Plus Project Conditions, due to worst LOS, highest delays, and highest volumes. Thus, the aforementioned intersections and associated peak hour conditions were modeled using

AERMOD in order to determine their associated localized CO concentrations. A highly conservative assumption that the nearest sensitive receptor to the worst-case intersection approaches would be approximately 10 feet (3 meters) from the edge of right-of-way was applied to the model. Such a distance provides a conservative estimate, as a sensitive receptor would not be located within such close proximity to any of the potentially affected intersections. The results of the model were compared to the threshold established by the YSAQMD, which refers to the CAAQS for CO.

Based on the AERMOD modeling results, Table 3-10 shows the worst-case concentration of CO from the I-80 WB Ramps/Mace Boulevard intersection and the I-80 EB Off-Ramp/Chiles Road intersection at a distance of approximately 10 feet (3 meters) from the edge of right-of-way of each intersection approach during both a 1-hour and 8-hour averaging period. As shown in Table 3-10, the highest predicted concentrations of CO associated with the worst-case intersections would be well below the 1-hour and 8-hour CAAQS for CO. Because all other affected intersections would involve lower volumes of traffic, less of a delay, and would not be located within 10 feet of the nearest sensitive receptor, the CO concentrations resultant of all other intersections would be expected to be less than what has been estimated for the I-80 WB Ramps/Mace Boulevard and the I-80 EB Off-Ramp/Chiles Road intersections. Therefore, similar to the MRIC Project, the ARC Project's impact related to a contribution to local mobile-source concentrations of CO would be less than significant.

Table 3-10
ARC Project Maximum Predicted CO Concentrations

Intersection	CO Concentration (ppm)
1-Hour Average	
I-80 WB Ramps/Mace Boulevard	2.83
I-80 EB Off-Ramp/Chiles Road	1.76
State Standard	**20.0**
8-Hour Average	
I-80 WB Ramps/Mace Boulevard	1.39
I-80 EB Off-Ramp/Chiles Road	1.24
State Standard	**9.0**

Source: AERMOD, February 2020.

TAC Emissions

Residential land uses are not typically associated with long-term TAC emissions; however, in general, the same potential to generate emissions of TACs, particularly diesel particulate matter (DPM) during construction, would occur for the ARC Project as compared to the MRIC Project. Similar to the MRIC Project, to the extent the future uses are known, the ARC Project would not be expected to involve long-term operation of any stationary diesel engines or other major on-site stationary source of TACs.

Due to the updated methodologies employed to model construction emissions for the ARC Project, the potential for construction of the ARC Project to result in health risks to nearby receptors was also re-analyzed. It should be noted that since publication of the Certified Final EIR, two new

residences were constructed north of CR 30B, approximately 1,130 feet northeast of the nearest project site boundary. The two new residences, as well as all other sensitive receptors in the project area, were included in the health risk analysis prepared for the ARC Project. Other nearby receptors include attendees of the day care at the University Covenant church, residents of the residential areas to the west of the project site, students at Frances Harper Junior High School, and receptors located to the south of I-80. The day care at the University Covenant church is the nearest location of sensitive receptors to the site.

Due to the lack of a development application for the Mace Triangle Site, construction modeling for the Mace Triangle would be highly speculative at this time. Furthermore, the Mace Triangle Site is further from the nearest sensitive receptors, and would not have the potential to expose sensitive receptors to substantial health risks during construction or operations. Therefore, although operations of the Mace Triangle Site have been analyzed within this document with respect to criteria pollutant emissions and GHG emissions, Mace Triangle will not be further analyzed with respect to the emission of TACs.

To analyze potential health risks to nearby receptors that could result from DPM emissions from off-road equipment at the project site, DPM emissions from project construction were estimated. DPM is considered a subset of $PM_{2.5}$, thus, the CalEEMod-estimated $PM_{2.5}$ emissions from construction exhaust was conservatively assumed to represent all DPM emitted on-site and related to hauling of material from the off-site drainage basin. As discussed previously, construction emissions modeling for the ARC Project was prepared for Phase 1 of the project, which is considered to represent the most intensive phase of construction. Conservative assumptions used in the construction modeling of Phase 1 included overlapping building construction and architectural coating phases for the first full year of building construction, completion of all off-site sewer improvement work within Phase 1, and inclusion of all emissions from hauling material from the off-site detention basin to the site. However, the object of the health risk analysis prepared for the ARC Project was to not only present health risks related to the most intensive phase of construction, but, instead, to present the health risks for the entire 20-year construction period. As a conservative method of estimating construction emissions throughout buildout of the entire ARC Project, all subsequent phases of the ARC Project were assumed to result in similar emissions as are anticipated for Phase 1. Consequently, health risks presented herein represent the health risks that would occur should emissions over Phases 2, 3, and 4 equal the emissions that are anticipated to occur in Phase 1. In practice, Phases 2, 3, and 4 would not include the same level of soil import, nor the same degree of grading as anticipated for Phase 1, and, as a result, Phases 2, 3, and 4 would likely result in fewer construction-related emissions than Phase 1.

Finally, although construction activity would occur periodically over separate sections of the project site, for the purposes of the health risk analysis, sources of construction-related emissions were concentrated on the southern portion of the project site for the entire duration of construction activity. Concentrating sources of emissions on the southern portion of the project site would place sources of emissions in the closest proximity to the nearest sensitive receptor (i.e., the University Covenant Church). Spreading sources of emissions out over the entirety of the project site would likely reduce the calculated maximum emissions concentrations, and, thus, the approach taken in the health risk analysis is considered conservative.

Under the conservative assumptions discussed above, DPM concentrations resulting from project implementation were estimated using (AERMOD) dispersion model. The associated cancer risk and non-cancer hazard index were calculated using the CARB's Hotspot Analysis Reporting Program Version 2 (HARP 2) Risk Assessment Standalone Tool (RAST), which calculates the cancer and non-cancer health impacts using the risk assessment guidelines of the 2015 Office of Environmental Health Hazard Assessment (OEHHA) Guidance Manual for Preparation of Health Risk Assessments.[12] The modeling was performed in accordance with the USEPA's User's Guide for the AERMOD[13] and the 2015 OEHHA Guidance Manual.

The foregoing modeling methodology produced an estimate of the one-hour maximum and annual average concentration of DPM at the maximally exposed receptor. In the case of the ARC Project, the maximally exposed receptor was calculated to be receptors located at the University Covenant Church, which is located opposite the site, across Mace Boulevard. All other receptors, including those located at residences and schools in the project vicinity would be exposed to comparatively lower emissions concentrations than the concentrations at the University Covenant Church. Based on the OEHHA Guidelines, younger age groups are generally more susceptible to health risks than older age groups. Consequently, prenatal to 16-year-old receptors are considered some of the most vulnerable to health impacts related to TACs. The potential exists that pregnant mothers as well as infants and young children could be present at the University Covenant Church, during sermons and/or pre-school throughout the week. To provide a conservative approach to the calculation of health risks, the assumption was made that a receptor would be exposed to the project construction-related DPM over the entire buildout period, which was assumed to be 20 years.

Based on the above, the increased cancer risk and non-cancer hazard index at the maximally exposed receptor resulting from exposure to the maximum quantified concentration of DPM over the entire work period are shown in Table 3-11.

As shown in Table 3-11, and despite the highly conservative approach to analysis taken for this health risk analysis, the ARC Project would not result in health risks in excess of the YSAQMD thresholds being applied for the project. Consequently, the ARC Project would not result in the exposure of nearby receptors to substantial concentrations of TACs.

Table 3-11
Cancer Risk and Hazard Index Associated with Unmitigated Project Construction DPM

	Cancer Risk (per million persons)	Non-Cancer Hazard Index	
		Acute	Chronic
At Maximally Exposed Receptor	6.26	0.00	0.00
Thresholds of Significance	10	1.0	1.0
Exceeds Threshold?	**NO**	**NO**	**NO**

Source: CalEEMod, AERMOD, and HARP 2 RAST, January and February 2020.

[12] Office of Environmental Health Hazard Assessment. *Air Toxics Hot Spots Program Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments* [pg. 8-18]. February 2015.

[13] U.S. Environmental Protection Agency. *User's Guide for the AMS/EPA Regulatory Model (AERMOD).* December 2016.

Although the project is not considered to result in significant health impacts, it should nevertheless be noted that due to the methods employed to estimate construction-related emissions and emissions concentrations, the health risks presented herein are likely greater than the health risks that would actually be experienced by nearby receptors.

In addition to the health risks posed by construction of the ARC Project, the existing ARCO gas station at the corner of 2nd Street and Mace Boulevard presents a health risk to nearby receptors. YSAQMD assesses the health risk of the ARCO gas station every four years, with the most recent evaluation having been prepared in 2017.[14] To provide a worst-case analysis, the conservatively estimated health risks from implementation of the ARC Project at the nearest receptor have been combined with the health risks for ARCO calculated by the YSAQMD. The resulting health risks are presented in Table 3-12 below.

Table 3-12
Cancer Risk and Hazard Index Associated with ARC Project Construction DPM and the Existing ARCO Gas Station

	Cancer Risk (per million persons)	Non-Cancer Hazard Index	
		Acute	Chronic
ARC Project	6.26	0.00	0.00
Existing ARCO Gas Station	0.08	0.13	0.09
Total	6.34	0.13	0.09
Thresholds of Significance	10	1.0	1.0
Exceeds Threshold?	**NO**	**NO**	**NO**

Sources: CalEEMod, AERMOD, and HARP 2 RAST, January and February 2020; YSAQMD. AB2588 Summary Report. September 9, 2017.

It should be noted that YSAQMD's thresholds presented in Table 3-12 are intended for use when analyzing individual sources of health risks. Because Table 3-12 presents health risks from two different sources, the use of YSAQMD's single-source threshold of significance is not necessarily applicable for determining the significance of emissions from construction of the ARC Project in combination with existing operations of the ARCO gas station. Nevertheless, the total health risks are presented in the context of YSAQMD's single-source threshold for informational purposes. Even when the combined health risk of ARC Project construction and ARCO operations are considered, the combined health risks would not exceed YSAQMD's single-source threshold of significance. Consequently, implementation of the ARC Project in combination with existing sources of pollution would not result in the exposure of sensitive receptors to substantial pollutant concentrations.

Criteria Pollutants

Unlike CO and TACs, criteria pollutants do not typically result in direct or localized health effects. Instead, health effects from criteria pollutants are experienced on a cumulative air basin-wide level. Due to the cumulative nature of health effects related to criteria pollutants, the potential for

[14] Yolo-Solano Air Quality Management District. *AB2588 Summary Report*. September 9, 2017.

implementation of the proposed project to result in the exposure of sensitive receptors to substantial criteria pollutant concentrations is discussed in further depth in Impact 3-88.

Conclusion

Considering the information presented above regarding CO emissions, TAC emissions, and criteria pollutants, the ARC Project would not result in the exposure of sensitive receptors to substantial pollutant concentrations sufficient to result in negative health effects. Consequently, the ARC Project would result in a ***less-than-significant*** impact.

Mitigation Measure(s)
None required.

3-13 Create objectionable odors affecting a substantial number of people (reference Impact 4.3-4).

Considering that the updated CEQA Guidelines have included alterations to this question, the following discussion will provide information related to emissions of pollutants that could have the potential to adversely affect sensitive receptors within the project area. Pollutants of principal concern include emissions leading to odors, visible emission (including dust), or emissions considered to constitute air pollutants. Air pollutants have been discussed above. Therefore, the following discussion focuses on emissions of odors and visible emissions.

Odors

As determined in Section 4.3 of the Certified Final EIR, construction and operation of the MRIC Project would not create substantial objectionable odors. Impacts related to objectionable odors were determined to be less-than-significant for the MRIC Project. The ARC Project would involve similar development, but over a reduced acreage due to the exclusion of the 25-acre City-owned property, as the MRIC Project but with the inclusion of a residential component. The non-residential uses included in the ARC Project, and potential future uses of the Mace Triangle Site, would have the same potential to create objectionable odors as would occur under the MRIC Project. As determined in Section 4.3 of the Certified Final EIR, the proposed non-residential uses would not be expected to create objectionable odors that would affect a substantial number of people. Residential uses are not typically associated with the generation of objectionable odors. It should be noted that diesel fumes from construction equipment are often found to be objectionable; however, construction is temporary and associated diesel emissions would be regulated in accordance with the In-Use Off-Road Diesel Vehicle Regulation. In addition, the ARC Project would be required to comply with all applicable YSAQMD rules and regulations, including, but not limited to, Rule 2.1, Rule 2.28, and Rule 2.5, which would help to control construction-related odorous emissions.

The YSAQMD also regulates objectionable odors through Rule 2.5 (Nuisance), which prohibits any person or source from emitting air contaminants or other material that result in any of the following: cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; endanger the comfort, repose, health, or safety of any such persons or

the public; or have a natural tendency to cause injury or damage to business or property. Rule 2.5 is enforced based on complaints. If complaints are received, the YSAQMD is required to investigate the complaint, as well as determine and ensure a solution for the source of the complaint, which could include operational modifications. Thus, although not anticipated, if odor complaints were made after the ARC Project was developed, the YSAQMD would ensure that such odors are addressed and any potential odor effects reduced to less than significant.

Visible Emissions

YSAQMD Regulation II Rule 2.5 prohibits discharge of air contaminants from any source that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, with limited exceptions for agricultural activities. One category of emissions that would be controlled under Rule 2.5 is visible emissions. YSAQMD Rule 2.3 regulates visible emissions from various sources and establishes standard requirements for control of such emissions. Construction equipment on-site would be required to meet the visible emissions standards of Rule 2.3, and, considering the regulated nature of construction equipment, as well as the temporary use of such equipment on-site, would not be anticipated to result in substantial visible emissions. Should operation of the ARC Project include equipment or other processes that result in emissions, such sources of emissions would not only be subject to the foregoing regulations, but would be required to comply with all relevant sections of Regulation III, related to the YSAQMD's permit system. The combined effect of the aforementioned regulations and rules would be that visible emissions during both construction and operational activities within the ARC and Mace Triangle Sites would be heavily regulated, and YSAQMD would ensure that visible emissions are addressed and any potential effects are reduced to a less-than-significant level.

Conclusions

For the aforementioned reasons, construction and operation of the ARC Project would not create objectionable odors or visible emissions, and ***less-than-significant*** impacts related to objectionable odors and visible emissions would result.

Mitigation Measure(s)
None required.

3-14 Conflict, or create an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to air quality (reference Impact 4.3-5).

Impacts related to conflicts with plans, policies, or regulations related to air quality, as they pertain to the non-residential uses included in the ARC Project, were evaluated for the MRIC Project in Section 4.3 and determined to be less than significant. For the ARC Project, additional City of Davis housing policies and regulations are applicable to residential uses. These additional housing policies and regulations are evaluated in the appropriate sections of this analysis, namely, the Land Use and Urban Decay section (Impact 3-55), and the Population and Housing section (Impact 3-63). The physical environmental effects of the housing component of the ARC Project are evaluated throughout the appropriate technical sections of this SEIR (e.g., GHG, noise).

With regard to air quality in particular, the City of Davis General Plan includes one policy related to air quality, Policy AIR 1.1, which states, "Take appropriate measures to meet the AQMD's goal for improved air quality." The policy implies that the ARC Project be consistent with the YSAQMD's established air quality plans, thresholds of significance, and rules and regulations. As discussed throughout the impact discussions above, the ARC Project is required to comply with all applicable YSAQMD rules and regulations. Although, as determined above, the ARC Project would result in operational emissions of criteria pollutants in excess of the applicable threshold of significance, overall, the proposed project would include design features that would support the City's policy of improved air quality. Specifically, per Mitigation Measure 3-72(a) and (b) in this SEIR, a TDM Program would be required to be implemented, which would contribute towards a reduction in VMT and an associated reduction in air pollutant emissions. In addition, the City objectives for the proposed project include, but are not limited to, the following: application of low impact development principles; minimization of the carbon footprint of the proposed project; vehicle trip reduction via multiple transportation modes; and building envelope efficiencies.

Incorporation of the aforementioned project features would support a project-level reduction in emissions, which would contribute towards the City policy of taking appropriate measures to meet the YSAQMD's goal for improved air quality. Consequently, the ARC is found to be substantially compliant with the City's air quality policy and would not be considered to conflict, or create an inconsistency, with an applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to air quality. Impacts would be ***less than significant***.

Mitigation Measure(s)
None required.

Biological Resources (reference Section 4.4 of the Certified Final EIR)

The impacts related to biological resources as a result of buildout of the site per the ARC Project in comparison to that of the MRIC Project are presented below.

Changes in Circumstances

Regulatory Context

Adoption of Yolo HCP/NCCP

Since certification of the Final Certified MRIC EIR, the Yolo Habitat Conservation Plan/Natural Community Conservation Plan (Yolo HCP/NCCP) -- a countywide conservation plan -- was completed in 2018. Implementation of this plan began on January 11, 2019. The goal of the Yolo HCP/NCCP is to conserve natural open space and agricultural areas that provide habitat for special status and at-risk species found within the habitats and natural communities in Yolo County. The Yolo HCP/NCCP provides permits and associated mitigation pursuant to the Federal and State Endangered Species Acts for a variety of development activities and infrastructure improvements identified for construction over the next 50 years in Yolo County. All activities associated with the Yolo HCP/NCCP are conducted under the oversight of the Yolo Habitat Conservancy (YHC), a joint powers authority comprised of the County of Yolo and the cities of Davis, West Sacramento, Winters, and Woodland.

The Yolo HCP/NCCP requires the YHC to protect approximately 33,300 acres over 50 years, primarily through the acquisition of habitat conservation easements on agricultural land funded with development fees paid to the YHC by project proponents. The Yolo HCP/NCCP coordinates these conservation efforts to ensure that the lands are selected consistent with a conservation strategy based on biological criteria, including the selection of lands that provide habitat to multiple species and which are located near existing protected lands and riparian areas. The YHC consults regularly with the CDFW and the U.S. Fish & Wildlife Service (USFWS) to ensure that the Yolo HCP/NCCP is successfully and sustainably implemented.

The Yolo HCP/NCCP provides coverage for impacts associated with the proposed ARC Site, which is consistent with the former MRIC Site (See Yolo HCP/NCCP, Section 3.5.1.3.1.) The impact analysis and required mitigation in this Section are consistent with the requirements of the Yolo HCP/NCCP.

Clean Water Act Waters of the U.S.

The U.S. Army Corps of Engineers (USACE) and USEPA regulate the discharge of dredge and fill material into "waters of the United States" under Section 404 of the Clean Water Act (CWA; 33 U.S.C. 1344). New regulations defining waters of the U.S. became effective on August 28, 2015 (Clean Water Rule; 80 FR 37054). The rule, however, was stayed in federal court. After an August 16, 2018 district court ruling, the rule was reinstated for 23 states including California. On October 22, 2019, the USEPA and USACE published a final rule to repeal the 2015 Clean Water Rule. That final rule became effective on December 23, 2019 (84 FR 56626). As of the December

23, 2019 effective date, the Code of Federal Regulations (CFR) was recodified to the prior regulations that existed before the 2015 rule.

On January 23, 2020, the USEPA and USACE announced the Navigable Waters Protection Rule (NWPR), which will replace current CFRs. The NWPR becomes effective 60 days after publication in the Federal Register; as of February 14, 2020, the NWPR has not been published in the Federal Register. Litigation over the NWPR could delay its implementation. Until the NWPR becomes effective, the Sacramento District of the USACE will implement the current CFRs with guidance from Supreme Court decisions such as *Rapanos v. United States* and *Carabell v. United States* (USACE 2008). As a storm drainage ditch constructed in uplands, the MDC would be considered subject to 404 jurisdiction under both the 2020 NWPR and the current CFRs.

Waters of the State

The State Water Resources Control Board adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), for inclusion in the Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California (April 2019) (23 Cal. Code Regs., § 3013).

The Procedures consist of four major elements: 1) a wetland definition; 2) wetland delineation procedures; 3) a wetland jurisdictional framework; and 4) procedures for the submittal, review and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. The Procedures will apply to all applications for discharges of dredged or fill material to waters of the state beginning May 28, 2020.

The Procedures strengthen the protection of waters of the state that are no longer protected under the federal Clean Water Act (CWA) due to U.S. Supreme Court decisions and changes to regulatory definitions. The State Water Code defines "waters of the state" broadly to include "any surface water or groundwater, including saline waters, within the boundaries of the state." "Waters of the state" includes all "waters of the U.S." The Procedures define three categories of wetlands that are waters of the state: natural wetlands, wetlands created by modification of a surface water of the state, and artificial wetlands that meet certain criteria.

The cattails and the non-native invasive perennial pepperweed in the bottom of the MDC may constitute an "artificial wetland" as defined by the Procedures, given that it is a wetland that "results from human activity." (Procedures, Section II.3, note 4.) Pursuant to Section II.3.d.iii of the Procedures, however, this artificial wetland is not a waters of the State because the MDC is constructed in uplands, and is currently used and maintained by the City of Davis primarily for the purpose of conveying "runoff subject to regulation under a municipal stormwater permitting program," which is the Phase II Small MS4 General Permit. !

Section IV.D. of the Procedures discusses activities and areas excluded from application procedures. Section IV.D.1.c. explains that routine and emergency operation and maintenance activities conducted by public agencies that result in discharge of fill material to artificial, existing waters of the state, including for the purpose of preserving the flow capacity within the existing footprint of a flood control or stormwater conveyance facility, are exempt from permitting. In

addition, the Procedures exclude from permitting requirements any activities that are exempt under Section 404(f) of the federal Clean Water Act. This includes discharges associated with the maintenance of drainage ditches. (33 C.F.R. 323.4(a)(3); 40 C.F.R. 232.3(c)(3).) The "maintenance" activities included under this exemption include "repair…to keep the ditch in its existing state or proper function" as well as the excavation of accumulated sediments, reshaping of side slopes and bank stabilization, amongst other activities. (U.S. Army Corps of Engineers, Regulatory Guidance Letter No. 07-02 (July 4, 2007).)

Listing Status

Tricolored blackbird was formally listed as Threatened under the California Endangered Species Act on March 18, 2019 (California Fish and Game Commission 2019). At the time the Final MRIC EIR was certified (2015), tricolored blackbird was listed as a CDFW Species of Special Concern. Tricolored blackbird was addressed in the Certified Final EIR and is addressed within this SEIR in Impact 3-20. As discussed, tricolored blackbird is a covered species under the Yolo HCP/NCCP; thus, the avoidance and minimization measures set forth in the HCP/NCCP are required in this SEIR through Mitigation Measure 3-20(b).

CNDDB Occurrences

As part of Sycamore Environmental's updated Biological Resources Evaluation (BRE) (see Appendix C to this SEIR), a new search of the CDFW-maintained California Natural Diversity Database (CNDDB) was performed. The updated database queries include eight special-status species not previously detected in the CNDDB search performed for the original biological analysis (2015). These species are listed and evaluated in Table 3-13 below. The 265.09-acre ARC Biological Study Area (BSA) provides potential habitat for northern harrier (*Circus hudsonius*; foraging habitat only), pappose tarplant (*Centromadia parryi* ssp. *parryi*), and Jepson's coyote thistle (*Eryngium jepsonii*). With the exception of northern harrier, none of the species evaluated in Table 1 were observed in the BSA during biological or botanical surveys, including the protocol floristic botanical surveys conducted on May 19, 2015, September 11, 2015, and August, 7 2019. Northern harrier is addressed in Impact 3-20 and mitigation has been incorporated to ensure that potential ARC Project impacts to northern harrier are less than significant.

Ground Conditions

In general, since certification of the Final MRIC EIR, the ARC Site has remained vacant and undeveloped. Agricultural production continues to occur on the properties to the north and east of the ARC Site. Changes have occurred in the overall biological study area. Most notable, is the establishment of additional elderberry shrubs, which are the host plant for the federally-Threatened Valley elderberry longhorn beetle (VELB). Specifically, three additional elderberry shrubs were observed just outside the ARC Site during the August 7, 2019 field survey. Two of these occur along the eastern boundary of the site, approximately 280 and 600 feet north of CR 32A, respectively. The third shrub is on the road shoulder north of the 'Mace Curve', just north of the CR 104 intersection. Impacts to VELB are addressed in Impact 3-16 and mitigation measures, consistent with the Yolo HCP/NCCP have been incorporated into this SEIR.

Table 3-13
Evaluation of Special-Status Species Not Previously Considered

Special-Status Species/ Common Name	Federal Status[a]	State Status[a,b]	Source	Habitat Requirements	Potential to Occur in the ARC BSA?
Invertebrates					
Bombus occidentalis occidentalis Western bumble bee	--	C	2	Colony-nesting bumble bee found in meadows and grasslands with abundant floral sources. Requires adequate nectar and pollen supplies from February to November. Common nectar sources include *Cirsium*, *Eriogonum*, *Solidago*, *Aster*, and *Ceanothus*. Requires floral resources distributed over the spring, summer, and fall. Nests in underground cavities such as squirrel burrows and in open west- and southwest-facing slopes often bordered by trees. Occasionally nests above ground in logs. Isolated patches of habitat are not sufficient to fully support bumble bee populations. Historically common on the west coast of North America from southern British Columbia, through central CA, south to NM. In CA, western bumble bee is now restricted to high-elevation Sierra Nevada sites and a few records along the north coast (Xerces 2018).	No. The BSA is mostly disked agricultural fields. The primarily agricultural region lacks sufficient floral resources distributed over the spring, summer, and fall. This species has been extirpated from the valley floor. There are no CNDDB records of this species in the Central Valley after 1980.
Bombus crotchii Crotch bumble bee	--	C	2	Inhabits open grassland and scrub habitats. Primarily nests underground. Generalist foragers visiting a wide variety of flowering plants including plants in the *Fabaceae, Apocynaceae, Asteraceae, Lamiaceae*, and *Boraginaceae*. Requires floral resources distributed over the spring, summer, and fall. Isolated patches of habitat are not sufficient to fully support bumble bee populations. Historically common in the Central Valley, now considered extirpated from the northernmost part of the Valley, and nearly absent from Arbuckle, south (Hatfield et al. 2014; Xerces 2018).	No. The BSA is mostly of disked agricultural fields. The primarily agricultural region lacks sufficient floral resources distributed over the spring, summer, and fall. This species is potentially extirpated from the valley floor. There are no CNDDB records of this species in the Central Valley after 2007.

Table 3-13
Evaluation of Special-Status Species Not Previously Considered

Special-Status Species/ Common Name	Federal Status[a]	State Status[a,b]	Source	Habitat Requirements	Potential to Occur in the ARC BSA?
Birds					
Circus hudsonius Northern harrier	--	SSC	2	Occurs in annual grassland up to lodgepole pine and alpine meadow habitat as high as 10,000 feet. Breeds from sea level to 5,700 feet in the Central Valley and Sierra Nevada Mountains, and up to 3,600 feet in northeastern CA. Frequents meadows, grasslands, open rangelands, desert sinks, and both fresh and saltwater emergent wetlands. Seldom found in wooded areas. Uses tall grasses and forbs in wetlands, or at the wetland/field border, for cover. Roosts and nests on the ground in shrubby vegetation, usually at marsh edges. Typically nests in emergent wetlands or along rivers or lakes, but may nest in grasslands, grain fields, or on sagebrush flats several miles from water (CWHR 2019). Nesting sites are of concern to CDFW (2019).	The ARC BSA does not provide suitable nesting habitat for northern harrier. There are no marshes, rivers, or lakes present in the BSA. The MDC is narrow, deep, and regularly maintained, and does not provide suitable nesting habitat. The agricultural fields in the BSA are regularly disked and have been planted primarily with tomatoes, corn, and sunflower. The agricultural fields are not suitable for nesting. Agricultural and ruderal areas in the BSA provide suitable foraging habitat. One northern harrier was observed foraging over the MDC and perching in trees located in the detention basin on January 24, 2020.
Laterallus jamaicensis coturniculus California black rail	--	T	2	Inhabits saline, brackish, and freshwater emergent wetlands in the Bay Area, Sacramento-San Joaquin Delta, the Salton Sea, the lower Colorado River, a few locations in coastal southern CA, and the northern Sierra foothills of Butte, Nevada, Placer, and Yuba counties. Typically found in the immediate vicinity of tidal sloughs near the upper limit of tidal flooding in tidal emergent wetlands dominated by	No. There is no suitable habitat in the BSA. The band of cattail in the MDC is of limited extent, is periodically cleared, does not provide sufficient cover, and does not contain sufficient water during the summer and fall. This species was not

Table 3-13
Evaluation of Special-Status Species Not Previously Considered

Special-Status Species/ Common Name	Federal Status[a]	State Status[a,b]	Source	Habitat Requirements	Potential to Occur in the ARC BSA?
				pickleweed and in brackish marshes supporting bulrushes in association with pickleweed. In freshwater areas, generally found in marshes dominated by bulrush, cattail, or saltgrass (CWHR 2019). Water regime is a critical habitat factor; black rails are often found in wetlands with perennial standing or flowing water. Black rails use wetland zones with shallower water than other North American rails, generally less than 1.2 inches. Wetlands in the Sacramento Valley managed for waterfowl or rice typically lack sufficient shallow water habitat (Richmond et al. 2010).	observed during biological surveys.
Plants					
*Centromadia parryi*ssp. *parryi* Pappose tarplant	--	--/1B.2	2,3	Annual herb found in chaparral, coastal prairie, meadows and seeps, coastal salt marshes and swamps, and vernally mesic valley and foothill grassland from 7 to 1,380 feet. Often found in alkaline conditions. Known from Butte, Colusa, Glenn, Lake, Napa, San Mateo, Solano, Sonoma, and Yolo counties. Blooms from May through November (CNPS 2019).	No. This species was not observed during protocol floristic botanical surveys conducted on May 19, 2015, September 11, 2015, and August 7, 2019. The edges of agricultural fields and other open areas not subject to active cultivation provide potential habitat for this species.
Eryngium jepsonii Jepson's coyote- thistle	--	--/1B.2	2,3	Perennial herb found on clay soils in Valley and foothill grasslands and vernal pools from 9 to 985 feet. Known from Alameda, Amador, Calaveras, Contra Costa, Fresno, Napa, San Mateo, Solano, Stanislaus, Tuolumne, and Yolo counties. Blooms April through August (CNPS 2019).	No. This species was not observed during protocol floristic botanical surveys conducted on May 19, 2015, September 11, 2015, and August 7, 2019. Shallow clay depressions along the edges of agricultural fields and in other

Table 3-13
Evaluation of Special-Status Species Not Previously Considered

Special-Status Species/ Common Name	Federal Status[a]	State Status[a,b]	Source	Habitat Requirements	Potential to Occur in the ARC BSA?
					open areas not subject to active cultivation provide potential habitat for this species.
Puccinellia simplex California alkali grass	--	--/1B.2	2,3	Annual herb found in alkaline, vernally mesic sinks, flats, and lake margins within chenopod scrub, meadows, seeps, Valley and foothill grassland, and vernal pools from 7 to 3,050 feet. Known from Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kern, Lake, Los Angeles, Madera, Merced, Napa, San Bernardino, Santa Clara, Santa Cruz, San Luis Obispo, Solano, Stanislaus, Tulare, and Yolo counties Presumed extirpated from Kings County. Blooms March through May (CNPS 2019). Habitat also described as "saline flats, mineral springs" (Baldwin et al. 2012).	No. This species was not observed during protocol floristic botanical surveys conducted on May 19, 2015, September 11, 2015, and August 7, 2019. There is no suitable habitat in the BSA. There are no saline flats or mineral springs in the BSA. There are no suitable vernally mesic habitats in the BSA.
Sidalcea keckii Keck's checkerbloom	E	R/1B.1	2	Annual herb found on serpentine and clay soils of cismontane woodland and valley and foothill grassland from 245 to 2,135 feet. Known from Fresno, Merced, and Tulare counties, and possibly from Colusa, Napa, Solano and Yolo counties. Blooms April through June (CNPS 2019). In Napa and Colusa counties occur in a range of habitats including serpentine outcrops, serpentine chaparral, roadsides, blue-oak-dominated woodland, south-facing slopes, and grasslands within oak-gray pine woodland. Genetic analyses have identified Colusa	No. This species was not observed during protocol floristic botanical surveys conducted on May 19, 2015, September 11, 2015, and August 7, 2019. The BSA is outside the geographic and elevation range. There is no suitable habitat in the BSA.

Table 3-13
Evaluation of Special-Status Species Not Previously Considered

Special-Status Species/ Common Name	Federal Status[a]	State Status[a,b]	Source	Habitat Requirements	Potential to Occur in the ARC BSA?
				and Yolo county plants as more closely related to a common *Sidalcea* species than to S. keckii (USFWS 2012).	

[a] **Status**: Endangered (E); Threatened (T); Proposed (P); Candidate (C), Delisted (D), Fully Protected (FP); Rare (R); State Species of Special Concern (SSC); Proposed Critical Habitat (PCH); Critical Habitat (CH) - Project footprint is located within a designated critical habitat unit, but does not necessarily mean that appropriate habitat is present.

[b] **CNPS California Rare Plant Rank**: 1A = Presumed Extinct in CA; 1B = Rare or Endangered in CA and elsewhere; 2 = R/E in CA and more common elsewhere; 3 = More information is needed about this plant species (review list); 4 = Limited distribution (watch list). CNPS Decimal Extensions: .1 = Seriously endangered in CA (over 80% of occurrences threatened / high degree and immediacy of threat); .2 = Fairly endangered in CA (20-80% occurrences threatened); .3 = Not very endangered in CA (<20% of occurrences threatened or no current threats known).

[c] 1 = USFWS (2019) List; 2 = CNDDB (2019) query of the Davis Quad and all surrounding quads; 3 = CNPS (2019) query of the Davis Quad and all surrounding quads.

Source: Sycamore Environmental, 2019 Biological Survey Update for the Aggie Research Campus, Yolo County, CA, November 25, 2019

Four additional burrowing owl records within the nine-quadrangle area surrounding the ARC Site are included in the CNDDB, maintained by the CDFW. No new occurrences have been added for the project site. As was the case with the Certified Final EIR, the two records partially overlapping the project site are Occurrence #695 and #614. In addition, the EIR identified record #994, located approximately 500 feet north of the project site. However, as a result of the ongoing burrowing owl surveys in accordance with the CDFW 2012 Burrowing Owl Staff Report, additional sightings have occurred within 500 feet of the ARC Site (not on the project site). A total of six occupied burrow complexes occur within approximately 500 feet of the Project (Sites A through F). Hundreds of currently unoccupied burrows occur in the Burrowing Owl Survey Area, mostly within the 500-foot survey buffer as shown in Figure 3-13 (see Impact 3-18). The Final EIR identified occupied burrowing owl complexes at Site A (CNDDB Occurrence #994), Site C (Occurrence #614), and Site E (CNDDB Occurrence #695). Thus, Sites B, D, and F are new detections.

Changes in extent of aquatic habitats have not occurred since the certification of the Final MRIC EIR. The only aquatic feature on the ARC Site is the MDC. Aquatic features are still lacking within the Mace Triangle Site.

Changes in the Project

Relative to the MRIC Project and the Mixed-Use Alternative, the ARC Project would involve a slightly reduced development area due to the exclusion of development of the 25-acre City-owned property to the northwest of the ARC Site. As noted previously, 6.8-acres of the 25-acre property would be disturbed to create the ARC Project's northern 150-foot Agricultural Buffer. This results in a reduced amount of disturbance to burrowing owl habitat and Swainson's hawk foraging habitat. While the first 50 feet of the buffer would dually function as buffer area and recreation space (i.e., bike/pedestrian trail), the outer 100 feet of the buffer would be designed to create/maintain burrowing owl habitat, as further discussed in Impact 3-18. Overall, substantial changes to the project have not occurred which would create new significant impacts or a substantial increase in the severity of a previously identified significant effect.

Response to Public Comments

In an effort to respond to public comments submitted to the City early in the CEQA process regarding bats, the following is offered. The potential for special-status bats was considered in the Certified Final EIR (specifically, the BRE conducted by Sycamore Environmental Consultants; see Appendix D to the Draft EIR). The BRE (Appendix E) concluded that the biological study area did not provide roosting habitat for pallid bat, as the few trees in the study area are young and do not have hollows. According to the February 2020 BRE (Appendix C to this SEIR), documented occurrences of bat species within the nine quads surrounding the Study Area (see definition below) include hoary bat (*Lasiurus cinereus*), silver-haired bat (*Lasionycteris noctivagans*), pallid bat (*Antrozous pallidus*), and Mexican free-tailed bat (*Tadarida brasiliensis*) (CDFW 2020; Ding 2019; STE 2018). None of the bats known from the region are listed under the state or federal endangered species acts. Of the four bat species mentioned above, only the pallid bat is designated as a Species of Special Concern by the CDFW (2019a). A large local population of Mexican free-

tailed bats with an estimated 250,000 individuals is known to roost in the I-80 freeway overpass in the Yolo Bypass.

The Study Area provides suitable foraging habitat for pallid bat and other locally important bats. Due to the lack of caves, crevices, mines, buildings, and large and/or hollow trees, the BSA does not provide suitable roosting habitat for any bat species. No bats or potential bat roosts were observed in the Study Area. Bats known to occur in the region would be expected to forage in and over the Study Area during summer evenings, when conditions are appropriate (i.e., warm and calm). The foraging habitat in the Study Area is marginal and of minor extent when compared to the quality and extent of foraging habitat available in the greater region in and surrounding the Yolo Bypass. The area surrounding the ARC Site provides several hundred thousand acres of similar bat foraging habitat over agricultural fields.

Based on the foraging ranges of bats known from the region (e.g., 1 to 6 mi for pallid bat, CWHR 2020, Gervais 2016; and 25 to 30 mi for Mexican free-tailed and hoary bats, CWHR 2020, Bassett 1982, BCI 2020), and the availability of foraging habitat in the surrounding landscape, the ARC Project will not significantly reduce available foraging habitat or food resources for protected or locally-important bats.

Overview of Field Surveys

Similar to the Certified Final EIR, this section evaluates a greater footprint in order to assess the potential ARC Project impacts to special-status species and their habitats, including buffer lands around these habitats, as identified in the Yolo HCP/NCCP. Two distinctive BSAs were evaluated in the BRE: The Campus BSA (what this SEIR will call "ARC BSA"); and the Stormwater BSA.

ARC BSA

The 265.09-acre ARC BSA is larger than the 187-acre ARC Site because it includes the off-site sewer line connection alternatives and a City-owned parcel at the northwest corner of the ARC Site. The ARC BSA consists of:

- The ARC Site (187 acres), identified by Assessor's Parcel Numbers (APNs) 033-630-009 and 033-650-009, north of CR 32A, currently in row crop agriculture.
- City-owned APN 033-650-26, currently in row crop agriculture.
- The Mace Triangle Site (16 acres), south of CR 32A, consisting of APNs 033-630-011 (Ikeda's Market), 033-630-006 (a City-owned water tank and Caltrans District 3 Park-and-Ride lot), and 033-630-012 (agricultural uses, currently fallow). The Mace Triangle is included in the Annexation to avoid creation of County "Island" property.
- A buffer around two proposed off-site sewer line connection alternatives located north and east of the ARC Site respectively. The eastern sewer line alternative crosses APN 033-290-04 (deciduous fruit/nut orchards). The northern sewer line alternative crosses APN 033-290- 02, -04, -82, and -83; 033-650-027; and 042-130-03 (all in row crop agriculture or planted with deciduous fruit/nut orchards).

Stormwater BSA

The 550.25-acre Stormwater BSA consists of APN 033-300-01, 033-300-15, and 033-650-88. These parcels are currently in row crop agriculture.

Both BSAs are shown in Figure 3-10, and together, are referred to as the "Study Area."

Field Surveys

Extensive field surveys have been conducted at the ARC Site and potential off-site improvement areas, inclusive of the surveys completed for the Certified Final EIR and during the time leading up to the preparation of this SEIR. The list of surveys is shown in Table 3-14 below. Recent surveys have also been used to field verify the Yolo HCP/NCCP Land Cover Types for the entire BSA, as shown in Table 3-15.

As discussed further below, the future project applicant(s) would be required to obtain coverage under the Yolo HCP/NCCP, remit payment of any applicable HCP/NCCP fees, and implement Yolo HCP/NCCP Avoidance and Minimization Measures. Of the above Land Use Cover types found in the BSA, the applicant will be required to pay Land Use Cover fees for the following cover types (fee estimates are current estimates and may be subject to change): Field Crops/Cultivated Land ($14,033 per acre); Deciduous Fruit/Nut ($14,033 per acre); Semiagricultural/Incidental to Agriculture ($14,033 per acre); Urban Ruderal (i.e., Ruderal with Covered Species Habitat ($14,033 per acre) = portions of Mace Triangle); and MDC (i.e., Fresh Emergent Wetland). The permanent impact Wetland Fee total is $88,082 per acre, but the Yolo HCP/NCCP has a temporary impact fee formula for such activities as maintenance.

3-15 Impacts related to special-status plant species (reference Impact 4.4-1).

The Certified Final EIR determined that MRIC Project impacts to special-status plants could be significant, requiring protocol-level surveys, and if necessary, avoidance and minimization measures. This conclusion was based primarily on the fact that, at the time of preparation of the EIR, protocol-level surveys had not yet been conducted within the blooming period of all species having the potential to occur within the Study Area. As discussed below, protocol-level floristic botanical surveys have now been conducted by Sycamore Environmental within the Study Area. Special-status plant species have not been identified. Parry's rough tarplant was detected within the Mace Triangle area, as noted in the Certified Final EIR, and are still present at the current time. As will be discussed below, evidence exists to conclude this species is not considered special-status.

Figure 3-10
BSA Locations

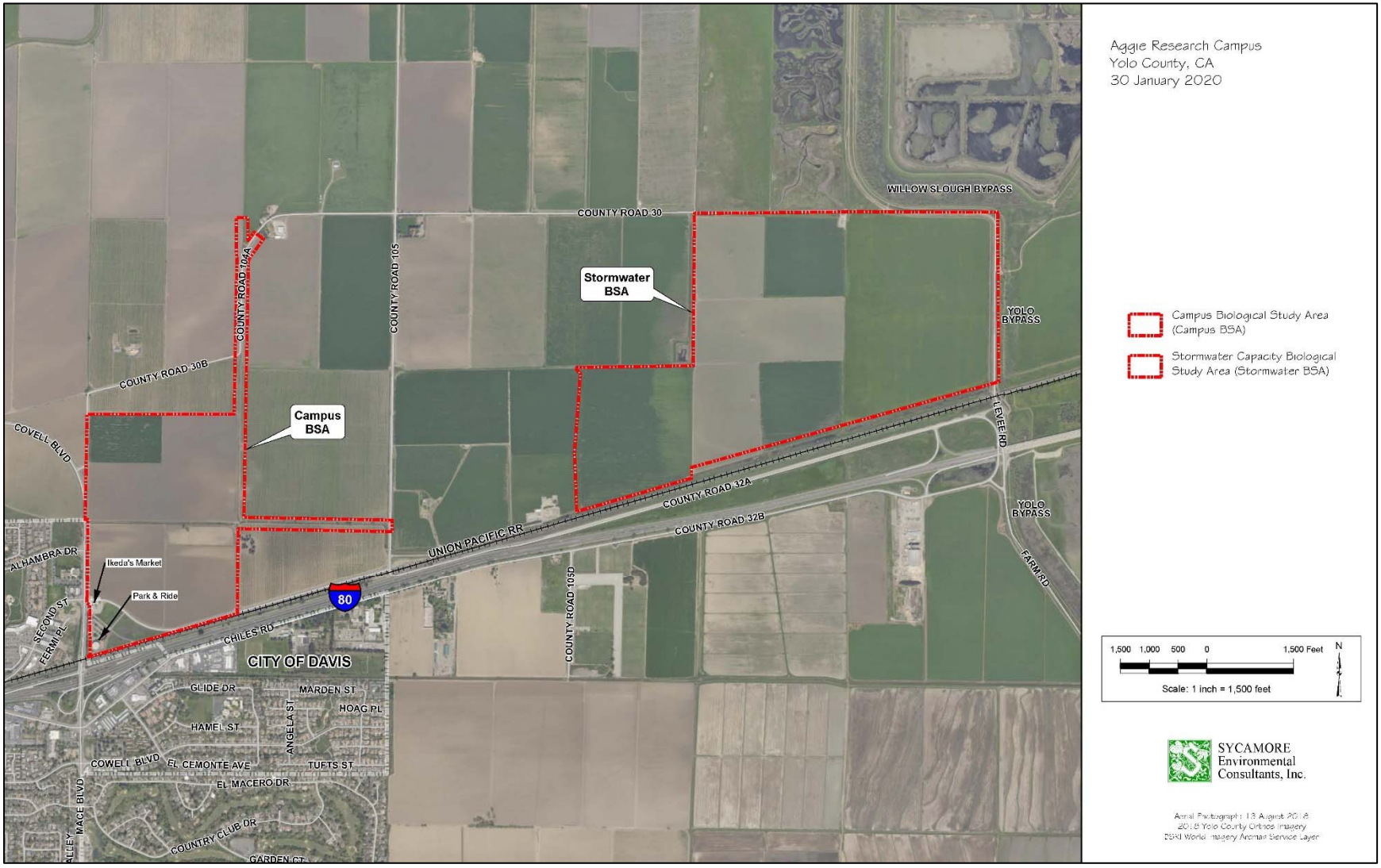


Table 3-14
Survey Dates and Personnel

Date(s)	Personnel	Area(s) Surveyed	Surveys Conducted
October 7, 2014	Mike Bower, M.S.	ARC BSA	Reconnaissance survey
December 10, 2014	Mike Bower, M.S. Noosheen Pouya, B.S.	ARC BSA	General biological survey Botanical survey Wetland delineation fieldwork
December 18, 2014	Mike Bower, M.S.	Mace Drainage Channel (outfall to Bypass)	Hydrologic observations
December 23, 2014	Chuck Hughes, M.S.	ARC BSA	Arborist survey
January 26, 2015 through November 30, 2015 (sixteen site visits)	Mike Bower, M.S. Noosheen Pouya, B.S. Juan Mejia, B.S. Carly Rich, B.S. Andy Loveall, B.S.	Mace Drainage Channel (on-site & accessible parts downstream)	Hydrologic observations
May 19, 2015	Mike Bower, M.S. Juan Mejia, B.S.	ARC BSA	Protocol botanical survey
June 11, 2015	Mike Bower, M.S.	Stormwater BSA	General biological Botanical survey
September 11, 2015	Mike Bower, M.S. Juan Mejia, B.S.	ARC BSA	Protocol botanical survey
January 7, 2016	Juan Mejia, B.S.	ARC BSA	Targeted burrowing owl survey
August 7, 2019	Mike Bower, M.S. Juan Mejia, B.S.	ARC BSA	General biological survey update Protocol botanical survey update Targeted burrowing owl survey Yolo HCP Land Cover Type mapping
October 8, 2019	Mike Bower, M.S.	Stormwater BSA	Reconnaissance survey Yolo HCP Land Cover Type mapping
January 24, 2020	Mike Bower, M.S. Elliot Maldonado, B.S. Juan Mejia, B.S.	Entire BSA	Burrowing owl survey in accordance with CDFW (2012) guidelines (Ongoing)
February 6, 2020	Monica Coll, B.S. Elliot Maldonado, B.S. Juan Mejia, B.S.	Entire BSA	Burrowing owl survey in accordance with CDFW (2012) guidelines (Ongoing)
February 21, 2020	Elliot Maldonado, B.S. Juan Mejia, B.S. Suzanne Thomas, B.S.	Entire BSA	Burrowing owl survey in accordance with CDFW (2012) guidelines (Ongoing)
March 4, 2020	Elliot Maldonado, B.S. Monica Coll, B.S. Suzanne Thomas, B.S.	Entire BSA	Burrowing owl survey in accordance with CDFW (2012) guidelines (Ongoing)

Source: February 2020 BRE, Sycamore Environmental Consultants.

Table 3-15
Biological Communities and Other Features in the BSA

Land Cover Type	Vegetation Alliances and CDFW Alliance Codes[1]	Rarity Rank[2]	Campus BSA Acreage[3]	Stormwater BSA Acreage[3]	Total BSA Acreage[3]
Field Crops	--	--	210.86	523.00	733.86
Deciduous Fruit/Nut	--	--	13.51	0	13.51
Semiagricultural/ Incidental to Agriculture	*Brassica nigra* and other mustards (Upland mustards) Semi-natural Stands (CDFW 42.011.00) *Lepidium latifolium* (Perennial pepper weed patches) Semi-natural Stands (CDFW 52.205.00)	--	19.56	12.23	31.79
Mace Drainage Channel[4]	*Typha* (*angustifolia*, *domingensis*, *latifolia*) Herbaceous Alliance (CDFW 52.050.00) *Lepidium latifolium* (Perennial pepper weed patches) Semi-natural Alliance (CDFW 52.205.00)	G5 S5--	1.66	0.13	1.79
Urban or Built Up	--	--	9.00	2.55	11.55
Urban Ruderal	*Brassica nigra* and other mustards (Upland mustards) Semi-natural Stands (CDFW 42.011.00 *Centaurea solstitialis* (Yellow star-thistle fields) Semi-natural Alliance (CDFW 42.042.00)	--	10.50	12.34	22.84
		Total:	**265.09**	**550.25**	**815.34**

[1] Vegetation alliances based on descriptions and classification methods in Sawyer et al. (2009). Alliance codes from CDFW (2019c). Some communities may lack recognized vegetation alliances or contain multiple alliances.
[2] Rarity ranking follows NatureServe's Heritage Methodology and is based on degree of imperilment as measured by rarity, trends, and threats. State (S) ranks of 1-3 are considered highly imperiled by CDFW (2019d). Nonnative vegetation has no rarity rank.
[3] Acreages were calculated using ArcMap functions.
[4] A portion of the MDC in the ARC BSA may be classified as bulrush cattail wetland when vegetation is present. The City of Davis regularly removes vegetation from the MDC for stormwater management pursuant to an existing agreement with CDFW. The bulrush cattail wetland present in the Stormwater BSA occurs in the southernmost portion of an irrigation drainage ditch that drains to the Railroad Channel. See discussion of the MDC.

ARC Project

Special-status plant species were not observed on the MRIC Site during Sycamore Environmental's site reconnaissance surveys conducted on October 7 and December 10, 2014. Protocol floristic botanical surveys have been conducted by Sycamore Environmental on May 19, 2015, September 11, 2015, and August 7, 2019[15] for the overall project site, coincident with the evident and identifiable period for the 12 special-status plants identified for the Study Area. Special-status plants were not found within the Study Area.

Mace Triangle

The three protocol floristic botanical surveys did not detect special-status plant species on the Mace Triangle Site, though one observed species requires special consideration. A total of 93 Parry's rough tarplant (*Centromadia parryi* ssp. *rudis*) plants were documented in the BSA during the September 11, 2015 botanical survey. These plants were verified as still present in approximately the same abundance during the botanical survey conducted on August 7, 2019 (see Figure 3-11). Eighty-seven (87) of the Parry's rough tarplant plants were found near the parking area of Ikeda's Market. Two of the plants were found along the south side of CR 32. Four of the plants were found on the east side of the irrigation ditch along the eastern edge of the site, approximately 700 feet north of the Eucalyptus grove. Parry's rough tarplant is a CNPS California Rare Plant Rank 4.2 species (a watch list species of limited distribution; CNPS 2020). CNPS Rank 4.2 species may be considered under CEQA at the Lead Agency's discretion. Based on herbarium specimen records (see known records discussion above), this species is not especially uncommon locally or regionally (CCH 2020). The Parry's rough tarplant individuals observed in the BSA are not at the periphery of the taxon's range. Sycamore Environmental botanists have encountered this taxon on many disturbed/agricultural sites in the Central Valley within the last 10 years. The Parry's rough tarplant individuals observed in the BSA did not exhibit unusual morphology and they were not observed on unusual substrate. The Parry's rough tarplant observed in the BSA does not meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) or §15380.

Conclusion

Although special-status plants were not identified within the Study Area during protocol floristic botanical surveys in 2015 and 2019, the USFWS only considers plant surveys to be valid for three years. Should project construction not occur within three years from the date of the survey, construction activity could impact special-status plant species that may have colonized the project site. Nonetheless, similar to the MRIC Project, impacts related to the disturbance of special-status plant species could be reduced to a ***less-than-significant*** level with implementation of mitigation.

[15] The botanical survey was conducted in accordance with California Department of Fish and Wildlife protocol for surveying and evaluating impacts to special status native plant populations and natural communities (CDFW 2009), the U.S. Fish and Wildlife Service guidelines for conducting and reporting botanical inventories for federally listed, proposed and candidate plants (USFWS 1996), and the California Native Plant Society botanical survey guidelines (CNPS 2001).

Mitigation Measure(s)

ARC Project and Mace Triangle

3-15 To ensure avoidance and minimization of potential impacts to special-status plant species, the following measures shall be implemented:

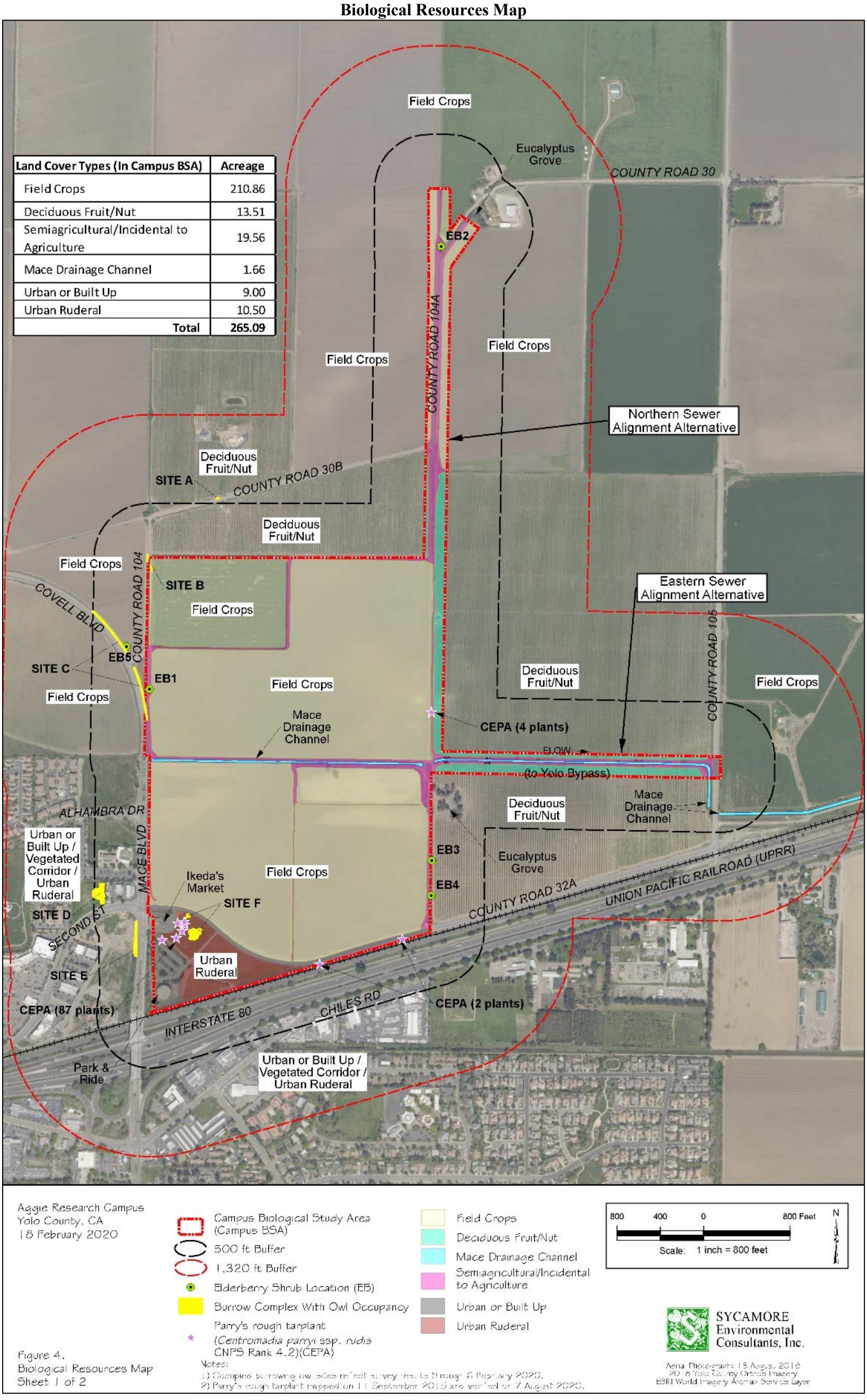
- *Prior to initiation of any ground disturbance activities occurring after August 7, 2022, for the Mace Triangle and for each phase of the ARC Project, the applicant shall retain a qualified botanist to conduct a botanical survey during spring (April to May) and fall (July to September), during the evident and identifiable periods for special-status plants with potential to occur on the site. The botanical survey must also cover all potential utility line alignments and any other off-site work required for any phase of development. The survey shall be submitted to the City of Davis Department of Community Development and Sustainability for review. If special-status plants are not identified within the areas proposed for disturbance, further mitigation is not required for that phase.*
- *Any special-status plants that are within the limits of grading for on- or off-site improvements shall be propagated to suitable habitat in designated open space areas, or for the Mace Triangle, another pre-approved location. The propagation shall be overseen by a qualified botanist, approved by the City of Davis Department of Community Development and Sustainability and CDFW. The botanist shall identify the location to receive the plants, identify the methods of propagation, and oversee the work.*

3-16 Impacts to valley elderberry longhorn beetle (reference Impact 4.4-2).

ARC Project

Blue elderberry (*Sambucus nigra* ssp. *caerulea*; formerly, *Sambucus mexicana*) shrubs were identified in two locations in the ARC BSA during the original biological analysis conducted for the Certified Final EIR. The EIR determined that these locations (along the western edge of the site and at the north end of the Northern Sewer Line Alternative) provided marginal habitat for VELB. Since certification of the Final MRIC EIR, three additional elderberry shrubs were observed just outside the ARC Site during the August 7, 2019 field survey. Two of these occur along the eastern boundary of the site, approximately 280 and 600 feet north of CR 32A, respectively. The third shrub is on the road shoulder north of the 'Mace Curve', just north of the CR 104 intersection. Valley elderberry longhorn beetle exit holes were not observed on these shrubs. The five elderberry shrub locations are shown in Figure 3-11. Elderberry shrubs were not observed in the Stormwater BSA or within 200 feet.

Figure 3-11
Biological Resources Map



With respect to this Northerly Sewer Line option for the ARC Project, it should be noted that, based upon discussions with the ARC Project engineering team, it has been assumed for analysis purposes that installation of the sewer pipe would require a 25-foot wide work area. This total disturbance width would account for the width of the sewer pipe trench, and the work area on both sides of the trench. Because design-level work has not been done at this time, it has not been determined whether the sewer pipe will be installed within, 1) the existing paved right-of-way of CR 104 and CR 30, 2) along the east side of CR 104 and south side of CR 30, or 3) along the west side of CR 104 and north side of CR 30, prior to connecting the pipe to the existing manhole at the approximate point where CR 104 turns east and becomes CR 30. Under installment option #2, sewer pipe construction would require removal of the elderberry shrubs along CR 104.

The elderberry shrubs within the ARC BSA occur in non-riparian habitat. The shrubs are isolated in a disturbed, agricultural setting. The nearest riparian habitat that may have elderberry shrubs appears to be over one mile north of the ARC Site, along the Willow Slough Bypass. Talley et al. (2007) modeled potentially suitable areas for VELB adjacent to the riparian zone as areas within 250 feet from potentially suitable riparian habitat. The shrubs within the project site are much farther than 250 feet from potentially suitable VELB habitat.

Mace Triangle

VELB was not observed in the Mace Triangle Site during biological surveys. Although elderberry shrubs do not exist on the Mace Triangle Site, several elderberry shrubs occur off-site along the shoulder of I-80, south of the Mace Triangle Site. However, the individual shrubs are over 100 feet from the Mace Triangle Site and are separated from the site by the railroad prism. As such, future development of the Mace Triangle Site would not impact VELB or their habitat.

Conclusion

VELB habitat is not located within the Stormwater BSA, but five elderberry shrub localities occur within the ARC BSA. There is a potential for at least one location (EB Shrub #2) to be impacted by the ARC Project's off-site sewer line improvements, depending upon the method of pipe installation and whether or not the Northerly Sewer Line option is selected.

Although the ARC Project would consist of a reduced development footprint as compared to the proposed project, the locations of the elderberry shrubs within the ARC BSA are such that both the MRIC Project and the ARC Project would have a similar potential to impact VELB. Mitigation measures would be required for both the MRIC Project and the ARC Project in order to protect VELB. Overall, impacts related to VELB under the ARC Project would be ***less-than-significant*** with mitigation.

Mitigation Measure(s)

ARC Project

3-16 *To ensure avoidance and minimization of impacts to VELB, the project applicant for the ARC Site shall obtain coverage under the Yolo HCP/NCCP for on-site, and*

as may be determined necessary by Yolo Habitat Conservancy, for off-site infrastructure work, for each phase of development. In addition to payment of any applicable HCP/NCCP fees, the applicant shall implement Yolo HCP/NCCP Avoidance and Minimization Measure AMM-12 (Minimize Take and Adverse Effects on Habitat of Valley Elderberry Longhorn Beetle) to the satisfaction of the City and the YHC. AMM-12 provides:

- *The project proponent will retain a qualified biologist who is familiar with valley elderberry longhorn beetle and evidence of its presence (i.e., exit holes in elderberry shrubs) to map all elderberry shrubs in and within 100 feet of the project footprint with stems that are greater than one inch in diameter at ground level. To avoid take of valley elderberry longhorn beetle fully, the project proponent will maintain a buffer of at least 100 feet from any elderberry shrubs with stems greater than one inch in diameter at ground level. A lesser buffer may be applied in some circumstances, as described in AMM-1 (Establish Buffers) of the Yolo HCP/NCCP.*
- *For elderberry shrubs that cannot be avoided with a designated buffer distance as described above, the qualified biologist will quantify the number of stems one inch or greater in diameter to be affected, and the presence or absence of exit holes. The Conservancy will use this information to determine the number of plants or cuttings to plant on a riparian restoration site to help offset the loss, consistent with Section 6.4.2.4.1, Valley Elderberry Longhorn Beetle. Additionally, prior to construction, the project proponent will transplant elderberry shrubs identified within the project footprint that cannot be avoided.*
- *Transplantation will only occur if a shrub cannot be avoided and, if indirectly affected, the indirect effects would otherwise result in the death of stems or the entire shrub. If the project proponent chooses, in coordination with a qualified biologist, not to transplant the shrub because the activity would not likely result in death of stems of the shrub, then the qualified biologist will monitor the shrub annually for a five-year monitoring period. The monitoring period may be reduced with concurrence from the wildlife agencies if the latest research and best available information at the time indicates that a shorter monitoring period is warranted. If death of stems at least one inch in diameter occurs within the monitoring period, and the qualified biologist determines that the shrub is sufficiently healthy to transplant, the project proponent will transplant the shrub as described in the following paragraph, in coordination with the qualified biologist. If the shrub dies during the monitoring period, or the qualified biologist determines that the shrub is no longer healthy enough to survive transplanting, then the Conservancy will offset the shrub loss consistent with the preceding paragraph.*
- *The project proponent will transplant the shrubs into a location in the HCP/NCCP reserve system that has been approved by the Conservancy.*

Elderberry shrubs outside the project footprint but within the 100-foot buffer will not be transplanted.

- *Transplanting will follow the following measures:*
    1. *Monitor: A qualified biologist will be on-site for the duration of the transplanting of the elderberry shrubs to ensure the effects on elderberry shrubs are minimized.*
    2. *Timing: The project proponent will transplant elderberry plants when the plants are dormant, approximately November through the first two weeks of February, after they have lost their leaves. Transplanting during the non-growing season will reduce shock to the plant and increase transplantation success.*
    3. *Transplantation procedure:*
        a. *Cut the plant back three to six feet from the ground or to 50 percent of its height (whichever is taller) by removing branches and stems above this height. Replant the trunk and stems measuring one inch or greater in diameter. Remove leaves that remain on the plants.*
        b. *Relocate plant to approved location in the reserve system, and replant as described in Section 6.4.2.4.1, Valley Elderberry Longhorn Beetle.*

Mace Triangle

None required.

3-17 Impacts to giant garter snake (reference Impact 4.4-3).

ARC Project

Giant garter snake (GGS) were not observed during any of the biological surveys of the ARC BSA, or any portion of the Stormwater BSA. The closest potentially occupied GGS habitat appears to coincide with the closest known populations of GGS, which occur in the Yolo Bypass and in the Willow Slough Bypass. The ARC BSA and Stormwater BSA do not occur in an area of rice production. Agricultural fields in the area are upland row crops and deciduous nut/fruit orchards. Rice production does not occur along the MDC or in the fields between the ARC Site and either the Willow Slough Bypass or the Yolo Bypass.

As noted previously, the MDC is a manmade storm drain that transports urban runoff from the Mace Ranch Drainage Basin in the City of Davis, east through the center of ARC Site to the Yolo Bypass, approximately 2.5 air miles east of the ARC Site. The hydrology for the portion of MDC in the ARC Site is provided by urban irrigation runoff and precipitation runoff from within the City of Davis. Upstream (west) of the ARC Site, the MDC is culverted underground for at least 1,000 feet. The Channel enters the ARC Site through two culverts that pass underneath Mace Boulevard. The upland row crop agriculture in the ARC Site uses drip irrigation. Irrigation does not contribute substantially to the hydrology of the MDC.

From the Study Area, the MDC drains to the Yolo Bypass approximately 2.5 air miles to the east. Water from the channel drains into the Bypass through an approximately 8-foot wide, one-way metal flap gate that rests in the closed position. Water does not flow into the channel from the Bypass. Insufficient water exists in the MDC during the GGS active season to support a GGS population, or to facilitate dispersal. To enter the MDC, GGS would have to travel across the Yolo Bypass levee, which is mostly barren and approximately 170 feet wide. GGS populations are known to occur in the Willow Slough Bypass and in the Yolo Bypass, but not on the land side of (west of) the 150- to 200-foot-wide Yolo Bypass levee on the north side of I-80 (CDFW 2015).

Vegetation within the portion of the MDC located in the ARC Site consists of freshwater marsh species such as bulrush (*Schoenoplectus acutus* var. *occidentalis*), cattail (*Typha* sp.), annual saltmarsh aster (*Symphyotrichum subulatum*), nutsedge (*Cyperus eragrostis*), and smartweed (*Persicaria* sp.). Downstream of the ARC Site, in the eastern portion of the ARC Site, and in all portions of the MDC visible from CR 105, the MDC is dominated by low growing ruderal species such as perennial pepperweed (*Lepidium latifolium*) and non-native annual grasses that do not provide cover or habitat for GGS. Vegetation in the MDC is periodically removed by the City of Davis. Between the ARC Site and the Yolo Bypass, vegetation in the channel is dominated by ruderal weeds such as perennial pepperweed, curly dock (*Rumex crispus*), and yellow star-thistle (*Centaurea solstitialis*). The portion of the channel adjacent to the Yolo Bypass is dominated by bulrush, cattail and willows (*Salix* spp.). The MDC lacks the emergent aquatic vegetation that is an essential component of GGS habitat for most of its length. Vegetation in most of the MDC does not indicate perennially, or near-perennially inundated conditions. Regular removal of vegetation in the MDC also reduces the amount of emergent aquatic vegetation present in the channel.

Urban influence, artificial hydrology, vegetation maintenance, culverts, and lack of water and suitable prey items during the active season make it unlikely that GGS would be able to travel to the site. Suitable GGS habitat is not present in the MDC within the ARC Site.

With respect to the Stormwater BSA, the southernmost portion of an irrigation ditch at the southeast corner of the Stormwater BSA contains cattails and bulrush vegetation, and may provide suitable aquatic habitat for GGS. Within 200 feet of the Stormwater BSA, potentially suitable aquatic habitat occurs in the Railroad channel located immediately to the south, the detention basin located immediately to the northwest, the created wetlands located immediately to the north, and in ditches and canals present within the Yolo Bypass. Upland areas within 200 feet of aquatic habitat for GGS are typically considered suitable upland basking and refuge habitat for GGS. Suitable upland habitat for GGS occurs in the Stormwater BSA around the abovementioned aquatic habitat.

Mace Triangle

GGS habitat does not occur in the Mace Triangle Site. The Mace Triangle Site is disturbed (i.e., either via existing development or agricultural operations) and does not contain any agricultural ditches or drainage channels through which GGS could disperse. Therefore, any future development on the Mace Triangle Site would not impact GGS or their habitat.

Conclusion

While suitable habitat for GGS within the MDC is currently lacking, according to the City's Wildlife Resource Specialist,[16] suitable habitat has been present in the past. The possibility exists that more favorable habitat conditions may return during sustained average rainfall years, or with a change in crop type and associated irrigation runoff on adjacent fields, which may occur over the long-term buildout of the proposed ARC Project. In addition, a significant GGS source population exists within the Yolo Bypass and Willow Slough Bypass, which increases the possibility of the snake being present, whether resident or vagrant, in the MDC. With respect to the potential off-site volume storage pond improvement area, north of the Railroad Channel and west of the Yolo Bypass, some areas within these survey boundaries are within 200 feet of potential GGS aquatic habitat, as discussed above, and are thus within the snake's upland dispersal range, although these areas consist of farm roads and tilled agricultural fields that are unlikely to be occupied by GGS during the GGS active season. During the winter inactive season, GGS could seek refuge in burrows and cracks in the upland habitat. If an off-site volume storage pond is constructed within the southern portion of the BSA, near the Railroad Channel, the possibility exists for GGS to be adversely impacted should GGS occur in this upland habitat.

Although the ARC Project would consist of a reduced development footprint as compared to the proposed project, the locations of the suitable GGS habitat are such that both the MRIC Project and the ARC Project would have a similar potential to impact GGS. Mitigation measures would be required for both the MRIC Project and the ARC Project in order to protect GGS.

With implementation of the following mitigation measure, development of the ARC Site near the MDC would have a ***less-than-significant*** impact to GGS.

Mitigation Measure(s)

ARC Project

3-17 *To ensure avoidance and minimization of impacts to GGS, the project applicant for the ARC Project shall obtain coverage under the Yolo HCP/NCCP for on-site, and as may be determined necessary by Yolo Habitat Conservancy, for off-site infrastructure work, for each phase of development. In addition to payment of any applicable HCP/NCCP fees, the applicant shall implement Yolo HCP/NCCP Avoidance and Minimization Measure AMM-15 (Minimize Take and Adverse Effects on Habitat of Giant Garter Snake) to the satisfaction of the City and the YHC. AMM-15 provides:*

The project proponent will avoid effects on areas where planning-level surveys indicate the presence of suitable habitat for giant garter snake. To avoid effects on giant garter snake aquatic habitat, the project proponent will conduct no in-water/in-channel activity and maintain a permanent 200-foot non-disturbance

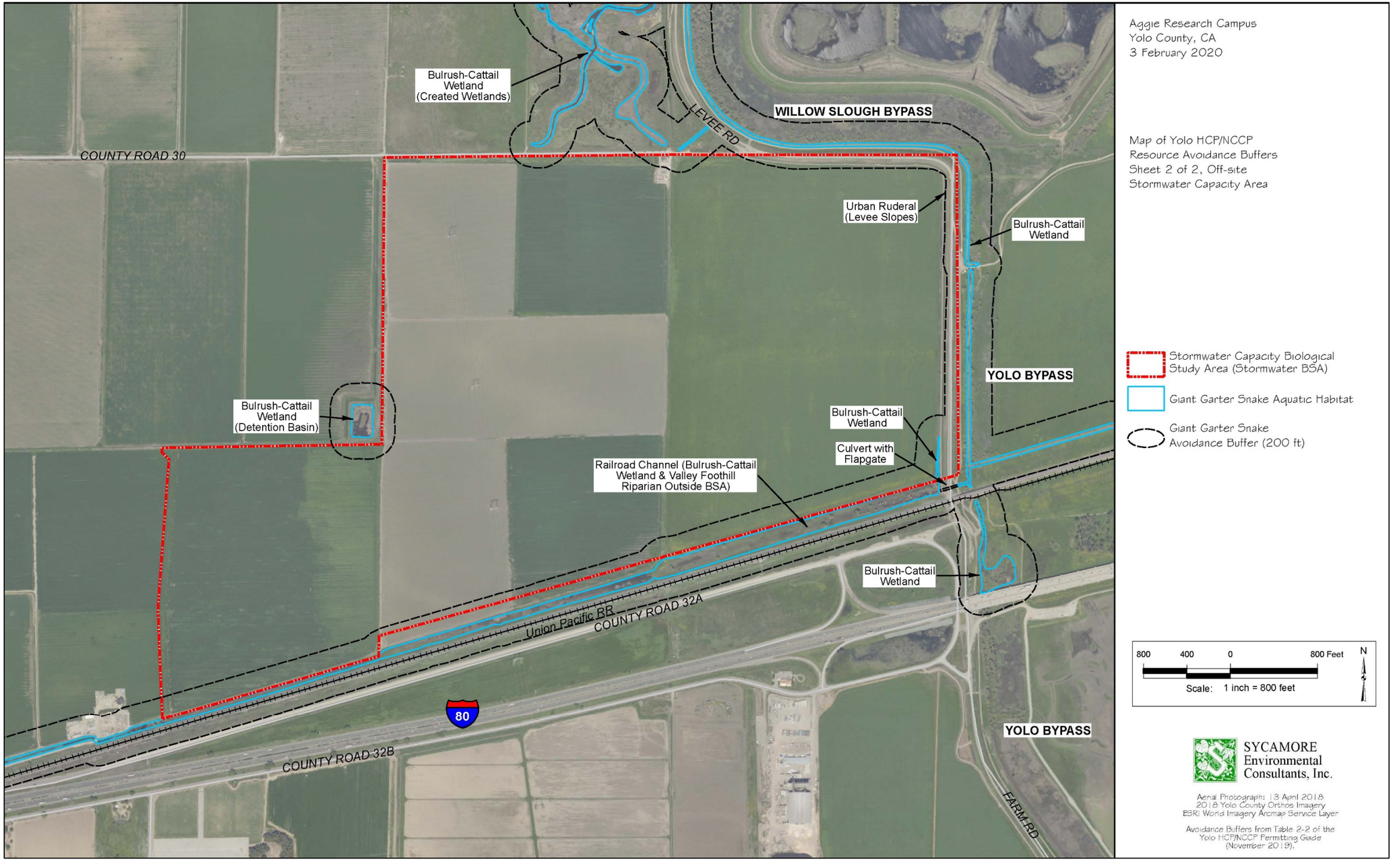
[16] Personal email communication with Nick Pappani, Vice President of Raney Planning & Management, Inc. and John T. McNerney, Wildlife Resource Specialist, City of Davis, February 27, 2015.

buffer from the outer edge of potentially occupied aquatic habitat (see Figure 3-12).

If the project proponent cannot avoid effects of construction activities, the project proponent will implement the measures below to minimize effects of construction projects (measures for maintenance activities are described after the following bulleted list).

- *Conduct preconstruction clearance surveys using USFWS-approved methods within 24 hours prior to construction activities within identified giant garter snake aquatic and adjacent upland habitat. If construction activities stop for a period of two weeks or more, conduct another preconstruction clearance survey within 24 hours prior to resuming construction activity.*
- *Restrict all construction activity involving disturbance of giant garter snake habitat to the snake's active season, May 1 through October 1. During this period, the potential for direct mortality is reduced because snakes are expected to move and avoid danger.*
- *In areas where construction is to take place, encourage giant garter snakes to leave the site on their own by dewatering all irrigation ditches, canals, or other aquatic habitat (i.e., removing giant garter snake aquatic habitat) between April 15 and September 30. Dewatered habitat must remain dry, with no water puddles remaining, for at least 15 consecutive days prior to excavating or filling of the habitat. If a site cannot be completely dewatered, netting and salvage of giant garter snake prey items may be necessary to discourage use by snakes.*
- *Provide environmental awareness training for construction personnel, as approved by the Conservancy. Training may consist of showing a video prepared by a qualified biologist, or an in-person presentation by a qualified biologist. In addition to the video or in-person presentation, training may be supplemented with the distribution of approved brochures and other materials that describe resources protected under the Yolo HCP/NCCP and methods for avoiding effects.*
- *A qualified biologist will prepare a giant garter snake relocation plan which must be approved by the Conservancy prior to work in giant garter snake habitat. The qualified biologist will base the relocation plan on criteria provided by CDFW or USFWS, through the Conservancy.*
- *If a live giant garter snake is encountered during construction activities, immediately notify the project's biological monitor and USFWS and CDFW. The monitor will stop construction in the vicinity of the snake, monitor the snake, and allow the snake to leave on its own. The monitor will remain in the area for the remainder of the work day to ensure the snake is not harmed or, if it leaves the site, does not return. If the giant garter snake does not leave on its own, the qualified biologist will relocate the snake consistent with the relocation plan described above.*

Figure 3-12
Giant Garter Snake Avoidance Buffer



- *Employ the following management practices to minimize disturbances to habitat:*
    - *Install temporary fencing to identify and protect adjacent marshes, wetlands, and ditches from encroachment from construction equipment and personnel.*
    - *Maintain water quality and limit construction runoff into wetland areas through the use of hay bales, filter fences, vegetative buffer strips, or other accepted practices. No plastic, monofilament, jute, or similar erosion-control matting that could entangle snakes or other wildlife will be permitted.*

Ongoing maintenance covered activities by local water and flood control agencies typically involve removal of vegetation, debris, and sediment from water conveyance canals as well as resloping, rocking, and stabilizing the canals that serve agricultural water users. Maintenance of these conveyance facilities can typically occur only from mid-January through April when conveyance canals and ditches are not in service by the agency, although some drainages are used for storm conveyance during the winter and are wet all year. This timing is during the giant garter snake's inactive period. This is when snakes may be using underground burrows and are most vulnerable to take because they are unable to move out of harm's way. Maintenance activities, therefore, will be limited to the giant garter snake's active season (May 1 to October 1) when possible. All personnel involved in maintenance activities within giant garter snake habitat will first participate in environmental awareness training for giant garter snake, as described above for construction related activities. To minimize the take of giant garter snake, the local water or flood control agency will limit maintenance of conveyance structures located within modeled giant garter snake habitat (Appendix A, Covered Species Accounts) to clearing one side along at least 80 percent of the linear distance of canals and ditches during each maintenance year (e.g., the left bank of a canal is maintained in the first year and the right bank in the second year). To avoid collapses when re-sloping canal and ditch banks composed of heavy clay soils, clearing will be limited to one side of the channel during each maintenance year.

For channel maintenance activities conducted within modeled habitat for giant garter snake, the project proponent will place removed material in existing dredged sites along channels where prior maintenance dredge disposal has occurred. For portions of channels that do not have previously used spoil disposal sites and where surveys have been conducted to confirm that giant garter snakes are not present, removed materials may be placed along channels in areas that are not occupied by giant garter snake and where materials will not re-enter the canal because of stormwater runoff.

Modifications to this AMM may be made with the approval of the Conservancy, USFWS, and CDFW. This includes any modifications needed to ensure compliance with the City's existing agreement with CDFW regarding maintenance of the Mace Drainage Channel.

Mace Triangle

None required.

3-18 Impacts to burrowing owl (reference Impact 4.4-4).

ARC Project

In general, nesting habitat for burrowing owl occurs in the Study Area. California ground squirrel burrows were observed along Mace Boulevard, along the ruderal eastern edge of the ARC BSA, along the MDC, and along the railroad berm located south of the Stormwater BSA. Agricultural and ruderal areas in the Study Area provide foraging habitat.

While the City's 25-acre property has been removed from the proposed development area, thus, in general, avoiding impacts to burrowing owl habitat, it is noted that the applicant proposes to use 6.8 acres on the City's 25-acre property as agricultural buffer. In addition, the remainder of the ARC Site's northern boundary and eastern boundary will include a 150-foot agricultural buffer, per the City's requirements. As proposed, the 150-foot wide, 22.6-acre agricultural buffer will abut active agricultural operations located along the north and east sides of the ARC Site. The length of the buffer along the northern ARC Site boundary is approximately 3,460 linear feet. The length of the buffer along the eastern boundary is approximately 3,400 linear feet. Consistent with the City's agricultural buffer requirements, the ARC Project agricultural buffer will be comprised an inner 50-foot wide agricultural buffer/transition area with more active uses and an outer 100-foot wide agricultural buffer with more passive uses, which will be contiguous with agricultural land off-site. The following uses could occur within the publicly accessible 50-foot agricultural transition area: bike paths that encircle the ARC Project and connect to off-site facilities, pedestrian walking trails, community gardens (which will have an emphasis on native plants/pollinators), solar panels, benches and pedestrian-scale lighting. The remaining, outermost 100 feet of the buffer will be an approximately 1.3-mile-long, 14.9-acre open space corridor that will be designed to provide wildlife habitat and drainage. Three proposed artificial burrow complexes for burrowing owls would be constructed along with a drainage swale that outfalls into the existing MDC. The swale will be shallowest just east of CR 104 and CR 32A. The swale will gradually deepen to convey stormwater to the MDC. The banks of the swale/ditch and the 100-foot-wide passive use buffer would be suitable burrowing owl habitat even with clusters of native trees planted within the buffer.

To date, no burrowing owl burrows have been identified within the proposed 150-foot wide agricultural buffer area. The agricultural buffer covers land that is currently disked and farmed, except for the perimeter of the property and the banks of the MDC. As mentioned, burrowing owl burrows have been found nearby, and the ARC Site – including the buffer area – provides suitable foraging habitat for burrowing owl. As such, the proposed creation of the agricultural buffer could potentially result in temporary impacts to burrowing owl habitat; and the installation of a bike/walking trail within the first 50-feet of the buffer could result in permanent impacts to burrowing owl habitat.

Further, in recognition of the fact that burrowing owls require relatively short vegetation with sparse shrubs and taller vegetation and burrows for nesting, the ARC Project will implement the following measures within the external 100-foot buffer area to ensure that the existing and created habitat within this area will be beneficial for burrowing owls:

- Reduce or cluster trees to allow large expanses of grassland within the buffer,
- Implement seasonal mowing, or preferably, stock grazing of grassland areas in the buffer to maintain short grass height preferred by burrowing owls,
- Preserve any California ground squirrels that colonize the buffer grasslands, including their burrows, and
- Establish the three artificial burrow systems currently proposed in the buffer area. The buffer on the north side of the ARC Site, east of CR 104 is a particularly suitable location to establish one or more of the artificial burrows. There are nearby, occupied burrowing complexes along CR 104, on the Mace Boulevard curve, and along CR 30B.

Known Records

CNDDB indicates 79 records of burrowing owl in the nine-quad area centered on the Study Area. The two closest records (Occurrence #614 and #695) are mapped partially overlapping the Study Area, along Mace Boulevard. A third record (Occurrence #734) occurs approximately 500 feet east of the eastern sewer line alternative. A fourth record (Occurrence #994) occurs approximately 500 feet north of the ARC Site, along CR 30B.

Occurrence #614 occurs near the intersection of Mace Boulevard and CR 104 and consists of several burrowing owls that were observed nesting in a disturbed dirt area surrounded by cultivated land and development in 2003 and 2004. The nests were located about 10 feet from the edge of Mace Boulevard. According to the CNDDB, the last sighting of owls at this location was on July 29 2004. Sightings from eBird.org, a publicly-accessible citizen science database, indicate owls have been using burrows at this location within the last year (eBird 2020).

Occurrence #695 occurs at the southwest corner of the ARC BSA and includes areas east and west of Mace Boulevard. This record consists of at least eight owls and two active burrows observed in 2004, and six owls and four burrows observed in 2005. CNDDB reports the location as "corner of frontage road (adjacent to I-80) and Mace Boulevard, near Ikeda's Market," and the detailed location as "near road, between the two Park and Ride signs. Wintering burrow along the CR 32A right-of-way." Habitat is described as mowed nonnative grassland, surrounded by a frontage road, a park and ride lot, and Ikeda's Market. According to CNDDB, the last sighting of owls at this location was on October 10, 2005. eBird.org sightings indicate owls have been using burrows at this location within the last year (eBird 2020).

Occurrence #734 occurs on the north side of I-80, approximately 500 feet east of CR 105. The record consists of two adult owls observed at their burrow (presumably breeding), at a mostly barren site with some ruderal vegetation on March 2, 2005. According to CNDDB, the March 2, 2005 sighting is the last known observation. eBird.org sightings indicate owls have been using burrows at this location within the last year (eBird 2020).

Occurrence #994 occurs along 0.25 to 0.40 mi west of the intersection of CR 104A and CR 30B. The record is for two occupied burrows, one with a pair, the other with a single individual, along CR 30B. One pair and one single adult were observed in August and September 2007; two adults and five juveniles were observed on July 13, 2008. According to CNDDB, the July 13, 2008 sighting is the last known observation. eBird.org sightings indicate owls have been using burrows at this location within the last year (eBird 2020).

CNDDB records show no burrowing owl in the Stormwater BSA or within 500 feet. There are eBird.org sightings of burrowing owl with marker locations north of the Stormwater BSA; however, it is not clear if these sightings correspond to nesting owls at the eBird marker locations. (Many of the sightings are part of eBird Traveling Protocol Surveys over 2+ miles, and include photos of burrowing owls from the known occurrences listed above).

Field Survey Results

Six burrow complexes occupied by burrowing owl occur in the Study Area or within 500 feet. Burrowing owls and/or their signs (e.g., feathers, whitewash, pellets) have been observed at these burrows within the last three years. Sycamore Environmental has completed numerous surveys covering the Study Area, as described in Table 3-14 above. Within the last year, a survey specifically targeting burrowing owl in the Study Area and within 500 feet was completed on August 7, 2019. In 2020, four burrowing owl surveys have been conducted in accordance with CDFW (2012) guidelines; and five more are planned to be conducted through the 2020 burrowing owl breeding season. Appendix G of the BRE (see Appendix C to this SEIR) describes suitable burrows, and the six known occupied sites (Sites A-F). Sites A-F are listed in Table 3-16 below and shown in Figure 3-13. Sites A-F are associated with known records, as follows:

- **Site A** is part of CNDDB Occurrence #994. The most recent sighting of burrowing owl at Site A during surveys occurred on March 4, 2020 (two owls observed at a burrow). Breeding has occurred at this location within the last three years based on eBird.org sightings of pairs and/or juveniles (eBird 2020).
- **Site B** does not appear to be part of a CNDDB record. The most recent sighting of burrowing owl at Site B during surveys occurred on March 4, 2020 (courtship behavior displayed among owl pair). Breeding has occurred at this location within the last three years based on eBird.org sightings of pairs and/or juveniles (eBird 2020).
- **Site C** is part of CNDDB Occurrence #614. The most recent sighting of burrowing owl at Site C during surveys occurred on March 4, 2020 (one owl observed at a burrow). There is no indication from eBird.org sightings that breeding has occurred in this location within last three years (eBird 2020).
- **Site D** may be part of CNDDB Occurrence #695. The most recent sighting of burrowing owl at Site D during surveys occurred on February 21, 2020 (one owl observed at a burrow). There are no eBird.org sightings at this location within the last three years (eBird 2020).
- **Site E** is part of CNDDB Occurrence #695. The most recent sighting of burrowing owl at Site E during surveys occurred on March 4, 2020 (courtship behavior displayed among owl pair). Breeding has occurred at this location within the last three years based on eBird.org

sightings of pairs and/or juveniles (eBird 2020). It is important to note that this site has been permanently altered by the recent construction of the Residence Inn – Mace Ranch Project. The City required mitigation for burrowing owl for the Residence Inn project, which included off-site habitat mitigation and construction of artificial burrows for burrowing owl immediately southwest of the Mace Boulevard/2nd Street intersection.

- **Site F** is part of CNDDB Occurrence #695. Burrowing owl has not been observed at Site F during surveys. Burrowing owl sign (whitewash and potential prey item remains) was observed at one burrow at Site F during the survey on March 4, 2020. Site F may be the "wintering burrow along the CR 32A right-of-way" noted in CNDDB. There is no indication of breeding at this location within the last three years based on eBird.org sightings (eBird 2020).

Table 3-16
Summary of Burrowing Owl Occupancy

Site	Location Description	Owls/Sign Observed					Owls Last Observed
		7 Aug 2019[1]	24 Jan 2020	6 Feb 2020	21 Feb 2020	4 Mar 2020	
A	Approximately 530 feet north of the ARC Site, along north side of CR 30B	2 owls	2 owls	2 owls	2 owls	2 owls	March 4, 2020
B	Northwestern edge of ARC Site, along east side of CR 104	1 owl	Sign[2]	1 owl	2 owls	2 owls[3]	March 4, 2020
C	Western edge of the ARC Site, along east side of Mace Boulevard, south of intersection with CR 104	--	--	1 owl	1 owl	1 owl	March 4, 2020
D	Approximately 400 feet west of the ARC Site, in vacant lot north of 2nd St	1 owl	--	--	1 owl	--	February 21, 2020
E	Approximately 100 feet west of the ARC Site, along west side of Mace Boulevard, south of 2nd Street; includes artificial burrows	3 owls	Sign[2]	1 owl	1 owl	2 owls[3]	March 4, 2020
F	Approximately 360 feet east of the Mace Boulevard, along south side of CR 32A, and in vacant field east of Ikeda's Market	--	Sign[2]	Sign[2]	Sign[2]	Sign[2]	No owls observed

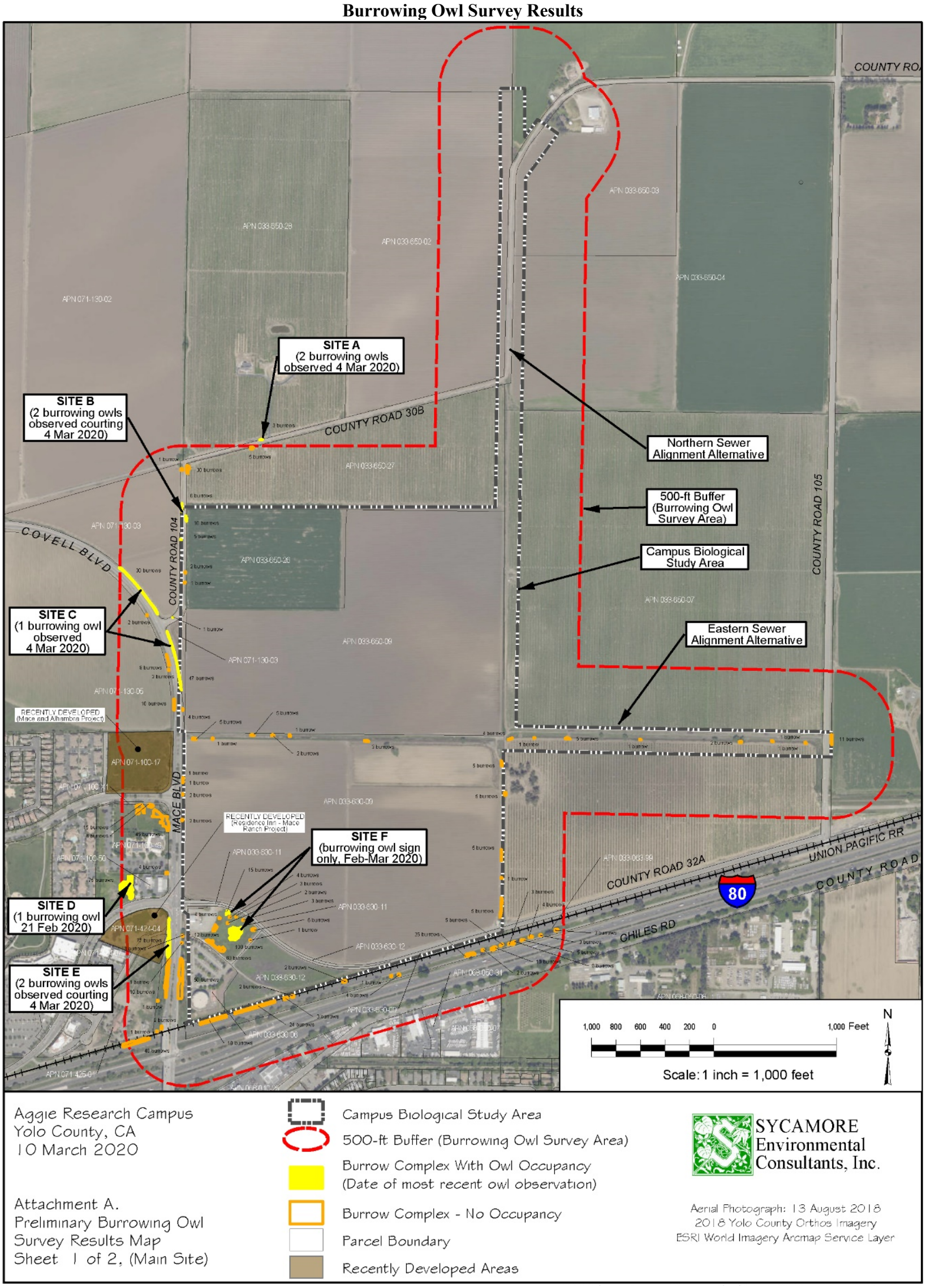
[1] The survey on 7 August 2019 was conducted by biologists Mike Bower, M.S., and Juan Mejia, B.S. The survey covered the ARC Site and areas within 500 feet. The August 2019 survey targeted burrowing owl, but is not considered part of the full set of CDFW guideline surveys currently underway in 2020.

[2] Sign noted only if no owls observed. Sign at Site B consisted of white wash markings and pellets. Sign at Site E consisted of white wash markings and pellets. Sign at Site F consisted of white wash markings and small mammal bones (potential prey remains).

[3] Courtship behavior displayed among owl pairs at Sites B and E on 4 March 2020.

Source: Sycamore Environmental Consultants (March 2020).

Figure 3-13
Burrowing Owl Survey Results



Burrowing owls show high site fidelity. The location of occupied sites within 500 feet of the Study Area are well known based on numerous surveys and eBird.org sightings. The distribution and abundance of occupied sites is not expected to change substantially as the results of additional surveys for burrowing owl become available. Regardless of the final result of surveys, burrowing owl may become established in any potentially suitable burrow, including the large number of potentially suitable burrows that have so far been mapped in the Study Area and within 500 feet.

Mace Triangle

Based on CNDDB records, burrowing owl was observed in or near the Mace Triangle Site, near Ikeda's Market. Burrowing owls were not observed during biological surveys of the Mace Triangle Site. Nonetheless, burrowing owls may be present or become established within the Mace Triangle Site prior to any future development.

Conclusion

Suitable burrowing owl habitat exists within the ARC BSA and Stormwater BSA. Impacts would only occur within the Stormwater BSA if the off-site storage pond alternative is selected for the ARC Project rather than the pump station alternative, as discussed in more detail in the project description section of this SEIR. In addition, the Urban Ruderal land cover type on the Mace Triangle Site (9.46 acres) is considered burrowing owl habitat. ARC Project and Mace Triangle impacts to burrowing owl habitat would be addressed through the applicant's payment of the Land Cover fees for the impacted acreage where suitable habitat exists, as determined by the Yolo HCP/NCCP.

It is also noted that because the ARC Project would consist of a reduced development footprint, as compared to the proposed project, due to exclusion of the City's 25-acre property from the development footprint, the amount of burrowing owl habitat impacted by the ARC Project would be less than the MRIC Project. As previously discussed, the applicant proposes to use 6.8 acres on the City's 25-acre property as agricultural buffer. A portion of this 6.8-acre buffer area could be considered impacted acreage, thus, requiring land cover fees per the Yolo HCP/NCCP. Mitigation measures would be required for both the MRIC Project and the ARC Project in order to protect burrowing owl.

Overall, impacts related to burrowing owl under the ARC Project would be ***less-than-significant*** with mitigation.

Mitigation Measure(s)

ARC Project and Mace Triangle

3-18 *To ensure avoidance and minimization of impacts to Western Burrowing Owl, the project applicant for the ARC shall obtain coverage under the Yolo HCP/NCCP for on-site, and as may be determined necessary by Yolo Habitat Conservancy, for off-site infrastructure work, for each phase of development. In addition to payment of any applicable HCP/NCCP fees, the applicant shall implement Yolo HCP/NCCP*

Avoidance and Minimization Measure AMM-18 (Minimize Take and Adverse Effects on Western Burrowing Owl) to the satisfaction of the City and the YHC. AMM-18[17] provides:

The project proponent will retain a qualified biologist to conduct planning-level surveys and identify western burrowing owl habitat (as defined in Appendix A of the Yolo HCP/NCCP, Covered Species Accounts) within or adjacent to (i.e., within 500 feet of) a covered activity. If habitat for this species is present, additional surveys for the species by a qualified biologist are required, consistent with CDFW guidelines (Yolo HCP/NCCP, Appendix L).

If burrowing owls are identified during the planning-level survey, the project proponent will minimize activities that will affect occupied habitat as follows. Occupied habitat is considered fully avoided if the project footprint does not impinge on a non-disturbance buffer around the suitable burrow. For occupied burrowing owl nest burrows, this non-disturbance buffer could range from 150 to 1,500 feet (Table 3-17, Recommended Restricted Activity Dates and Setback Distances by Level of Disturbance for Burrowing Owls), depending on the time of year and the level of disturbance, based on current guidelines (California Department of Fish and Game 2012).

Table 3-17
Recommended Restricted Activity Dates and Setback Distances by Level of Disturbance for Burrowing Owls Time of Year Level of Disturbance (feet) from Occupied Burrows

	Level of Disturbance (feet) from Occupied Burrows		
Time of Year	***Low***	***Medium***	***High***
April 1 – August 15	*600*	*1,500*	*1,500*
August 16 – October 15	*600*	*600*	*1,500*
October 16-March 31	*150*	*300*	*1,500*

The Yolo HCP/NCCP generally defines low, medium, and high levels of disturbances of burrowing owls as follows.

- *Low: Typically 71-80 dB, generally characterized by the presence of passenger vehicles, small gas-powered engines (e.g., lawn mowers, small chain saws, portable generators), and high tension power lines. Includes electric hand tools (except circular saws, impact wrenches and similar). Management and enhancement activities would typically fall under this category. Human activity in the immediate vicinity of burrowing owls would also constitute a low level of disturbance, regardless of the noise levels.*
- *Moderate: Typically 81-90 dB, and would include medium- and large-sized construction equipment, such as backhoes, front end loaders, large pumps*

[17] Per Table 5-2(b) of the HCP/NCCP, no injury or mortality of individuals would occur with application of avoidance and minimization measures (Final HCP/NCCP, pp. 5-21 to 5-25).

and generators, road graders, dozers, dump trucks, drill rigs, and other moderate to large diesel engines. Also includes power saws, large chainsaws, pneumatic drills and impact wrenches, and large gasoline-powered tools. Construction activities would normally fall under this category.

- *High: Typically 91-100 dB, and is generally characterized by impacting devices, jackhammers, compression ("jake") brakes on large trucks, and trains. This category includes both vibratory and impact pile drivers (smaller steel or wood piles) such as used to install piles and guard rails, and large pneumatic tools such as chipping machines. It may also include large diesel and gasoline engines, especially if in concert with other impacting devices. Felling of large trees (defined as dominant or subdominant trees in mature forests), truck horns, yarding tower whistles, and muffled or underground explosives are also included. Very few covered activities are expected to fall under this category, but some construction activities may result in this level of disturbance.*

The project proponent may qualify for a reduced buffer size, based on existing vegetation, human development, and land use, if agreed upon by CDFW and USFWS (California Department of Fish and Game 2012).

If the project does not fully avoid direct and indirect effects on nesting sites (i.e., if the project cannot adhere to the buffers described above), the project proponent will retain a qualified biologist to conduct preconstruction surveys and document the presence or absence of western burrowing owls that could be affected by the covered activity. Prior to any ground disturbance related to covered activities, the qualified biologist will conduct the preconstruction surveys within three days prior to ground disturbance in areas identified in the planning-level surveys as having suitable burrowing owl burrows, consistent with CDFW preconstruction survey guidelines (Yolo HCP/NCCP, Appendix L, Take Avoidance Surveys). The qualified biologist will conduct the preconstruction surveys three days prior to ground disturbance. Time lapses between ground disturbing activities will trigger subsequent surveys prior to ground disturbance.

If the biologist finds the site to be occupied by western burrowing owls during the breeding season (February 1 to August 31), the project proponent will avoid all nest sites, based on the buffer distances described above, during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups that forage on or near the site following fledging). Construction may occur inside of the disturbance buffer during the breeding season if the nest is not disturbed and the project proponent develops an AMM plan that is approved by the Conservancy, CDFW, and USFWS prior to project construction, based on the following criteria:

- *The Conservancy, CDFW, and USFWS approves the AMM plan provided by the project proponent.*

- *A qualified biologist monitors the owls for at least three days prior to construction to determine baseline nesting and foraging behavior (i.e., behavior without construction).*
- *The same qualified biologist monitors the owls during construction and finds no change in owl nesting and foraging behavior in response to construction activities.*
- *If the qualified biologist identifies a change in owl nesting and foraging behavior as a result of construction activities, the qualified biologist will have the authority to stop all construction related activities within the non-disturbance buffers described above. The qualified biologist will report this information to the Conservancy, CDFW, and USFWS within 24 hours, and the Conservancy will require that these activities immediately cease within the non-disturbance buffer. Construction cannot resume within the buffer until the adults and juveniles from the occupied burrows have moved out of the project site, and the Conservancy, CDFW, and USFWS agree.*
- *If monitoring indicates that the nest is abandoned prior to the end of nesting season and the burrow is no longer in use by owls, the project proponent may remove the non-disturbance buffer, only with concurrence from CDFW and USFWS. If the burrow cannot be avoided by construction activity, the biologist will excavate and collapse the burrow in accordance with CDFW's 2012 guidelines to prevent reoccupation after receiving approval from the wildlife agencies.*

If evidence of western burrowing owl is detected outside the breeding season (December 1 to January 31), the project proponent will establish a non-disturbance buffer around occupied burrows, consistent with Table 4-2, as determined by a qualified biologist. Construction activities within the disturbance buffer are allowed if the following criteria are met to prevent owls from abandoning important overwintering sites:

- *A qualified biologist monitors the owls for at least three days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).*
- *The same qualified biologist monitors the owls during construction and finds no change in owl foraging behavior in response to construction activities.*
- *If there is any change in owl roosting and foraging behavior as a result of construction activities, these activities will cease within the buffer.*
- *If the owls are gone for at least one week, the project proponent may request approval from the Conservancy, CDFW, and USFWS for a qualified biologist to excavate and collapse usable burrows to prevent owls from reoccupying the site if the burrow cannot be avoided by construction activities. The qualified biologist will install one-way doors for a 48-hour period prior to collapsing any potentially occupied burrows. After all*

usable burrows are excavated, the buffer will be removed and construction may continue.

Monitoring must continue as described above for the nonbreeding season as long as the burrow remains active.

A qualified biologist will monitor the site, consistent with the requirements described above, to ensure that buffers are enforced and owls are not disturbed. Passive relocation (i.e., exclusion) of owls has been used in the past in the Plan Area to remove and exclude owls from active burrows during the nonbreeding season (Trulio 1995). Exclusion and burrow closure will not be conducted during the breeding season for any occupied burrow. If the Conservancy determines that passive relocation is necessary, the project proponent will develop a burrowing owl exclusion plan in consultation with CDFW biologists. The methods will be designed as described in the species monitoring guidelines (California Department of Fish and Game 2012) and consistent with the most up-to-date checklist of passive relocation techniques. This may include the installation of one-way doors in burrow entrances by a qualified biologist during the nonbreeding season. These doors will be in place for 48 hours and monitored twice daily to ensure that the owls have left the burrow, after which time the biologist will collapse the burrow to prevent reoccupation. Burrows will be excavated using hand tools. During excavation, an escape route will be maintained at all times. This may include inserting an artificial structure, such as piping, into the burrow to prevent collapsing until the entire burrow can be excavated and it can be determined that no owls are trapped inside the burrow. The Conservancy may allow other methods of passive or active relocation, based on best available science, if approved by the wildlife agencies. Artificial burrows will be constructed prior to exclusion and will be created less than 300 feet from the existing burrows on lands that are protected as part of the reserve system.

3-19 Impacts to Swainson's hawk (reference Impact 4.4-5).

ARC Project

Impacts related to nesting Swainson's hawks were determined to be less-than-significant with mitigation for the MRIC Project. Impacts related to Swainson's hawk foraging habitat was also determined to be less-than-significant with mitigation (see FEIR, pg. 2-35; see also Master Response #8). Since certification of the Final MRIC EIR, the Yolo HCP/NCCP has been adopted, which will effectively implement a regional strategy to protecting Swainson's hawk nesting and foraging habitat, while still allowing for some loss of suitable habitat. Specifically, the conservation strategy of the Yolo HCP/NCCP includes the incorporation of 4,795 acres of Swainson's hawk habitat on pre-permit reserve lands, and biological objectives for the conservation of Swainson's hawk including; maintaining crop types that support Swainson's hawk habitat within 14,362 acres of newly protected agricultural lands, protect 4,430 acres of natural (grassland) foraging habitat, protect and maintain as least 40 protected nest trees, and maintain a density of one suitable nest tree per 10 acres of agricultural lands in the reserve system. As a result,

the Yolo HCP/NCCP EIS/EIR concluded that the Plan's impacts to Swainson's hawk would be less-than-significant (pg. 4-60).

With respect to the Study Area, within the ARC BSA, the Fremont cottonwood trees in the detention basin and willows and cottonwoods along the MDC provide marginal nesting habitat. Nesting habitat is considered marginal because the trees are young. Within 1,320 feet of the ARC BSA, potential nesting habitat occurs in the groves of eucalyptus trees located east and north of the ARC BSA. Suitable off-site nesting habitat also occurs in landscaping corridors with large trees located along I-80, Mace Boulevard, and Chiles Road; and large willows and cottonwoods present along portions of the MDC and Railroad Channel. Potential nest trees do not occur in the Stormwater BSA. Within 1,320 feet of the Stormwater BSA, suitable off-site nesting habitat occurs in landscaping corridors with large trees located along I-80 and in large willows and cottonwoods present along portions of the off-site Railroad Channel, detention basin, created wetlands, and Yolo Bypass. Agricultural and ruderal areas in the ARC BSA and Stormwater BSA provide foraging habitat.

Known Records

CNDDB includes 500 records for Swainson's hawk in the nine-quad area centered on the Study Area. Two records (Occurrence #409 and #465) are mapped partially overlapping the ARC BSA, and one record (Occurrence #1466) is mapped partially overlapping the Stormwater BSA. A fourth record (Occurrence #111) occurs within 1,320 feet of the ARC BSA.

Occurrence #409 is in a eucalyptus grove located east of the ARC BSA and south of the MDC and eastern sewer alignment alternative. The record is for two Swainson's hawks observed nesting in 1987 and 1988 in a eucalyptus tree surrounded by farm houses. The nest site was inactive in 1994.

Occurrence #465 is in a eucalyptus grove located north of the ARC BSA, at the northern end of the northern sewer alignment alternative. The record is for Swainson's hawk nesting activity in a farmyard eucalyptus from 1992 to 2002, with successful young last detected in 1992, and hawks last detected in 2002. The nest tree was reported as being in poor condition, and the nest site was reported as inactive in 2004 and 2005.

Occurrence #1466 represents two separate nest trees, the closest of which occurs in riparian vegetation along the Railroad Channel immediately south of the Stormwater BSA. This nearby nest tree is described as a cottonwood with an active Swainson's hawk nest in 2005. The second nest tree occurs approximately 0.2-mile south of the Stormwater BSA, in a eucalyptus on the south side of I-80. An active nest was observed in the eucalyptus tree in 2010.

Occurrence #111 represents four separate nest tree polygons, all located along I-80. The closest nest polygon is located approximately 0.2-mile south of the eastern end of the eastern sewer alignment, on the south side of I-80. A second polygon is located a similar distance southeast of the eastern end of the sewer alignment, in riparian vegetation in the Railroad Channel. Occurrence #111 includes pine, willow, walnut, and Chinese elm nest trees with active nests reported most years between 1987-2009.

Field Surveys

Swainson's hawks were observed soaring over the ARC BSA on September 11, 2015 and August 7, 2019. Potential Swainson's hawk nests were not detected in the ARC BSA or Stormwater BSA during biological surveys. Potential Swainson's hawk nests were not detected in the areas located within 1,320 feet of the ARC BSA and Stormwater BSA. Active nests could become established in the Fremont cottonwoods present in the ARC BSA, or in any of the suitable nest trees known to occur within 1,320 feet, especially in eucalyptus groves located immediately east and north of the ARC BSA, which previously contained active Swainson's hawk nests.

Mace Triangle

Swainson's hawks were not observed on the Mace Triangle Site during biological surveys. In addition, the largely developed and/or disturbed habitats do not serve as Swainson's hawk foraging habitat, as verified by the Yolo Habitat JPA.[18] However, when viewed in the context of the adjacent Swainson's hawk foraging habitats, the Mace Triangle Site contributes value to the hawk's overall foraging area.

Conclusion

Suitable nesting and foraging habitat for Swainson's hawk exists within the Study Area. Impacts to foraging habitat would only occur within the Stormwater BSA if the off-site storage pond alternative is selected for the ARC Project rather than the pump station alternative, as discussed in more detail in the project description section of this SEIR. ARC Project and Mace Triangle impacts to Swainson's hawk habitat would be addressed through the applicant's payment of the Land Cover fees for the impacted acreage where suitable habitat exists, as determined by the Yolo HCP/NCCP.

It is also noted that because the ARC Project would consist of a reduced development footprint, as compared to the MRIC Project, due to exclusion of the City's 25-acre property from the development footprint, the amount of Swainson's hawk foraging habitat impacted by the ARC Project would be less than the MRIC Project. It is noted, however, that the applicant proposes to use 6.8 acres on the City's 25-acre property as agricultural buffer. A portion of this 6.8-acre buffer area could be considered impacted acreage, thus, requiring land cover fees per the Yolo HCP/NCCP. Mitigation measures would be required for both the MRIC Project and the ARC Project in order to protect Swainson's hawk.

Overall, consistent with the significance conclusion of the Yolo HCP/NCCP EIS/EIR, with implementation of mitigation consistent with the HCP/NCCP (payment of land cover fees and implementation of AMMs), the ARC Project would have a ***less-than-significant*** impact to Swainson's hawk.

[18] Yolo County Habitat/Natural Community Conservation Plan Joint Powers Agency. *Potential Modeled Habitat Impact – MRIC*, March 9, 2015.

Mitigation Measure(s)

ARC Project and Mace Triangle

3-19 *To ensure avoidance and minimization of impacts to Swainson's hawk and their habitat, the project applicant for the ARC, or the Mace Triangle as applicable, shall obtain coverage under the Yolo HCP/NCCP for on-site, and as may be determined necessary by Yolo Habitat Conservancy, for off-site infrastructure work, for each phase of development. In addition to payment of any applicable HCP/NCCP fees, the applicant shall implement Yolo HCP/NCCP Avoidance and Minimization Measure AMM-16 (Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite) to the satisfaction of the City and the YHC. AMM-16[19] provides:*

> *The project proponent will retain a qualified biologist to conduct planning-level surveys and identify any nesting habitat present within 1,320 feet of the project footprint. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.*
>
> *If a construction project cannot avoid potential nest trees (as determined by the qualified biologist) by 1,320 feet, the project proponent will retain a qualified biologist to conduct preconstruction surveys for active nests consistent, with guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000), between March 15 and August 30, within 15 days prior to the beginning of the construction activity. The results of the survey will be submitted to the Conservancy and CDFW. If active nests are found during preconstruction surveys, a 1,320-foot initial temporary nest disturbance buffer shall be established. If project related activities within the temporary nest disturbance buffer are determined to be necessary during the nesting season, then the qualified biologist will monitor the nest and will, along with the project proponent, consult with CDFW to determine the best course of action necessary to avoid nest abandonment or take of individuals. Work may be allowed only to proceed within the temporary nest disturbance buffer if Swainson's hawk are not exhibiting agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, and only with the agreement of CDFW and USFWS. The designated on-site biologist/monitor shall be on-site daily while construction-related activities are taking place within the 1,320-foot buffer and shall have the authority to stop work if raptors are exhibiting agitated behavior. Up to 20 Swainson's hawk nest trees (documented nesting within the last 5 years) may be removed during the permit term, but they must be removed when not occupied by Swainson's hawks.*

[19] Per Table 5-2(b) of the HCP/NCCP, no injury or mortality of individuals would occur with application of avoidance and minimization measures (Final HCP/NCCP, pp. 5-21 to 5-25).]

For covered activities that involve pruning or removal of a potential Swainson's hawk nest tree, the project proponent will conduct preconstruction surveys that are consistent with the guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000). If active nests are found during preconstruction surveys, no tree pruning or removal of the nest tree will occur during the period between March 1 and August 30 within 1,320 feet of an active nest, unless a qualified biologist determines that the young have fledged and the nest is no longer active.

3-20 Impacts to raptors, nesting birds, or other birds protected under the MBTA (reference Impact 4.4-6).

ARC Project

The ARC BSA includes suitable habitat for the following special-status birds: white-tailed kite (CDFW Fully Protected species); song sparrow – Modesto population (Species of Special Concern); mountain plover (Species of Special Concern); and northern harrier (Species of Special Concern); and tricolored blackbird (State Threatened). White-tailed kite and tricolored blackbird are also species covered under the Yolo HCP/NCCP. These species are further discussed below. In terms of non-special status migratory birds protected under the federal Migratory Bird Treaty Act (MBTA), they could nest in the trees, the MDC, ruderal vegetation, and on disturbed ground in or adjacent to the Study Area. Potential raptor nests were not observed in the Study Area during biological surveys.

White-tailed kite

Fremont cottonwood trees in the detention basin and along the MDC provide marginal nesting habitat. Nesting habitat is considered marginal because the trees are young and isolated. Just north of the BSA and east of the BSA are groves of eucalyptus trees that could serve as nesting habitat. Riparian willows and cottonwoods present in the Railroad Channel south of the Stormwater BSA, and in the Yolo Bypass east of the Stormwater BSA, provide suitable nesting habitat. Agricultural and ruderal areas in the BSA provide foraging habitat.

White-tailed kites were observed perched in the cottonwoods in the detention basin or flying over the ARC BSA on both October 7 and December 10, 2014. Nesting sites are of concern to CDFW (2019a). During their breeding season, white-tailed kites could nest in the Fremont cottonwood trees in the ARC BSA, in the eucalyptus groves located east and north of the site, or in the riparian willows and cottonwoods located to the south and east of the Stormwater BSA. Trees in the overall ARC BSA are unlikely to be used because they are young and isolated and because there are larger trees nearby.

Modesto Song Sparrow

Marginal nesting habitat for Modesto song sparrow occurs in the MDC. Nesting habitat is considered marginal due to regular vegetation removal and the relatively small width of the MDC.

Agricultural and ruderal areas in the Study Area provide marginal foraging habitat. Foraging habitat is considered marginal because there is little vegetation cover.

Modesto song sparrow was not observed during biological surveys. Nesting is not expected in the Study Area because the only potential nesting habitat, the MDC, is regularly cleared of emergent wetland vegetation and may not provide sufficient cover for nesting.

Mountain Plover

Agricultural and ruderal areas in the Study Area provide foraging habitat. Mountain plover was not observed during biological surveys. This species does not nest in California. Nonbreeding/wintering sites are of concern to CDFW (2019a). Ample foraging and wintering habitat similar to that in the Study Area occurs in the agricultural areas surrounding the City of Davis.

Northern Harrier

The Study Area does not provide suitable nesting habitat for northern harrier. Marshes, rivers, or lakes are not present in the Study Area. The MDC is narrow, deep, and regularly maintained, and does not provide suitable nesting habitat. The agricultural fields in the Study Area are regularly disked and have been planted primarily with tomatoes, corn, and sunflower. The agricultural fields are not suitable for nesting. Agricultural and ruderal areas in the Study Area provide suitable foraging habitat. One northern harrier was observed foraging over the MDC and perching in trees located in the detention basin on January 24, 2020.

Tricolored Blackbird

Marginal nesting habitat for the protected tricolored blackbird occurs in the portion of the MDC within the ARC BSA. Nesting habitat is considered marginal due to frequent vegetation removal and the relatively small width of the MDC, which may not provide sufficient protection for a colony nesting species. Suitable nesting habitat occurs in the marsh vegetation in the Railroad Channel located south of the Stormwater BSA, in the Yolo Bypass east of the Stormwater BSA, in created wetlands north of the Stormwater BSA, and in the detention basin northwest of the Stormwater BSA. Agricultural and ruderal areas in the Study Area provide suitable foraging habitat.

Tricolored blackbirds were not observed during biological surveys of the Study Area. Known records of nesting tricolored blackbird do not exist within the Study Area or within 1,300 feet (CDFW 2020c; eBird 2020). Although unlikely, tricolored blackbirds could nest in the MDC. Nesting could also occur in suitable nesting habitat within 1,300 feet of the Stormwater BSA.

Mace Triangle

Nesting habitat for the above-discussed special-status bird species is not present within the Mace Triangle Site, though ground-nesting birds otherwise protected under the MBTA could nest in disturbed/ruderal areas.

Potential Effects of Solar Panels on Birds

In an effort to respond to public comments submitted to the City early in the CEQA process regarding concerns of birds colliding with solar panels, the following is offered. Solar installation scale is roughly classed into two or three categories of output (Walston et al. 2015). Residential scale installations include rooftops, and range from 5 to 20 kW output, on average. Commercial/industrial scale solar is not well-defined in the literature, but generally references installations that power a specific facility or facilities. Output from commercial/ industrial facilities range from ~1 to 2 MW for smaller commercial to 80 to 390 MW for major corporations (Apple, Google, Amazon, etc.), as reported by Solar Energy Industries Association (SEIA 2019).

Utility scale installations are considered to be ground-mounted facilities that generate more than 1 MW (Walston et al. 2015, Moore-O'Leary et al. 2017) or 5 MW (Ong et al. 2012) of power. Utility scale installations, by definition, feed into the power grid for purchase by consumers, and can generate up to 550 MW of power.

Studies in the literature that discuss the impacts of solar installations on birds typically address large utility-scale installations (see reference list). Most of the studies analyze projects producing 250 or more MW of power. The smallest project for which data is available, a site in South Africa, is 96 MW. (Visser et al. 2019.) The size, configuration and location requirements of these installations can make them particularly susceptible to bird strikes. The installations are composed of fixed or tracking photovoltaic (PV) solar panels, or heliostat (mirror) panels in parabolic trough or concentrated solar power (CSP) systems. CSP systems use heliostats to reflect sunlight to water in a central tower, heating the water and generating energy from the steam.

All three of these types of large-scale utility installations consist of concentrated panels in continuous rows or concentric circles, covering large areas. Larger photovoltaic (PV) plants use between 5.8 and 9.0 acres of land per MW of power produced (Ong et. al 2012). Because of their size and other environmental requirements (flat, open areas), these plants are ordinarily sited in natural, undeveloped areas on public land (Ong et al. 2012, Cameron et al. 2012). The presence of ponds adjacent to these installations, particularly in deserts where water is scarce, has been posited to create a "lake effect," in which birds mistake panels reflecting the sky for water, leading to collisions (Kagan et al. 2014). It was also hypothesized that birds were attracted to the source of polarized light reflecting off heliostats (Kagan et al. 2014). In systems that use heliostats, birds can also be killed by the heat from the panels, or in CSP systems, from the concentration of heat near the central tower (Kagan et al. 2014, WEST 2016).

Based on the preceding discussion, the potential impacts to wildlife, particularly avian species, at ARC, is expected to be minimal. The solar installation at the ARC, at full buildout, is projected to generate a maximum of approximately 11.25 MW of power. The smallest solar project for which scientific literature addressing wildlife impacts is available is a 96 MW, 445-acre array in South Africa. (Visser et al. 2019; mortality rate was estimated to be 0.98 bird mortality per acre.) The ARC Site is located adjacent to an urbanized area, as opposed to the large-scale solar farms which are typically sited in large, open space areas. The PV panels will not be concentrated in a single array, or even in one particular area. Rather, they will be widely dispersed across approximately 40 acres (22 percent) of the 187-acre campus on rooftops and in parking lots at varying elevations.

There are no ponds adjacent to the solar panels. The nearest permanent open water feature, Lake Alhambra, is approximately 0.6-mile west from the western boundary of the ARC Project. Due to the distance from the lake and the configuration of the solar arrays spread over the campus, it is unlikely that birds would be attracted by any "lake effect" caused by the PV solar panels.

Conclusion

Suitable nesting and foraging habitat for special-status birds and non-special status birds protected under the MBTA exists within the Study Area. Impacts to foraging habitat would only occur within the Stormwater BSA if the off-site storage pond alternative is selected for the ARC Project rather than the pump station alternative, as discussed in more detail in the project description section of this SEIR. While only white-tailed kite and tricolored blackbird are species covered under the Yolo HCP/NCCP, the applicant's payment of the Land Cover fees will help address impacts to all of these species' habitats.

It is also noted that because the ARC Project would consist of a reduced development footprint, as compared to the MRIC Project, due to exclusion of the City's 25-acre property from the development footprint, the amount of special-status bird and other migratory bird habitat impacted by the ARC Project would be less than the MRIC Project. It is noted, however, that the applicant proposes to use 6.8 acres on the City's 25-acre property as agricultural buffer. A portion of this 6.8-acre buffer area could be considered impacted acreage, thus, requiring land cover fees per the Yolo HCP/NCCP. Mitigation measures would be required for both the MRIC Project and the ARC Project in order to protect the above-listed special-status birds and non-special status migratory birds.

Overall, impacts related to raptors, nesting birds, or other birds protected under the MBTA under the ARC Project would be ***less-than-significant*** with mitigation.

Mitigation Measure(s)

ARC Project

3-20(a) *White-tailed kite. To ensure avoidance and minimization of impacts to White-Tailed Kite, the project applicant for the ARC Project shall obtain coverage under the Yolo HCP/NCCP for on-site, and as may be determined necessary by Yolo Habitat Conservancy, for off-site infrastructure work, for each phase of development. In addition to payment of any applicable HCP/NCCP fees, the applicant shall implement Yolo HCP/NCCP Avoidance and Minimization Measure AMM-16 (Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite) to the satisfaction of the City and the YHC. AMM-16[20] provides:*

[20] Per Table 5-2(b) of the HCP/NCCP, no injury or mortality of individuals would occur with application of avoidance and minimization measures (Final HCP/NCCP, pp. 5-21 to 5-25).]

The project proponent will retain a qualified biologist to conduct planning-level surveys and identify any nesting habitat present within 1,320 feet of the project footprint. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

If a construction project cannot avoid potential nest trees (as determined by the qualified biologist) by 1,320 feet, the project proponent will retain a qualified biologist to conduct preconstruction surveys for active nests consistent, with guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000), between March 15 and August 30, within 15 days prior to the beginning of the construction activity. The results of the survey will be submitted to the Conservancy and CDFW. If active nests are found during preconstruction surveys, a 1,320-foot initial temporary nest disturbance buffer shall be established. If project related activities within the temporary nest disturbance buffer are determined to be necessary during the nesting season, then the qualified biologist will monitor the nest and will, along with the project proponent, consult with CDFW to determine the best course of action necessary to avoid nest abandonment or take of individuals. Work may be allowed only to proceed within the temporary nest disturbance buffer if white-tailed kite are not exhibiting agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, and only with the agreement of CDFW and USFWS. The designated on-site biologist/monitor shall be on-site daily while construction-related activities are taking place within the 1,320-foot buffer and shall have the authority to stop work if raptors are exhibiting agitated behavior.

For covered activities that involve pruning or removal of a potential white-tailed kite nest tree, the project proponent will conduct preconstruction surveys that are consistent with the guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000). If active nests are found during preconstruction surveys, no tree pruning or removal of the nest tree will occur during the period between March 1 and August 30 within 1,320 feet of an active nest, unless a qualified biologist determines that the young have fledged and the nest is no longer active.

3-20(b) *<u>Tricolored blackbird.</u> To ensure avoidance and minimization of impacts to Tricolored Blackbird, the project applicant for the ARC Project shall obtain coverage under the Yolo HCP/NCCP for on-site, and as may be determined necessary by Yolo Habitat Conservancy, for off-site infrastructure work, for each phase of development. In addition to payment of any applicable HCP/NCCP fees, the applicant shall implement Yolo HCP/NCCP Avoidance and Minimization*

Measure AMM-21 (Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird) to the satisfaction of the City and the YHC. AMM-21[21] provides:

> *The project proponent will retain a qualified biologist to identify and quantify (in acres) tricolored blackbird nesting and foraging habitat (as defined in Appendix A of the Yolo HCP/NCCP, Covered Species Accounts) within 1,300 feet of the footprint of the covered activity. If a 1,300-foot buffer from nesting habitat cannot be maintained, the qualified biologist will check records maintained by the Conservancy (which will include CNDDB data, and data from the tricolored blackbird portal) to determine if tricolored blackbird nesting colonies have been active in or within 1,300 feet of the project footprint during the previous five years. If there are no records of nesting tricolored blackbirds on the site, the qualified biologist will conduct visual surveys to determine if an active colony is present, during the period from March 1 to July 30, consistent with protocol described by Kelsey (2008).*
>
> *Operations and maintenance activities or other temporary activities that do not remove nesting habitat and occur outside the nesting season (March 1 to July 30) do not need to conduct planning or construction surveys or implement any additional avoidance measures.*
>
> *If an active tricolored blackbird colony is present or has been present within the last five years within the planning-level survey area, the project proponent will design the project to avoid adverse effects within 1,300 feet of the colony site(s), unless a shorter distance is approved by the Conservancy, USFWS, and CDFW. If a shorter distance is approved, the project proponent will still maintain a 1,300-foot buffer around active nesting colonies during the nesting season but may apply the approved lesser distance outside the nesting season. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.*

ARC Project and Mace Triangle

3-20(c) *<u>Northern harrier, mountain plover, Modesto song sparrow and other migratory birds.</u> The project applicant shall implement the following measures to avoid or minimize impacts to migratory birds and other protected bird species during on- and off-site construction:*

- *If any site disturbance or construction activity for any phase of development begins outside the February 1 to August 31 breeding season, a preconstruction survey for active nests shall not be needed.*

[21] Per Table 5-2(b) of the HCP/NCCP, no injury or mortality of individuals would occur with application of avoidance and minimization measures (Final HCP/NCCP, pp. 5-21 to 5-25).]

- *If any site disturbance or construction activity for any phase of development is scheduled to begin between February 1 and August 31, a qualified biologist shall conduct a preconstruction survey for active nests from publicly accessible areas within 14 days prior site disturbance or construction activity for any phase of development. The survey area shall cover the construction site and the area surrounding the construction site, including a 100-foot radius for MBTA birds, and a 250-foot radius for birds of prey. If an active nest of a bird of prey, MBTA bird, or other CDFW-protected bird is not found, then no further mitigation measures are necessary. The preconstruction survey shall be submitted to the City of Davis Department of Community Development and Sustainability for review.*
- *If an active nest of a bird of prey, MBTA bird, or other CDFW-protected bird is discovered that may be adversely affected by any site disturbance or construction or an injured or killed bird is found, the project applicant shall immediately:*
    - *Stop all work within a 100-foot radius of the discovery.*
    - *Notify the City of Davis Department of Community Development and Sustainability.*
    - *Do not resume work within the 100-foot radius until authorized by the biologist.*
    - *The biologist shall establish a minimum 250-foot Environmentally Sensitive Area (ESA) around the nest if the nest is of a bird of prey, and a minimum 100-foot ESA around the nest if the nest is of an MBTA bird other than a bird of prey. The ESA may be reduced if the biologist determines that a smaller ESA would still adequately protect the active nest. No work may occur within the ESA until the biologist determines that the nest is no longer active.*

3-21 Impacts to riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS (reference Impact 4.4-7).

ARC Project

The only feature within the Study Area that contains sensitive natural habitats, albeit limited in nature, is the MDC. The existing MDC, which transverses the center of the ARC Site and continues off-site to the east along the eastern sewer line alignment, would remain in place and continue to serve drainage flows from the ARC Site. Improvements to the MDC are included as part of the ARC Project.

The City of Davis currently has an agreement with CDFW that specifies conditions for channel maintenance within potential GGS habitat. The conditions require that, among other items, a biological monitor be on-site during any work within or immediately adjacent to the channel, and that work within GGS habitat be restricted to between May 1 and October 1. These conditions apply to the reach of the MDC through the project site.

Mace Triangle

Aquatic or riparian habitat is not located on the Mace Triangle Site.

Conclusion

Impacts related to riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS would be restricted to the ARC Site, as no such habitat exists within the Triangle.

Although the ARC Project would consist of a reduced development footprint as compared to the proposed project, the locations of sensitive habitat identified by CDFW (MDC) are such that both the MRIC Project and the ARC Project would have a similar potential to impact such sensitive habitats. Mitigation measures would be required for both the MRIC Project and the ARC Project in order to protect above-discussed sensitive habitats.

Overall, impacts to riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS would be ***less-than-significant*** with mitigation.

Mitigation Measure(s)

ARC Project

3-21 *The project applicant for the ARC Site shall implement the following measure to avoid or minimize impacts to the Mace Drainage Channel:*

- *Prior to conducting non-maintenance work within the bed and banks in the Mace Drainage Channel for any phase of development, as applicable, the project applicant for the ARC Site shall notify CDFW pursuant to Section 1602 of the Fish and Wildlife Code. If CDFW determines that a Streambed Alteration Agreement (SAA) is necessary, the applicant shall obtain a SAA and comply with all conditions of that Agreement, including the payment of any applicable Yolo HCP/NCCP fees. Compliance with the SAA shall be ensured by the City of Davis Department of Community Development and Sustainability. This does not apply to City maintenance work within the Mace Drainage Channel, for which the City already has an agreement with CDFW.*

Mace Triangle

None required.

3-22 Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (reference Impact 4.4-8).

ARC Project

Based on the wetland delineation report prepared by Sycamore Environmental Consultants, Inc. on December 10, 2014, Sycamore determined that the MDC is a non-navigable, man-made storm water drainage ditch maintained by the City of Davis. The MDC is excavated in uplands and drains only uplands. It is not a realigned natural channel, nor does the MDC contain relatively permanent flow of water. For these reasons, the MDC is not jurisdictional. As previously discussed, this finding is still applicable under both the 2020 NWPR and the current CFRs.

With respect to state protected wetlands, as discussed above, the cattails and the non-native invasive perennial pepperweed in the bottom of the MDC may constitute an "artificial wetland" as defined by the new State Procedures, given that it is a wetland that "results from human activity." (Procedures, Section II.3, note 4.) Pursuant to Section II.3.d.iii of the Procedures, however, this artificial wetland is not a waters of the State because the MDC is constructed in uplands, and is currently used and maintained by the City of Davis primarily for the purpose of conveying "runoff subject to regulation under a municipal stormwater permitting program," which is the Phase II Small MS4 General Permit.

Mace Triangle

State or federally protected wetlands are not located on the Mace Triangle Site.

Conclusion

Similar to the MRIC Project, impacts related to state or federally protected wetlands under the ARC Project would be ***less than significant***.

Mitigation Measure(s)
None required.

3-23 Interfere substantially with the movement of native, resident, or migratory fish or wildlife species or established native resident or migratory wildlife corridors (reference Impact 4.4-9).

ARC Project

The MDC and other drainage ditches traverse the ARC Site. The MDC would not be filled and would be retained as a drainage feature upon development of the project. The ARC Project would also include agricultural buffers along the perimeter of the site and open space areas within the site, which could allow for wildlife movement. Furthermore, the adjacent agricultural uses would provide space for the movement of wildlife.

Mace Triangle

The movement of wildlife on the existing Mace Triangle Site is limited by existing development associated with the aforementioned urban uses, as well as the presence of I-80 to the south, Mace Boulevard to the west, and CR 104 to the north of the Mace Triangle Site. The existing roadways enclosing the Mace Triangle Site currently provide barriers to wildlife movement.

Conclusion

Similar to the MRIC Project, impacts related to interfering substantially with the movement of native, resident, or migratory fish or wildlife species or established native resident or migratory wildlife corridors would be ***less than significant***.

Mitigation Measure(s)
None required.

3-24 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (reference Impact 4.4-10).

ARC Project

The eight trees in the ARC Site are located along the MDC, near the detention basin, and along Mace Boulevard. The trees consist of two London planes (*Platanus* x *acerifolia*), one Chinese elm (*Ulmus parvifolia*), four Fremont cottonwoods (*Populus fremontii* ssp. *fremontii*), and one Goodding's black willow (*Salix gooddingii*). Landmark trees are not located on the ARC Site.

Seven of the eight trees on the property qualify for protection under the City of Davis Municipal Code, having a diameter at breast height (DBH) of five or more inches and being one of the species listed for protection. The seven protected trees include one London plane, one Chinese elm, four Fremont cottonwoods, and one Goodding's black willow. It should be noted that some of the protected on-site trees may be preserved due to the proposed building layout. For example, some of the trees are located along MDC, which would be preserved as green space per the proposed site plan.

The only trees in the off-site survey area are a few willow trees (*Salix* sp.) in a dry ditch at the southeast corner of the survey quadrants for the storage pond, on APN 033-300-015. Depending upon whether this pond is approved and constructed for the proposed project, and depending upon its final design, these willow trees could be impacted.

Mace Triangle

Various trees are located on the Mace Triangle Site, though they are concentrated along the Mace Boulevard frontage and within the Park-and-Ride lot. Therefore, any future development on the Ikeda's property or the easternmost parcel would not be expected to result in adverse impacts to trees. In the event that existing landscaping trees are damaged during construction, the City would require replacement in accordance with Section 37.03 of the Davis Municipal Code.

Conclusion

According to Section 37.03.070 of the Davis Municipal Code, prior to any site disturbance or construction activity for any phase wherein trees are located, the project applicant shall submit an arborist survey of all trees on the project site and trees within the limits of off-site improvements to the City of Davis Department of Community Development and Sustainability. The arborist report shall be accompanied by a Tree Protection Plan, the components of which shall be complied with during construction. Prior to removal of any protected trees, the applicant shall obtain a tree removal permit from the City of Davis in accordance with the City's tree preservation ordinance.

Accordingly, similar to the MRIC Project, impacts related to a conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, under the ARC Project would be ***less-than-significant***.

Mitigation Measure(s)
None required.

3-25 Conflict with an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan (reference Impact 4.4-11).

As previously discussed, since certification of the EIR, the Yolo HCP/NCCP has been adopted. The Yolo HCP/NCCP provides coverage for impacts associated with the proposed ARC (formerly Mace Ranch Innovation Center). (See Yolo HCP/NCCP, Section 3.5.1.3.1.) The impact analysis and required mitigation in the preceding impact statements are consistent with the requirements of the Yolo HCP/NCCP. The majority of Land Cover types within the Study Area, as identified by the Yolo HCP/NCCP, would require payment of Land Cover fees prior to disturbance. The preceding mitigation measures related to protection of covered species require the applicant for the ARC Project and Mace Triangle, as applicable, to obtain coverage under the Yolo HCP/NCCP, including payment of any applicable HCP/NCCP fees and implementation of AMMs. Therefore, impacts related to a conflict with an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan under the ARC Project would be ***less-than-significant***.

Mitigation Measure(s)
None required.

3-26 Conflict, or create an inconsistency, with any applicable biological resources plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect (reference Impact 4.4-12).

In order to further demonstrate the project's consistency with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to biological resources, the Certified Final EIR includes Table 4.4-5, which evaluates the project's consistency with applicable policies related to avoiding environmental biological effects.

ARC Project

Similar to the analysis for the MRIC Project, the ARC Project is generally consistent with the applicable plan, policies, or regulations adopted for the purpose of avoiding or mitigating environmental effects related to biological resources. The mitigation required for the MRIC Project, to ensure that the buffer areas would be wildlife friendly, would also be required for the ARC Project. With Mitigation Measure 3-26, the maintained green spaces and the landscaping trees may provide opportunities for wildlife. Furthermore, as noted above, compliance with the Yolo HCP/NCCP requires payment of Land Cover fees to facilitate the Plan's conservation strategy, which includes protection of habitat reserve areas.

Mace Triangle

Development of the Mace Triangle is not proposed as part of the ARC Project. The Mace Triangle Site has been included in the overall project boundary for annexation purposes (i.e., to avoid the creation of a County island property). This SEIR assumes that the Mace Triangle Site, with the exception of the Park-and-Ride lot, could be developed at a later date, subject to approval of additional discretionary entitlements. The potential for impacts associated with development of 71,056 sf at the Mace Triangle is considered in this SEIR. Additional urban development within the Mace Triangle in the future would be subject to further City review in connection with discretionary entitlements. Consistency with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to biological resources would be ensured during the future City review process for the Mace Triangle.

Conclusion

As demonstrated in the table and with implementation of the following mitigation measure, the proposed project is generally consistent with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to biological resources. Therefore, similar to the MRIC Project, the ARC Project would have a ***less-than-significant*** impact regarding policy consistency.

Mitigation Measure(s)

ARC Project

3-26 *At or prior to final planned development, or tentative map submittal, whichever occurs first, the applicant shall submit a design plan for the proposed on-site buffer/drainage features to the Department of Community Development and Sustainability for review and approval. The design plan shall demonstrate how the buffer/drainage features will be wildlife friendly natural spaces, with respect to details such as plant types, detention slopes, etc. In addition, should staff determine that in order to meet the City's stated objectives for urban agricultural transition areas (UATA), as well as drainage and safety, the proposed buffer design shall be modified to concentrate the proposed buffer and drainage areas to the northern*

and eastern boundaries of the project site, in order to establish wider UATA segments.

Mace Triangle

None required.

Cultural Resources (reference Section 4.5 of the Certified Final EIR)

The impacts related to cultural resources as a result of buildout of the site per the ARC Project in comparison to that of the MRIC Project are presented below.

Changes in Circumstances

Since certification of the Final MRIC EIR, the ARC Site has remained vacant and undeveloped. No additional development has occurred on the Mace Triangle Site. Substantial changes in circumstances that would affect the analysis in the Certified Final EIR related to cultural resources have not occurred.

It should be noted that since certification of the Final MRIC EIR, Appendix G of the CEQA Guidelines has been updated through the addition of a new section for Tribal Cultural Resources. While the Appendix G questions related to Tribal Cultural Resources are not included in the Certified Final EIR, Section 4.5, Cultural Resources, of the Certified Final EIR includes a discussion of the potential for Tribal Cultural Resources to occur on the MRIC Site and the Mace Triangle Site. As noted therein, a search of the Native American Heritage Commission (NAHC) Sacred Lands File failed to indicate the presence of Native American cultural resources in the immediate project area. In addition, the City of Davis consulted with Native American tribes pursuant to Senate Bill (SB) 18 requirements for the original EIR. None of the tribes who were contacted indicated any concerns regarding the MRIC Project's potential to impact tribal cultural resources. Furthermore, this SEIR includes Mitigation Measure 3-28(c), which requires halting of ground-disturbing activity in the event that inadvertent discovery of archaeological resources occurs, and implementation of the appropriate measures.

Changes in the Project

Relative to the MRIC Project and the Mixed-Use Alternative, the ARC Project would involve a slightly reduced development area due to the exclusion of development of most of the 25-acre City-owned property to the northwest of the ARC Site from the proposed development footprint. As a result, the ARC Project has a reduced potential to disturb unknown cultural resources. Furthermore, the City's 25-acre property is identified in the Cultural Resources Report has having the highest sensitivity for potentially containing buried archaeological resources. Thus, compared to the MRIC Project and Mixed-Use Alternative, the ARC Project has the environmental benefit of avoiding the majority of the portions of the area of potential effect (APE) containing the highest sensitivity for buried archaeological resources. Changes in the project that would affect the analysis in the Certified Final EIR related to cultural resources have not occurred.

3-27 Cause a substantial adverse change in the significance of a historical resource (reference Impact 4.5-1).

Impacts related to historical resources were determined to be less-than-significant with mitigation for the MRIC Project. Archival research associated with the MRIC location identified two historic resources that may be at least partly within the APE associated with the proposed off-site sewer alignment: the William Seward Wright Home and Farm (standing) and the William Robert Wright

Family House (demolished). In addition to the standing structures, the Certified Final EIR concluded that historic-period artifacts or subsurface remains may be present within the APE. Far Western's field survey and records search at the Northwest Information Center did not identify evidence of historic resources or sites on any of the Mace Triangle Site parcels.

The ARC Project would consist of development over much of the same site as the MRIC Project, excluding most of the 25-acre City-owned parcel to the northwest of the ARC Site. Consequently, impacts related to a substantial adverse change in the significance of a historical resource under the ARC Project, similar to the MRIC Project, would be ***less-than-significant*** with mitigation.

Mitigation Measure(s)

ARC Project

3-27 *If the northerly off-site sewer alignment is selected for the ARC Project, then prior to approval of design-level improvement plans for the off-site sewer pipe, the applicant shall retain a qualified archaeologist to design and implement a cultural study, the intent of which shall be to identify and investigate any subsurface historic remains within the northerly portion of the sewer pipe construction limits. Because of the potential for fragile prehistoric remains within this area, the evaluation shall include only metal detection and hand excavation. Metal detection should include a complete sweep of the APE adjacent to the farm structures, to test for subsurface features. Hand excavation should include testing of the metal detection finds. If no subsurface features are uncovered, no additional cultural investigations will necessary. If, on the other hand, structural remains are found, the investigation shall continue as formal evaluation to determine their eligibility for the California Register of Historical Resources. This shall include, at a minimum, additional exposure of the feature(s), and photo-documentation and recordation. If the evaluation determines that the features do not have sufficient data potential to be eligible for the California Register, no additional work should be required. However, if data potential exists – e.g., there is an intact feature – it will be necessary to mitigate any project impacts. The evaluation shall be submitted to the Davis Department of Community Development and Sustainability for review.*

If it is determined that standing structures associated with the William Seward Wright house and farm are within, or immediately adjacent to, the off-site sewer APE, a qualified architectural historian shall conduct an evaluation of those structures for their potential eligibility for the California Register of Historical Resources. The evaluation should include a full assessment of the structures, archival research to confirm the age, occupants, and historic uses of the structures, and the dates and extent of any renovations that might impact the structures' historic integrity. Should the structures be determined to be eligible for the California Register, pursuant to Public Resources Code Section 5024.1, Title 14 CCR, Section 4852, any mitigation measures provided in the architectural historian's report shall be followed. Should the structures be determined ineligible for the California Register, no further consideration shall be required. The

evaluation shall be submitted to the Davis Department of Community Development and Sustainability for review.

Mitigation of impacts might include avoidance of further disturbance to the resources through project redesign. If avoidance is determined to be infeasible, additional data recovery excavations shall be conducted for the resources, to collect enough information to exhaust the data potential of those resources. Impacts to the standing structures shall be mitigated through recordation to the standards of the National Park Service's Historic American Buildings Survey (HABS), as determined by the qualified architectural historian.

Mace Triangle

None required.

3-28 Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 (reference Impact 4.5-2).

Impacts related to archaeological resources were determined to be less-than-significant with mitigation for the MRIC Project. A prehistoric archaeological site is purported to exist at the approximate terminus of the northerly off-site sewer pipe alignment, along CR 30, within the environs of the existing farm/ranch complex. Native American consultation pursuant to SB 18 did not yield any information regarding archaeological resources within the APE. An assessment of the potential for buried archaeological deposits indicated that the northwestern corner of the parcel and the north/south-oriented potential route for the sanitary sewer main are sensitive for buried prehistoric archaeological resources. It should be noted that the area of high archaeological sensitivity identified within the northwestern corner of the parcel falls primarily within the 25-acre City-owned property, which would be excluded from development of the ARC Site. Nonetheless, small areas of high archaeological sensitivity may extend into portions of the 6.8-acre agricultural buffer area on the City's 25-acre property, where disturbance would occur during buffer establishment.

If the applicant selects the northerly off-site sewer pipe alignment, then installation of the sewer pipe could result in adverse effects to archaeological resources should a prehistoric site be present within the limits of construction. Because of the potential for subsurface remains, additional work should be conducted in the APE at the location of the purported prehistoric site, if the northerly sewer alignment is selected as the preferred off-site sewer alignment. Conversely, if the project proponent chooses the east-west alignment of the off-site sewer line, the prehistoric site will not be within the APE; and thus, further investigation will not be required. In the latter case, only the northwestern corner of the ARC Site will require subsurface testing for archaeological remains because, based upon soils analysis and historic waterway alignments, this area has been determined to have a high potential for buried archaeological deposits.

While the ARC Project would not include development of most of the 25-acre City-owned property, which is characterized by high sensitivity for buried archaeological sites, the northwestern portion of the ARC Site still contains areas of moderate to high sensitivity. Thus, the

potential for the ARC Project to disrupt or destroy previously unknown archaeological resources during ground disturbing activities exists. Similar to the MRIC Project, mitigation measures would be required under the ARC Project in order to ensure impacts are reduced to ***less than significant***.

Mace Triangle

Given the largely disturbed nature of the 16.58-acre Mace Triangle Site, the possibility for encountering archaeological resource deposits during future construction of the Mace Triangle is limited. Based upon soils analysis and historic mapping, the Mace Triangle Site has the "lowest" sensitivity for buried sites. In the unlikely event that archaeological resource deposits are encountered during future construction at the Mace Triangle Site, implementation of Mitigation Measure 3-28(c) would ensure that impacts to archaeological resources would be ***less than significant***.

Mitigation Measure(s)

ARC Project

3-28(a) *Prior to approval of any on- and/or off-site improvement plans for development within the areas designated as having "high" sensitivity for buried sites per Figure 7 of the "Archaeological Survey Report for the Proposed Davis Innovation Center: Mace Ranch Location", prepared by Far Western Anthropological Research Group, the applicant shall retain a qualified archaeologist to design and implement an archeological study, the intent of which shall be to identify and investigate any subsurface archaeological remains within the northwestern portion of the ARC Site. The subsurface sampling methodology outlined in the study shall be sufficient to enable the qualified archaeologist to define the physical extent and nature of any artifact-bearing deposits should they be discovered. Because of the potential for fragile prehistoric remains, the evaluation should include only hand excavation. Hand excavation should include placement of a series of small shovel probes across the site to look for prehistoric artifacts and features. If artifact-bearing deposits are not uncovered, additional cultural investigations are not required. If artifact-bearing features are found, the investigation shall continue as formal evaluation to determine their eligibility for the California Register of Historical Resources. This shall include, at a minimum, hand excavation of larger control units and analysis of the artifact assemblage(s). If the evaluation determines that the artifacts do not have sufficient data potential to be eligible for the California Register, additional work shall not be required. However, if data potential exists – e.g., there is an intact feature with a large and varied artifact assemblage – necessary mitigation measures shall be implemented to alleviate any project impacts. The evaluation shall be submitted to the Davis Department of Community Development and Sustainability for review.*

Mitigation of impacts might include avoidance of further disturbance to the resources through project redesign. If redesign is not feasible, additional data

recovery excavations shall be conducted for the archaeological resources, to collect enough information to exhaust the data potential of those resources.

3-28(b) *If the northerly off-site sewer alignment is selected for the ARC Project, then prior to approval of design-level improvement plans for the off-site sewer pipe, the applicant shall retain a qualified archaeologist to design and implement an archeological study, the intent of which shall be to identify and investigate any subsurface archaeological remains within the northerly portion of the sewer pipe construction limits. The subsurface sampling methodology outlined in the study shall be sufficient to enable the qualified archaeologist to define the physical extent and nature of any artifact-bearing deposits should they be discovered. Because of the potential for fragile prehistoric remains, the evaluation should include only hand excavation. Hand excavation should include placement of a series of small shovel probes across the site to look for prehistoric artifacts and features. If artifact-bearing deposits are not uncovered, additional archaeological investigations are not required. If artifact-bearing features are found, the investigation shall continue as formal evaluation to determine their eligibility for the California Register of Historical Resources. This shall include, at a minimum, hand excavation of larger control units and analysis of the artifact assemblage(s). If the evaluation determines that the artifacts do not have sufficient data potential to be eligible for the California Register, additional work shall not be required. However, if data potential exists – e.g., there is an intact feature with a large and varied artifact assemblage – necessary mitigation measures shall be implemented to alleviate any project impacts. The evaluation shall be submitted to the Davis Department of Community Development and Sustainability for review.*

Mitigation of impacts might include avoidance of further disturbance to the resources through project redesign. If redesign is not feasible, additional data recovery excavations shall be conducted for the archaeological resources, to collect enough information to exhaust the data potential of those resources.

ARC Project and Mace Triangle

3-28(c) *If any prehistoric or historic artifacts, or other indications of archaeological resources are found during grading and construction activities, all work within the vicinity of the find shall cease and the applicant shall retain an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology, as appropriate, to evaluate the finds. If the resource is determined to be eligible for inclusion in the California Register of Historical Resources and project impacts cannot be avoided, data recovery shall be undertaken. Data recovery efforts can range from rapid photographic documentation to extensive excavation depending upon the physical nature of the resource. The degree of effort shall be determined at the discretion of a qualified archaeologist and should be sufficient to recover data considered important to the area's history and/or prehistory. This language of this mitigation measure shall be included on any future grading plans, utility plans, and subdivision improvement*

drawings approved by the City for the ARC Site and/or 16.49-acre Mace Triangle Site.

3-29 Directly or indirectly destroy a unique paleontological resource or unique geologic feature on the project site (reference Impact 4.5-3).

Based upon a records search of the University of California Museum of Paleontology, Dr. Kenneth Finger, Consulting Paleontologist, concluded that a paleontological walkover survey was not required at the ARC Site or Mace Triangle Site because the land is disturbed, does not contain outcrops, and is geologically mapped as Holocene, the deposits of which are too young to be considered fossils. Impacts related to paleontological resources were determined to be less-than-significant with mitigation for the MRIC Project.

Because the ARC Project would involve development of much of the same site as the MRIC Project, excluding the 25-acre City-owned property, the potential for the ARC Project to destroy previously unknown unique paleontological resources during ground disturbing activities still exists. Although the potential for paleontological resources to be impacted during construction is considered remote, unknown resources could be encountered during excavation activities. However, with the implementation of the following mitigation measure, similar to the MRIC Project, the ARC Project would result in a ***less-than-significant*** impact to paleontological resources.

Mitigation Measure(s)

ARC Project and Mace Triangle

3-29 *If any vertebrate bones or teeth are found by the construction crew, the contractor shall cease all work in the immediate vicinity of the discovery until an on-site archaeological monitor, if present, inspects the discovery; if none is present, or if recommended by the monitor, a professional paleontologist shall evaluate the find. If deemed significant with respect to authenticity, completeness, preservation, and identification, the resource(s) shall then be salvaged and deposited in an accredited and permanent scientific institution (e.g., UCMP), where it will be properly curated and preserved for the benefit of current and future generations. The language of this mitigation measure shall be included on any future grading plans, utility plans, and subdivision improvement drawings approved by the City for the ARC Site and/or 16.49-acre Mace Triangle Site, where excavation work will be required.*

3-30 Disturb any human remains, including those interred outside of formal cemeteries (reference Impact 4.5-4).

Impacts related to disturbing human remains were determined to be less-than-significant with mitigation for the MRIC Project. The Sacred Lands File failed to indicate the presence of Native American cultural resources in the immediate area of the MRIC Site. In addition, Far Western did not detect any evidence for human remains or burials within the APE. The ARC Project would include development of the same site as the MRIC Project, excluding the 25-acre City-owned

property. Although human remains or evidence thereof was not identified within the APE, the potential for unknown human remains to be discovered during construction cannot be eliminated given the known prehistoric occupation of the vicinity by Native American tribes. Accordingly, with implementation of the following mitigation measure, similar to the MRIC Project, the ARC Project would have a ***less-than-significant*** impact to human remains.

Mitigation Measure(s)

ARC Project and Mace Triangle

3-30 *During construction, if bone is uncovered that may be human, the California Native American Heritage Commission, located in Sacramento, and the Yolo County Coroner shall be notified. Should human remains be found, all work shall be halted until final disposition by the Coroner. Should the remains be determined to be of Native American descent, the Native American Heritage Commission shall be consulted to determine the appropriate disposition of such remains.*

3-31 Conflict, or create an inconsistency, with any applicable cultural resources plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect (reference Impact 4.5-5).

Impacts related to conflicts with plans, policies, or regulations related to cultural resources, as they pertain to the non-residential ARC uses, were evaluated for the MRIC Project in Section 4.5 and determined to be ***less than significant***. For the ARC Project, there are additional City of Davis housing policies and regulations that are applicable to the ARC residential component. These additional housing policies and regulations are evaluated in the appropriate sections of this equal-level analysis, namely, the Land Use and Urban Decay section (Impact 3-55), and the Population and Housing section (Impact 3-63). The physical environmental effects of the housing component of the ARC Project are evaluated throughout the appropriate technical sections of this SEIR (e.g., air quality, GHG, noise). The consistency discussion provided in Table 4.5-1 of the Certified Final EIR with respect to City cultural resources policies remains applicable to the ARC Project, as the discussion of cultural resources is not affected by land use type, but rather the amount of ground disturbance.

Mitigation Measure(s)
None required.

Geology, Soils, and Mineral Resources (reference Section 4.6 of the Certified Final EIR)

The impacts related to geology, soils, and mineral resources as a result of buildout of the site per the ARC Project in comparison to that of the MRIC Project are presented below.

Changes in Circumstances

Since certification of the Final MRIC EIR, the ARC Site has remained vacant and undeveloped, with no geologic changes. Additional development or geological changes have not occurred on the Mace Triangle Site. Substantial changes in circumstances that would affect the analysis in the EIR related to geology, soils, and mineral resources have not occurred.

Changes in the Project

Relative to the MRIC Project and the Mixed-Use Alternative, the ARC Project would involve a slightly reduced development area due to the exclusion of development of the 25-acre City-owned property to the northwest of the ARC Site. The ARC Project would include up to 850 residential units and, thus, would have the potential to expose an increased number of future residents to seismic and/or geologic hazards, relative to the MRIC Project. However, the ARC Project would include an equivalent amount of residential development as was previously evaluated in the EIR for the Mixed-Use Alternative, and the ARC Project would not result in new geologic or seismic risks beyond what was previously analyzed. Changes in the project that would affect the analysis in the EIR related to geology, soils, and mineral resources have not occurred.

3-32 Risks to people and structures associated with seismic activity, including ground shaking and ground failure (reference Impact 4.6-1).

Impacts related to risks to people and structures associated with seismic activity, including ground shaking and ground failure, were determined to be less-than-significant for the MRIC Project. The ARC Site is not located within an Alquist-Priolo Earthquake Fault Zone, and surface evidence of faulting was not observed by Wallace Kuhl and Associates (WKA) during site reconnaissance completed for the MRIC Project. Groundshaking is not considered a major geologic hazard in Davis, according to the City's General Plan EIR.[22]

According to the information obtained from the shear wave velocity measurements taken on the ARC Site, the soils at the site can be designated as seismic site Class D in determining seismic design forces for this project in accordance with Table Section 1613A.3 of the 2013 California Building Code (CBC). While a site-specific geotechnical report has not been prepared for the Mace Triangle Site, WKA's findings for the neighboring ARC Site are expected to be similar with respect to seismic activity, given the close proximity of the two sites.

Although damage to structure and risks to people from ground rupture and ground failure is highly unlikely at the ARC Site, all project structures would be required to adhere to the provisions of the

[22] City of Davis. *Program EIR for the City of Davis General Plan Update and Project EIR for Establishment of a New Junior High School [pg. 5I-10]*. January 2000.

2019 CBC, based upon seismic site Class D. The CBC contains provisions to safeguard against major structural failures or loss of life caused by earthquakes or other geologic hazards.

Because the ARC Project would involve buildout on the same site as the MRIC Project, excluding the 25-acre City-owned property, the same geological conditions would be expected to occur. Accordingly, the potential for the buildings of the ARC Project to be subjected to geologic effects such as seismic activity, including ground shaking and ground failure, exists. Therefore, similar to the MRIC Project, impacts related to risks to people and structures associated with seismic activity, including ground shaking and ground failure would be ***less than significant***.

Mitigation Measure(s)
None required.

3-33 Result in substantial soil erosion or loss of topsoil (reference Impact 4.6-2).

Impacts related to soil erosion or loss of topsoil were determined to be less-than-significant with mitigation for the MRIC Project. According to the Soil Survey of Yolo County, California, the erosivity of the soils on the ARC Site are "none" to "slight." The surface runoff potential ranges from "very slow" to "moderately slow." However, the potential for human-caused erosion associated with construction activities is always a valid concern that should be addressed.

The ARC Project includes utility excavation and recompaction of a portion of the ARC Site soils. In addition, during earthwork operations, existing soils must be completely removed to expose firm undisturbed soil. Such earthwork activities could result in the exposure of loose soil to wind and/or water. Eroded soils could then be inadvertently transported into off-site drainage facilities.

The Mace Triangle Site does not contain any open channels and the Park-and-Ride lot would not be disturbed as part of the project. Future disturbance of topsoil within the Mace Triangle Site is anticipated to be limited to any future development at the Ikeda's Market parcel and the easternmost vacant parcel.

The ARC Project would involve buildout on the same site as the MRIC Project, excluding the 25-acre City-owned property. Accordingly, the potential for the buildings of the ARC Project to be subjected to geologic effects or hazards, including substantial erosion or loss of topsoil, exists. Therefore, similar to the MRIC Project, impacts related to risks associated with substantial erosion or loss of topsoil would be ***less-than-significant*** with mitigation.

Mitigation Measure(s)

ARC Project and Mace Triangle

3-33 Prior to initiation of any grading activities for each phase of development at the ARC Site, or Mace Triangle Site, the project proponent shall submit a Notice of Intent (NOI) and Storm Water Pollution Prevention Plan (SWPPP) to the RWQCB in accordance with the NPDES General Construction Permit requirements. The SWPPP shall be designed to control pollutant discharges utilizing Best

Management Practices (BMPs) and technology to reduce erosion and sediments. BMPs may consist of a wide variety of measures taken to reduce pollutants in stormwater runoff from the project site. Measures shall include temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other groundcover) that will be employed to control erosion from disturbed areas. Final selection of BMPs will be subject to approval by the City of Davis and the RWQCB. The SWPPP will be kept on site during construction activity and will be made available upon request to representatives of the RWQCB.

3-34 Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in lateral spreading, subsidence, liquefaction, or collapse (reference Impact 4.6-3).

Impacts related to unstable soils were determined to be less-than-significant with mitigation for the MRIC Project. The following discussion pertains to the ARC Site, which is the same as the MRIC Site, for which WKA performed a geotechnical report.

Liquefaction

Based upon the relatively thick layers of cohesive soils, and the lack of historic occurrence of liquefaction, WKA concluded that the potential for liquefaction of the soils beneath most of the ARC Site is relatively low. Furthermore, the results of a soil liquefaction test performed by WKA confirmed that the potential for liquefaction of the soils beneath the site is very low. As such, impacts related to liquefaction would be less than significant for the ARC Project.

Post-Liquefaction Settlement

Given the results of the post-liquefaction settlement analysis performed for the Geotechnical Report, the worst-case estimate of total post-liquefaction settlement at the ARC Site is calculated to be about 0.6 inches of total and differential settlement across 50 feet, or the least dimension of the structure, whichever is less. The estimates of post-liquefaction seismic settlements represent free-field ground settlement, not settlement of the proposed structures.

Liquefaction potential at the ARC Site was also evaluated based on the Liquefaction Potential Index (LPI). The LPI is a measure of the liquefaction potential based on an analysis of the entire vertical soil profile not just discrete layers. Factors taken into consideration for the LPI calculations include: thickness of the liquefied layer; proximity of the liquefied layer to the surface; and the factor of safety. The LPI ranges from 0 to 100 with the value zero representing no liquefaction potential. Surface manifestations of liquefaction occur at LPI greater than or equal to five.

Based on the soil conditions encountered at the site and the liquefaction analysis performed for the Geotechnical Report, including LPI evaluations, WKA concluded that the potential for liquefaction of the soils beneath the ARC Site is very low. In addition, based on the calculated settlements, structures designed to withstand complete collapse from "worst-case scenario" total and differential seismic settlements of 0.6 inches across 50 feet, or the shortest dimension of the

structure, whichever is less, would be capable of achieving life safety requirements as established by the 2019 CBC. As such, impacts related to post-liquefaction settlement would be less than significant.

On-Site Fill

Review of an aerial photograph taken in 1957 shows the ARC Site as agricultural land, with a meandering, linear depression in the southwestern-southern portion of the site. According to the Geotechnical Report, the former linear depression was backfilled with soil excavated during the construction of the detention basin; however, WKA is not aware of documentation regarding the backfill observation/compaction operations. If documentation of the backfill observation/compaction operations for the former linear depression is not available, the area of the former linear depression should be properly identified and investigated to evaluate the conditions of the backfill material.

The subsurface exploration completed for the Geotechnical Report included three borings in the near vicinity of the former linear depression; however, evidence of the presence of fill soils was not observed. Excavations and depressions resulting from the removal of the fill items must be backfilled with engineered fill.

Unsuitable Topsoils

Due the presence of disturbed/soft surface and near-surface soils within the upper one to two feet of major portions of the ARC Site, a combination of over-excavation, processing, moisture conditioning and uniform recompaction of the surface and near-surface soils will likely be required to achieve stable support conditions for the proposed improvements associated with the innovation center.

Mace Triangle Site

A site-specific geotechnical report has not been prepared for the Mace Triangle Site. This chapter evaluates the potential development of two of the three parcels in the event that additional discretionary entitlements are first obtained from the City of Davis. While geotechnical issues are not anticipated for the Mace Triangle Site, based upon the findings of the evaluation for the neighboring ARC Site, the possibility exists that fill material or other unsuitable soft soils could be located on portions of the Mace Triangle Site. This chapter includes a mitigation measure for submittal of a geotechnical report in conjunction with any future development application submittal for the Mace Triangle parcels.

Conclusion

The ARC Project would involve buildout on the same site as the MRIC Project, excluding the 25-acre City-owned property. Accordingly, the potential for the buildings of the ARC Project to be subjected to geologic effects or hazards, including unstable soils, exists. Therefore, similar to the MRIC Project, impacts related to being located on a geologic unit or soil that is unstable, or that

would become unstable as a result of the ARC Project, and potentially result in lateral spreading, subsidence, liquefaction, or collapse would be ***less-than-significant*** with mitigation.

Mitigation Measure(s)

ARC Project

3-34(a) *Prior to final design approval and issuance of building permits for each phase of the project, the project applicant for the ARC Site shall submit to the City of Davis Building Inspection Division, for review and approval, a design-level geotechnical engineering report produced by a California Registered Civil Engineer or Geotechnical Engineer. The report shall include the recommendations in the report entitled Preliminary Geotechnical Engineering Report, Mace Ranch Innovation Center, dated January 20, 2015 unless it is determined in the design-level report that one or more recommendations need to be revised. The design-level report shall address, at a minimum, the following:*

- *Compaction specifications and subgrade preparation for on-site soils;*
- *Structural foundations, including retaining wall design (if applicable);*
- *Grading practices; and*
- *Expansive/unstable soils, including fill.*

Design-level recommendations shall be included in the foundation and improvement plans and approved by the Davis Public Works Department prior to issuance of any building permits.

Mace Triangle

3-34(b) *Prior to final design approval and issuance of building permits for future on-site development, the future project applicant for the Mace Triangle Site shall submit a site-specific, design-level geotechnical report produced by a California Registered Geotechnical Engineer to the City of Davis Building Inspection Division for review and approval. The geotechnical report shall include, but would not be limited to, an analysis of the on-site geologic and seismic conditions, including soil sampling and testing. Recommendations shall be included regarding project design measures to avoid risks to people and structures, including compliance with the latest CBC regulations, structural foundations, and grading practices.*

3-35 Be located on expansive soil, as defined in Table 118-1-B of the Uniform Building Code (1994), creating substantial risks to life or property (reference Impact 4.6-4).

Impacts related to expansive soils were determined to be less-than-significant with mitigation for the MRIC Project.

ARC Project

Laboratory testing of clay soils performed by WKA revealed the near-surface soils of the ARC Site are of high to very high plasticity when tested in accordance with the American Society of Testing and Materials (ASTM) D4318. In addition, laboratory test results of near-surface soils collected from the upper four feet revealed the near-surface clay soils possess a "medium" to "very high" expansion potential when tested in accordance with ASTM D4829 test method. Therefore, based on the laboratory tests performed for the Geotechnical Report and WKA's experience on nearby projects, the on-site near-surface clays are capable of exerting significant expansion pressures on structural foundations, interior slabs, exterior flatwork, and pavements. However, measures can be taken to reduce the effects of expansive soils on the ARC Site, as provided in the *Preliminary Geotechnical Engineering Report.* It should be noted that the degree of expansion potential possessed by the surface and near-surface soils at the site will likely vary across the site.

Mace Triangle

While a site-specific geotechnical report has not been prepared for the Mace Triangle Site, WKA's findings for the neighboring ARC Site are expected to be similar with respect to expansive soils, given the close proximity of the two sites.

Conclusion

Similar to above, because the ARC Project would involve buildout on the same site as the MRIC Project, excluding the 25-acre City-owned property, the potential for the buildings of the ARC Project to be subjected to geologic effects or hazards, including expansive soils, exists. Therefore, similar to the MRIC Project, impacts related to risks to people and structures associated with expansive soils would be ***less-than-significant*** with mitigation.

Mitigation Measure(s)

ARC Project

3-35(a) Implement Mitigation Measure 3-34(a).

Mace Triangle

3-35(b) Implement Mitigation Measure 3-34(b).

3-36 Conflict, or create an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to geology, soils, and mineral resources (reference Impact 4.6-5).

Impacts related to conflicts with plans, policies, or regulations related to geology, soils, and mineral resources, as they pertain to the proposed non-residential ARC uses, were evaluated for the MRIC Project in Section 4.6 and determined to be ***less than significant***. For the ARC Project, there are additional City of Davis housing policies and regulations that are applicable to the ARC

residential component. These additional housing policies and regulations are evaluated in the appropriate sections of this equal-level analysis, namely, the Land Use and Urban Decay section (Impact 3-55), and the Population and Housing section (Impact 3-63). The consistency discussion provided in Table 4.6-2 of the Certified Final EIR with respect to City geology, soils, and mineral resource policies remains applicable to the the ARC Project, as it pertains to geologic site constraints, which are unaffected by land use type.

Mitigation Measure(s)
None required.

Greenhouse Gas Emissions and Energy (reference Section 4.7 of the Certified Final EIR)

The impacts related to GHG emissions and energy as a result of buildout of the site per the ARC Project in comparison to that of the MRIC Project are presented below.

Changes in Circumstances

Since the release of the Certified Final EIR, the ARC Site has remained undeveloped. Agricultural activity within the site has continued largely unchanged since the release of the Certified Final EIR. However, several circumstances outside of the physical state of the project site have occurred. As discussed in the Air Quality section of this analysis, an update to the CalEEMod software has been released, which includes changes to the methodology of emissions calculations, and changes to the emission rates of certain activities. Furthermore, certain changes have been made in the calculation of project-related trip generation rates and VMT.

Since the adoption of the Certified Final EIR, Valley Clean Energy (VCE) has begun providing electricity to the cities of Davis and Woodland, as well as some unincorporated portions of Yolo County. Electricity provided by VCE is generated using a greater proportion of renewable energy as compared to PG&E. Consequently, electricity provided by VCE is less GHG intensive than electricity provided by PG&E. Although VCE provides less GHG intensive electricity and would likely supply electricity to all future uses at the ARC Site, customers in Davis can opt out of VCE and continue to be supplied with electricity through PG&E. Both PG&E and VCE are working towards providing electricity from 100 percent renewable sources per the State's Renewable Portfolio Standards (RPS). It is anticipated that while electricity from both utilities will become less CO_2 intensive into the future, electricity from VCE will remain comparatively less CO_2 intensive until the year 2040, when both utilities will be required to achieve 100 percent renewable electricity content. This is based on the fact that VCE's energy mix is currently comprised of a greater proportion of renewable sources, and VCE maintains a commitment to continued deployment of renewable energy sources.[23] Because future uses at the project site could be provided by either VCE or PG&E, and PG&E's CO_2 intensity factor is generally anticipated to remain higher than VCE's, PG&E CO_2 intensity factors were used to provide a conservative approach to analysis.

In addition to the technical changes mentioned above, several changes in the regulatory environment have occurred since the publication of the Certified Final EIR. On a statewide level, for instance, new legislation has been adopted that mandates emissions reductions by the year 2030 (SB 32) and strengthens the RPS for publicly owned utilities (SB 350). In addition, increasingly stringent versions of the California Building Standards Code (CBSC) have been adopted, which have increased the energy efficiency of new residential and non-residential structures.

On September 19, 2019, the federal government revoked California's 2013 Clean Air Act waiver, that had previously allowed the State to set vehicle emissions standards that were more stringent than those established by the federal government. Along with the revocation of California's 2013 Clean Air Act waiver, the federal government is anticipated to freeze fuel economy standards for

[23] Valley Clean Energy. *VCEA Vision Statement*. November 6, 2017.

motor vehicles at 2020 levels. In response to the September 19th actions, 22 states, the District of Columbia, and two cities filed suit in the US District Court for the District of Columbia requesting the court grant permanent injunctive relief by declaring the preemption portion of the final rule unlawful. At the time of preparation of this environmental analysis, the injunctive relief and the judicial proceedings have not yet been decided. The most recent version of CalEEMod is predicated upon the existence of California's Clean Air Act waiver and increasingly more stringent vehicle emissions standards. Consequently, the federal government's actions have the potential to reduce the accuracy of CalEEmod emissions estimates for future years, where such emissions estimates rely upon estimates of emissions from future vehicle fleets. Although the recent federal government actions have called into question the assumptions within CalEEMod, more accurate methods of calculating emissions related to motor vehicles are not available for California, and the use of CalEEMod remains the best available option for emissions analysis. Moreover, the ultimate fate of the federal rule related to motor vehicle emissions standards and revocation of California's waiver is subject to judicial proceedings, the outcome of which are speculative.

Within the City of Davis, changes have occurred related to the establishment of updated emissions reductions targets. At the time of analysis of the MRIC Project, the applicable document related to the control of GHG emissions within the City of Davis was the City's Climate Action and Adaptation Plan (CAAP). The City's CAAP formed the basis of emissions reductions targets and GHG emissions thresholds for development within the City. However, on March 5, 2019, the City Council adopted a resolution declaring a climate emergency. As part of the resolution, the City's adopted goal of net carbon neutrality by the year 2050 was accelerated to the year 2040. Achievement of carbon neutrality by the year 2040 would place the City on an emissions reductions trajectory that surpasses the minimum reduction targets previously established by the City, which were based on Assembly Bill 32, as well as the City's previously adopted desired reductions levels, thus surpassing the emissions reductions goals of the City's CAAP.

Despite the acceleration of the desired date for carbon neutrality, the resolution declaring a climate emergency did not include any updates regarding the anticipated means of achieving carbon neutrality. Consequently, while the City's climate emergency resolution accelerated the City's net carbon neutrality target year from 2050 to 2040, the City's CAAP continues to provide only a planning-level approach to meeting the City's emissions goals. As stated in Table 1 of the City's CAAP, carbon neutrality by 2050 is a "desired" goal and was anticipated to be achieved by a "combination of actions at the local, regional, national, and international levels and carbon offsets."

Due to the changes described above, and despite the implementation of all feasible mitigation measures, the estimated emissions resulting from the ARC Project and the Mace Triangle project have increased. Thus, a substantial increase in the severity of the previously identified significant and unavoidable impact related to operations of the MRIC and Mixed-Use Alternative has been identified.

It should be noted that since certification of the Final MRIC EIR, Appendix G of the CEQA Guidelines has been updated through the addition of a new section for impacts related to Energy. While the Appendix G questions related to energy are not included in the Certified Final EIR, Section 4.7, Greenhouse Gas Emissions and Energy of the Certified Final EIR includes a

discussion of the potential for impacts to energy to occur through the implementation of the MRIC Project and/or development of the Mace Triangle Site. Following the implementation of mitigation measures, the Certified Final EIR concluded that significant impacts to energy would not occur with implementation of either the MRIC Project or development of the Mace Triangle Site. The analysis presented in Section 4.7 of the Certified Final EIR sufficiently addresses the updated questions related to energy that have since been included in Appendix G of the CEQA Guidelines. Based on the analysis below, the ARC Project would not result in a substantial increase in the severity of the previously identified impact, and mitigation included in the Certified Final EIR would remain applicable.

Changes in the Project

Relative to the MRIC Project and the Mixed-Use Alternative, the ARC Project would involve a slightly reduced development area due to the exclusion of development of the 25-acre City Parcel to the northwest of the ARC Site. The ARC Project would include up to 850 residential units and, thus, would have the potential to result in increased GHG emissions, relative to the MRIC Project. Overall, substantial changes in the MRIC Project have occurred, due to the inclusion of residential units, which require major revisions of the Certified Final EIR due to the involvement of a substantial increase in severity of a previously identified significant GHG impact. However, as previously discussed, the residential component was already considered in the Mixed-Use Alternative analysis performed in the Certified Final EIR. Refer to Appendix B of this SEIR for all GHG emissions modeling and analysis.

3-37 Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment (reference Impact 4.7-1).

According to CEQA Guidelines Section 15064.4(b), the extent to which a project may increase or reduce GHG emissions, as compared to the existing environmental setting, should be considered when assessing the significance of impacts from GHG emissions on the environment. As presented in Section 4.7 of the Certified Final EIR, the total existing GHG emissions associated with the project site are currently 267.69 metric tons of carbon dioxide equivalents per year ($MTCO_2e$/yr). The existing conditions within the ARC Site remain largely the same as the conditions that existed at the time of preparation of the Certified Final EIR. That is, agricultural activities continue to occur within the ARC Site. Based on the estimated emissions of the MRIC Project (26,043.31 $MTCO_2e$/yr), and despite the consideration of emissions related to existing on-site agricultural activities, which reduced the gross MRIC Project emissions to 25,775.62 $MTCO_2e$/yr ((26,043.31 – 267.69 = 25,775.62), the Certified Final EIR concluded that implementation of the MRIC Project would result in a substantial net increase in GHG emissions as compared to those currently emanating from the project site.

Impacts related to generation of GHG emissions were determined to be significant and unavoidable for the MRIC Project. The ARC Project would involve development of the ARC Site, which excludes from development most of the 25-acre City-owned property that was previously included in the MRIC Project, with non-residential uses, as well as residential uses. The amount of non-residential uses within the ARC Project would be equal to the buildout of the MRIC Project (2,654,000 sf), but the ARC Project would introduce approximately 850 residential units – an

equivalent amount to that which was proposed for the Mixed-Use Alternative. As noted previously, Fehr and Peers has provided updated trip generation and VMT estimates for the ARC Project. Furthermore, the phasing of construction activity has been updated for the ARC Project as compared to the MRIC Project. Because of the foregoing changes, the GHG emissions during construction and operations of the ARC Project have been quantified. As discussed in the Air Quality section of this document, emissions related to construction and operations of the project were modeled separately, with construction activity being modeled for Phase 1 of the project, while operational emissions were modeled for full-buildout of the project. Construction and operational emissions are discussed below.

Neither development plans or applications for the Mace Triangle Site are on file with the City, nor have such plans or applications been submitted. Because development plans or applications do not exist for the Mace Triangle Site, development of the Mace Triangle Site is not likely to occur during development of Phase 1 of the ARC Project. As such, emissions from development of Phase 1 of the ARC Project with the Mace Triangle are not anticipated to overlap. Consequently, construction-related emissions were not modeled for the Mace Triangle Site; however, operational emissions were modeled for the Mace Triangle Site using CalEEMod.

Construction-Related GHG Emissions

Phase 1 of project is anticipated to involve the most intense phase of construction activity, which would result in the greatest amount of GHG emissions. The modeling assumptions used for Phase 1 of the ARC Project are presented in the Air Quality section above. Based on the aforementioned assumptions, construction of Phase 1 of the ARC Project would result in emissions as presented in Table 3-18 below.

Table 3-18
Construction-Related GHG Emissions for Phase 1 of the ARC Project

Construction-Year	Total Annual GHG Emissions ($MTCO_2e$/yr)
2022[1]	1,614.89
2023[2]	4,156.07
2024	2,059.56
2025	2,015.32
2026	1,986.04
2027	655.30

Notes:
[1] Emissions for the year 2022 include both on-site construction work and off-site work related to the detention basin.
[2] Emissions for the year 2023 include two concurrent building construction and architectural coating phases.

Source: CalEEMod, February 2020.

The YSAQMD has not adopted specific thresholds for the analysis of GHG emissions, but rather recommends that GHG analysis be conducted consistent with the SMAQMD's adopted thresholds of significance. In turn, SMAQMD notes that where local thresholds for the analysis of GHG emissions exist, local thresholds should be used; however, in cases where local thresholds do not exist, project analysis may rely on SMAQMD adopted thresholds. Although the City of Davis has

adopted thresholds for operational emissions from development within the City, thresholds for use when analyzing construction-related emissions have not yet been adopted by the City. Consequently, for the analysis of construction-related emissions, SMAQMD's emissions threshold of 1,100 $MTCO_2e$/yr.

As shown in Table 3-18 construction-related emissions would be anticipated to exceed SMAQMD's 1,100 $MTCO_2e$/yr threshold during each full year of construction for Phase 1 of the ARC Project. It should be noted that construction of Phase 1 would end part way through the year 2027, which results in lower anticipated emissions for that year.

Due to the emission of GHGs in excess of SMAQMD's threshold of significance being applied to the proposed project, construction of the project could generate GHG emissions that may have a significant effect on the environment.

In addition to the analysis of construction-related emissions against SMAQMD's thresholds of significance, construction-related emissions from the ARC Project have been further analyzed in combination with the anticipated operational emissions. In keeping with the methodology implemented in the Certified Final EIR, GHG emissions from construction of the ARC Project will be amortized over the construction period and added to operational emissions. During the analysis of the MRIC Project, construction of the entire MRIC Project was modeled, which provided annual GHG emissions for buildout of the entire project. However, for the ARC Project, only the most intense phase of construction, Phase 1, has been modeled. Although all other construction phases are anticipated to result in GHG emissions below the levels presented for Phase 1, to provide a conservative approach to amortizing construction emissions, all subsequent phases of project construction were assumed to result in the same level of construction emissions, excluding emissions from off-site work on the detention basin. Thus, taking into consideration the exclusion of emission from off-site detention basin, as such work would only occur during Phase 1, total emissions per each construction phase would equal 12,228.18 $MTCO_2e$. After four construction phases, the total GHG emissions are then estimated to be 48,912.71 $MTCO_2e$. Based on applicant provided information, the project is anticipated to require no less than 20 years of construction activity prior to completion. Such a construction schedule would result in a project completion date in the year 2042. However, Fehr and Peers has used the year 2036 for the analysis of cumulative impacts resulting from the ARC Project, and due to limitations in the CalEEMod software, the operational year of 2035 has been used for project modeling. In order to maintain consistency with the analysis prepared by Fehr and Peers, and solely for the purposes of amortizing construction GHG emissions, ARC Project construction is anticipated to occur over 14 years (i.e. 2022 to 2036). Although construction is more likely to occur over 20 years or more, the use of a 14-year construction period in this specific instance is conservative as the total estimated construction emissions would be amortized over a shorter period. For instance, construction emissions amortized over a 20-year period would equate to an emissions rate of 2,445.64 $MTCO_2e$/yr, while construction emissions amortized over a 14-year period would equate to an emissions rate of 3,493.77 $MTCO_2e$/yr.

Based on the above, the conservatively amortized emissions of 3,493.77 $MTCO_2e$/yr will be added to the operational emissions discussed below.

Operational Emission

Emissions for operations of the ARC Project were modeled under the same assumptions as discussed in the Air Quality section of this document. In addition to the assumptions discussed previously, several assumptions were included in CalEEMod that directly affect the estimation of GHG emissions. The assumptions specifically related to GHG emissions are as follows:

- The CO_2 intensity for PG&E provided electricity was adjusted to reflect PG&E's progress towards achieving the statewide RPS goals;
- The energy consumption of future buildings was adjusted to account for inherent improvements within the 2019 CBSC;
- The project would exceed the energy efficiency requirements of Title 24 by 15 percent due in part to compliance with Tier 1 of the CalGreen Code, which is required by the City;
- Approximately 50 percent of electricity demand would be met through on-site renewable energy generation (e.g., rooftop and ground-mounted solar); and
- Indoor and outdoor water use would be reduced through compliance with Tier 1 of the CalGreen Code as well as other project-specific measures.

Operations of the Mace Triangle Site were modeled under the same assumptions discussed in the Air Quality section of this document, including the following assumptions:

- The CO_2 intensity for PG&E provided electricity was adjusted to reflect PG&E's progress towards achieving the statewide RPS goals;
- The energy consumption of future buildings was adjusted to account for inherent improvements within the 2019 CBSC;
- The project would adhere to the City of Davis' Municipal Code standards related to achievement of Tier 1 of the CalGreen Code, and inclusion of on-site renewable energy systems.

The total annual GHG emissions, including annual operational GHG emissions and amortized construction GHG emissions, associated with the ARC Project were estimated using CalEEMod at an assumed buildout of 2035. As noted previously, Fehr and Peers prepared VMT estimates for both existing plus project conditions as well as cumulative conditions. Accordingly, emissions estimates were prepared for both VMT scenarios, and the emissions estimates for the ARC Project are presented in Table 3-19. Emissions estimates for the Mace Triangle Site are presented in Table 3-20. Similar to the MRIC Project, the ARC Project would be required to comply with all applicable YSAQMD rules and regulations for operations, including Rule 2.40 (Wood Burning Appliances), which would help to minimize emissions generated during project operations. The applicant has specified that the residential portion of the project would not be developed with any hearths, woodfired or natural gas; thus, the project would comply with YSAQMD Rule 2.40.

Table 3-19
Unmitigated ARC Project GHG Emissions at Buildout (2035)

Emission Source	ARC Proposed Project Conditions Annual GHG Emissions ($MTCO_2e$/yr)[1]	ARC Cumulative Conditions Annual GHG Emissions ($MTCO_2e$/yr)
Construction Emissions[2]	3,493.77	3,493.77
Operational Emissions	34,458.11	29,465.31
Area	10.72	10.72
Energy	2,719.02	2,719.02
Mobile	29,483.36	24,490.56
Solid Waste	899.71	899.71
Water	1,345.30	1,345.30
TOTAL ANNUAL ARC GHG EMISSIONS	37,951.88	32,959.08

Notes:
[1] The ARC Proposed Project Condition refers to the "Existing Plus Project" condition presented in the Transportation and Circulation section of this SEIR.
[2] Amortized maximum annual construction emissions over a conservatively estimated 14-year construction period (maximum annual construction emissions for the ARC Project of 48,912.71 $MTCO_2e$ / 14 years = 3,493.77 $MTCO_2e$/yr).

Source: CalEEMod, February 2020.

Table 3-20
Unmitigated Mace Triangle GHG Emissions at Buildout (2035)

Emission Source	Mace Triangle Proposed Project Conditions Annual GHG Emissions ($MTCO_2e$/yr)[1]	Mace Triangle Cumulative Conditions Annual GHG Emissions ($MTCO_2e$/yr)
Area	0.00	0.00
Energy	46.09	46.09
Mobile	1,022.23	817.41
Solid Waste	15.04	15.04
Water	32.53	32.53
TOTAL ANNUAL MACE TRIANGLE GHG EMISSIONS	1,115.89	911.07

Note:
[1] The Mace Triangle Proposed Project Conditions refers to the "Existing Plus Project" condition presented in the Transportation and Circulation section of this SEIR.

Source: CalEEMod, February 2020.

As shown in Table 3-19, the ARC Project would result in less emissions under the cumulative condition as opposed to the existing plus project conditions. Table 3-20 demonstrates a similar reduction for potential future operations of the Mace Triangle Site. The reduction in emissions is due to a reduction in the estimated VMT under the cumulative condition, as compared to the VMT estimated for existing plus project conditions. Although both scenarios were modeled, the cumulative emissions will be discussed in further depth under Impact 3-96 of this Chapter. The remainder of this section will focus on project emissions under existing plus project conditions.

As shown in Table 3-19, the ARC Project under existing plus project conditions would result in operational emissions of 34,458.11 $MTCO_2e$/yr with emissions increasing to 37,951.88 $MTCO_2e$/yr with consideration of amortized construction emissions. Considering that agricultural activity has continued within the site, the ARC Project would result in 37,684.19 $MTCO_2e$/yr total net new emissions (37,951.88 – 267.69 = 37,684.19), which would still be considered a substantial net increase in GHG emissions as compared to those currently emanating from the project site. The portions of the Mace Triangle Site that are assumed for future development as part of this analysis do not currently experience activities resulting in emissions of GHGs; consequently, all 1,115.89 $MTCO_2e$/yr of anticipated emissions would be considered net new. Net emissions from both the ARC Project and potential future development of the Mace Triangle Site are considered a ***significant*** impact on the environment.

Mitigation Measure(s)

Implementation of Mitigation Measures 3-11 and 3-72(a) and (b) would include a large number of actions that would reduce impacts related not only to air quality and transportation, respectively, but also GHG emissions. For instance, Mitigation Measure 3-11 would include measures such as provision of outdoor electrical outlets, use of electric landscaping material, and reductions in natural gas usage that could all result in reductions in GHG emissions. Mitigation Measure 3-72(a) and (b) requires development and implementation of a TDM program for the entire ARC Project. The TDM plan would serve to reduce the total number of vehicle trips to and from the site, through programs such as vanpooling programs, subsidies for transit, and parking management strategies. The effect of the strategies included in the TDM program would result in a reduction in overall VMT. Because GHG emissions are proportional to VMT, any reductions in VMT would result in reductions in GHG emissions. However, the ultimate efficacy of the foregoing mitigation measures is speculative at this time. Considering that the ultimate reduction in GHG emissions resulting from Mitigation Measures 3-11 and 3-72(a) and (b) cannot currently be quantified, project-related GHG emissions would still be considered a substantial increase, and the impact would remain *significant and unavoidable*.

ARC Project

3-37(a) Implement Mitigation Measures 3-11, 3-72(a), and 3-72(b).

Mace Triangle

3-37(b) Implement Mitigation Measure 3-11.

3-38 Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs (reference Impact 4.7-2).

As discussed above, in absence of YSAQMD-adopted thresholds of significance, since preparation of the Certified Final EIR the YSAQMD has recommended GHG analysis be conducted consistent with the SMAQMD approach. The SMAQMD has established a threshold for both construction and operational GHG emissions of 1,100 $MTCO_2e$/yr. Although SMAQMD has designed thresholds for project review, SMAQMD further specified that where cities have adopted city-specific Climate Action Plans or GHG Reduction Plans, proposed projects should be assessed in relation to the city-specific plans, rather than SMAQMD's thresholds. The City of Davis has adopted a CAAP, which is a citywide GHG reduction program for operational GHG emissions of existing and proposed developments in the City. The City's CAAP included a GHG emissions reductions target that identified a desired goal of reaching net carbon neutrality by the year 2050. As previously discussed, since adoption of the City's CAAP, the City has accelerated the desired date of net carbon neutrality to the year 2040. Accordingly, a project's compliance with the City's goal of net carbon neutrality by the year 2040 can be used to assess a project's consistency with the applicable plans, policies, and regulations related to reducing emissions of GHG in the City.

Although the City has adopted thresholds for operational emissions, the City has not adopted specific thresholds for the analysis of construction-related GHG emissions. Due to the absence of specific construction-related GHG emissions thresholds, construction-related GHG emissions will be amortized over the anticipated length of construction and added to the operational emissions of the project, as discussed in Impact 3-37 above.

Table 3-19 presents the anticipated level of project-related operational emissions in the year 2035. As shown in the table, total gross operational emissions under the existing plus project scenario would equal 34,458.11 $MTCO_2e$/yr, with emissions increasing to 37,951.88 $MTCO_2e$/yr with consideration of amortized construction emissions. Considering that agricultural activity has continued within the site, the ARC Project would result in 37,684.19 $MTCO_2e$/yr total net new emissions (37,951.88 – 267.69 = 37,684.19). Potential future emissions from the Mace Triangle Site would be considered net new emissions, thus operations of the Mace Triangle Site would result in emission of 1,115.89 $MTCO_2e$/yr.

Between the modeled operational year of 2035 and the year 2040, operational emissions at the project site would likely decrease slightly from the levels presented above. Decreased emissions would be due to a number of factors. Factors that would reduce GHG emissions include: increased sourcing of grid-supplied electricity from renewable sources based on existing RPS requirements, and decreased emissions due to mobile sources resulting from improvements in statewide vehicle fleets, among others.[24] Although emissions would be anticipated to decrease slightly, the operational emissions in the year 2040 would likely be substantively similar to those in the year

[24] As noted under Changes in Circumstances in this section, judicial proceedings related to vehicle fleet standards had not been decided at time of preparation of this analysis. Regardless of the fate of judicial proceedings related to vehicle fleet standards, the existing vehicle fleet within the region will continue to experience fuel efficiency improvements and emissions reductions as older vehicles are taken out of operation and are replaced by newer vehicles, which are generally more fuel efficient and less emissions intensive. Such fleet turnover would occur due to the lifespan of existing vehicles, and would be largely unaffected by changes in federal regulations.

2035. Because net emissions in the year 2035 would equal 37,684.19 $MTCO_2e$/yr, the project would not meet the City's target of net carbon neutrality by the year 2040. Similarly, potential future development at the Mace Triangle Site is not anticipated to meet the City's target of net carbon neutrality by the year 2040.

Given the above, and similar to the MRIC Project, implementation of the ARC Project could conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHG, resulting in a ***significant*** impact.

Mitigation Measure(s)

Mitigation Measures 3-38(a) and 3-38(b) below have been prepared to attain consistency with the City's CAAP. With implementation of the mitigation below, the anticipated operational GHG emissions would be reduced or off-set to a level of net carbon neutrality as buildout of the ARC Site and the Mace Triangle Site progresses. Consequently, full implementation of Mitigation Measure 3-38(a) and 3-38(b) would ensure that project-related emissions are reduced to a level of carbon neutrality by the year 2040. Considering that with full implementation of Mitigation Measure 3-38(a) and 3-38(b), operational emissions would be reduced to a level of carbon neutrality, implementation of the ARC Project and potential future buildout of the Mace Triangle would not conflict with the City's CAAP and recently adopted resolution related to carbon neutrality by the year 2040 and the impact would be less than significant.

However, several factors affect the certainty with which the efficacy of the following mitigation can be addressed. For instance, technologies may not exist in time to ensure that early phases of the ARC Project can meet the emissions reductions requirements on-site. Should off-site mitigation measures or the purchase of carbon off-sets be required to meet the emissions reduction requirements, the future availability of off-site mitigation or off-sets is speculative. Furthermore, in the event that technologies do exist to allow for on-site emissions reductions as required by the following mitigation measures, such technologies may be prohibitively expensive or incongruent with the uses proposed. Although a reasonable attempt to anticipate future on-site uses has been made, the potential exists that some potential future uses within the ARC Site or the Mace Triangle Site may make reduction of emissions on-site or off-site infeasible. Further uncertainty regarding project-related emissions reductions is due to the uncertainty surrounding the future implementation of the TDM program required by Mitigation Measure 3-72(a) and (b). The TDM program would have a significant potential to reduce the project-related trip rates and VMT, but the extent to which such reductions would occur cannot be quantified with reasonable certainty at this time. Consequently, the extent to which future development projects within the ARC and Mace Triangle Site, respectively, would be able to meet the full requirements of Mitigation Measure 3-38(a) and 3-38(b) is speculative. Due to the speculative nature of the full implementation of Mitigation Measure 3-38(a) and 3-38(b), the potential exists that operational emissions would not be reduced sufficient to reach net carbon neutrality, and, similar to the MRIC Project, implementation of the project would result in a *significant and unavoidable* impact.

ARC Project

3-38(a) *Prior to issuance of building permits, each individual development of the ARC Project shall demonstrate consistency with the City's Climate Action and*

Adaptation Plan by demonstrating a fair-share reduction of GHG emissions towards an ARC Project-wide reduction goal of 37,684.19 $MTCO_2e$/yr, which would achieve carbon neutrality. Individual projects may choose one of the following methods for complying with this goal:

1. *Individual future developments undergoing Design Review, may prepare a Carbon Neutrality Plan for review and approval by the City's Department of Community Development and Sustainability. The Carbon Neutrality Plan must demonstrate the individual development's compliance with the City's net carbon neutrality goal for the year 2040. Compliance with the City's net carbon neutrality goal shall be demonstrated through the use of CalEEMod, or another method or model accepted for this purpose by the City, to demonstrate that emissions from the individual development, to the extent feasible, would reach a level of carbon neutrality by the year 2040.*
2. *If a project applicant chooses not to prepare a Carbon Neutrality Plan, the applicant must demonstrate that the individual development provides a fair-share contribution towards the ARC Project-wide emissions reductions need of 37,684.19 $MTCO_2e$/yr, to the extent feasible. A fair-share contribution is to be made based on the total acreage proposed for development in any given project subject to Design Review, as compared to the entire area of development proposed within the ARC Site as a whole. For the purposes of this mitigation measure, areas not anticipated for development, such as parks, open spaces, and agricultural buffer areas, are not included in the total development acreage. Therefore, the total development area, is considered to be 156.4 acres. Considering the total development area, a hypothetical ten-acre project would represent 6.4 percent of the total development area and would be required to show a GHG emissions reduction, savings, or off-set, of 2,409.5 $MTCO_2e$/yr from the emissions modeled herein, which would represent 6.4 percent of the total 37,684.19 $MTCO_2e$/yr reduction required for the project area as a whole. Proof of the fair-share GHG emissions reductions shall be submitted to the City's Department of Community Development and Sustainability.*

Examples of measures that may be used by future development projects in either of the above options include, but are not limited to, the following:

- *Trip and/or VMT reductions due participation in a Transportation Demand Management program or similar program;*
- *Electrifying loading docks to reduce emissions from engine idling of Transport Refrigeration Units;*
- *Inclusion of on-site renewable energy beyond the level anticipated in this analysis;*
- *Institution of a composting and recycling program in excess of local standards;*

- *Implementation of an Urban Forestry Management Plan or tree planting programs;*
- *Use of energy efficient street lighting fixtures;*
- *Limit the installation of natural gas infrastructure and appliances;*
- *Implement relevant measures from Mitigation Measure 3-11; and*
- *Purchase of off-site mitigation credits.*[25]

In general, GHG reduction measures implemented for development within the ARC Site shall use the following prioritization:

- *First priority – building specific actions;*
- *Second priority – onsite (within ARC Site) actions;*
- *Third priority – community based (within Davis) actions;*
- *Fourth priority – pay GHG reduction fees (carbon offsets) into a qualified existing local program, if one is in place; and*
- *Fifth priority – other demonstrated method of reducing emissions.*

Thus, as development progresses within the project area, each individual development would be required to show GHG emissions reductions in keeping with the project-wide reduction requirement. Emissions reductions shall be demonstrated prior to issuance of building permits for each development within the ARC Site.

Mace Triangle

3-38(b) *Prior to issuance of building permits, each individual development at the Mace Triangle Site shall demonstrate consistency with the City's Climate Action and Adaptation Plan by demonstrating a fair-share reduction of total GHG emissions generated at buildout of the Mace Triangle Site. This SEIR preliminarily estimates that full buildout of the Mace Triangle Site, not including construction emissions, would generate 1,115.89 $MTCO_2e/yr$. Full operational and construction emissions shall be calculated for each individual development, at such time project-level details are available, as required below:*

- *Individual future developments undergoing Design Review, may prepare a Carbon Neutrality Plan for review and approval by the City's Department of Community Development and Sustainability. The Carbon Neutrality Plan must demonstrate the individual development's compliance with the City's net carbon neutrality goal for the year 2040. Compliance with the City's net carbon neutrality goal shall be demonstrated through the use of CalEEMod, or another method or model accepted for this purpose by the*

[25] Purchase of off-site mitigation credits shall be negotiated with the City and YSAQMD at the time that credits are sought by future construction within the project areas.

City, to demonstrate that emissions from the individual development, to the extent feasible, would reach a level of carbon neutrality by the year 2040.

Examples of measures that may be used by future development projects include, but are not limited to, the following:

- *Trip and/or VMT reductions due participation in a Transportation Demand Management program or similar program;*
- *Electrifying loading docks to reduce emissions from engine idling of Transport Refrigeration Units;*
- *Inclusion of on-site renewable energy beyond the level anticipated in this analysis;*
- *Institution of a composting and recycling program in excess of local standards;*
- *Implementation of an Urban Forestry Management Plan or tree planting programs;*
- *Use of energy efficient street lighting fixtures;*
- *Limit the installation of natural gas infrastructure and appliances;*
- *Implement relevant measures from Mitigation Measure 3-11; and*
- *Purchase of off-site mitigation credits.*[26]

In general, GHG reduction measures implemented for development within the ARC Site shall use the following prioritization:

- *First priority – building specific actions;*
- *Second priority – onsite (within ARC Site) actions;*
- *Third priority – community based (within Davis) actions;*
- *Fourth priority – pay GHG reduction fees (carbon offsets) into a qualified existing local program, if one is in place; and*
- *Fifth priority – other demonstrated method of reducing emissions.*

Thus, as development progresses within the Mace Triangle Site, each individual development would be required to show GHG emissions reductions in keeping with the project wide reduction requirement. Emissions reductions shall be demonstrated prior to issuance of building permits for each development within the Mace Triangle Site.

3-39 Impacts related to energy associated with construction (reference Impact 4.7-3).

Due to the limited timeframe of on-site construction activity, and, in comparison to PG&E's projected growth in electricity demand for the region, impacts related to electricity associated with construction were determined to be less-than-significant for the MRIC Project. Similarly, the

[26] Purchase of off-site mitigation credits shall be negotiated with the City and YSAQMD at the time that credits are sought by future construction within the project areas.

Certified Final EIR determined that impacts related to oil demand during construction, including both gasoline and diesel fuels, would be less-than-significant as well. Under either the MRIC Project or the ARC Project, natural gas is not anticipated to be used to a substantial extent during construction.

The ARC Project would involve disturbance over a reduced development area, due to the exclusion of development on most of the 25-acre City-owned property. The reduction in project site area would contribute to a reduction in the energy consumed, particularly gasoline and diesel, during certain phases of project development, such as site preparation, grading, and paving. However, because the ARC Project would include the development of on-site residential units and a similar amount of non-residential space, as compared to the MRIC Project, the ARC Project could result in an increased demand for energy during the building construction and architectural coating phases. The scope of potential future development of the Mace Triangle Site has remained unchanged since the preparation of the Certified Final EIR. Consequently, the potential for future development of the Mace Triangle Site to result in impacts related to construction energy has not changed since preparation of the Certified Final EIR, and the conclusions of the Certified Final EIR concerning the Mace Triangle Site remain applicable.

Despite the changes in the ARC Project that effect the anticipated area of disturbance, the overall construction activity that would occur during implementation of the ARC Project would be substantively similar to that of the MRIC Project. For instance, construction is still anticipated to occur over distinct individual phases, one-by-one, as necessary to meet market demand throughout buildout. In such a case, only portions of the site would be under construction at a time, with operation of construction equipment regulated by federal, State, and local standards, including YSAQMD rules and regulations, and occurring intermittently throughout the course of a day for a temporary period of time during each phase of construction. Although the majority of construction-activity is anticipated to occur in distinct phases, the possibility exists that construction activity could overlap during some portions of building development. Even in the case that some project construction activities overlap, the total amount of energy demanded for project construction would not change, as the total amount of building space would remain generally constant regardless of the phasing of construction.

With regard to existing standards regulating construction-related energy consumption, a number of federal, State, and local standards and regulations exist that require improvements in vehicle efficiency, fuel economy, cleaner-burning engines, and emissions reductions. For example, as noted above, CARB has adopted the In-Use Off-Road Diesel Vehicle Regulation, which is intended to reduce emissions from in-use, off-road, heavy-duty diesel vehicles in California by imposing limits on idling, requiring all vehicles to be reported to CARB, restricting the addition of older vehicles into fleets, and requiring fleets to reduce emissions by retiring, replacing, or repowering older engines, or installing exhaust retrofits. Implementation of the In-Use Off-Road Diesel Vehicle Regulation will help to improve fuel efficiency and reduce fuel consumption on a statewide basis. Any licensed contractor for the project and equipment would have to be in compliance with all applicable regulations, such as the in-use, off-road, heavy-duty vehicle regulation. Thus, the ARC Project would comply with existing standards related to construction fuel efficiency. Technological innovations and more stringent standards are being researched, such as multi-function equipment, hybrid-fueled equipment, or other design changes, which could help

to reduce demand on oil and emissions associated with construction during future phases of project development. Similarly, gasoline and diesel would be demanded for construction worker vehicle trips, hauling and materials delivery truck trips. As discussed with regard to off-road equipment, California has adopted strict emissions standards for standard and heavy-duty vehicles. Although uncertainties exist with regard to ongoing legal proceedings related to disputes between California and the federal government, fleet turnover during the duration of project construction would be anticipated to result in an overall and ongoing reduction in vehicle gasoline and diesel demand. Consequently, the temporary increase in on-site energy demand, particularly gasoline and diesel demand from construction equipment and other vehicles, would not be an inefficient, wasteful, and unnecessary consumption of energy, and a significant adverse impact on oil resources would not occur.

Typically, at construction sites, electricity from the existing grid is used to power portable and temporary lights or office trailers. Because grid electricity would be used primarily for steady sources such as lighting, not sudden, intermittent sources such as welding or other hand-held tools, the increase in electricity usage at the site during construction would not be expected to cause any substantial peaks in demand. Currently, VCE provides electricity to the project site and surrounding areas; however, customers may choose to receive power from PG&E by opting out of VCE service. Both VCE and PG&E source large amounts of power from renewable sources; in 2018, the most recent year that such data is available, VCE provided 48 percent of its standard energy from renewable sources,[27] while PG&E provided 39 percent of its standards energy from renewable sources.[28] Both energy providers also offer customers the option to increase the amount of renewable energy they are provided by enrolling in either VCE's Ultra Green program (which includes 100 percent renewable electricity), or PG&E's solar choice program (which provides electricity that is either 50 or 100 percent renewably sourced depending on the customer's preference). California's existing RPS standards require that increasing proportions of electricity provided by public utilities be sourced from renewable sources of energy. As a result, an increasing proportion of the energy consumed during project construction would be renewably sourced as implementation of the project phases continues. Use of grid electricity power, as opposed to on-site generators, represents a more efficient means of providing electricity, and allows for construction operations to be powered by renewable sources of energy.

Construction of the proposed project, would not cause a permanent or substantial increase in demand that would exceed PG&E's or VCE's demand projections, and the temporary increase in electricity demand would not exceed the ability of PG&E's existing infrastructure to handle the increase. Therefore, project construction would not result in any significant impacts on local or regional electricity supplies, the need for additional capacity, or on peak or base period electricity demands. As such, the temporary increase in electricity demand due to project construction activities would not be considered an inefficient, wasteful, and unnecessary consumption of energy, and significant adverse impacts on electricity resources would not occur.

Although the ARC Project would introduce 850 residential units to the site, considering that the project would involve development over 25 less acres as opposed to the MRIC Project (this

[27] California Energy Commission. *2018 Power Content Label: Valley Clean Energy*. July 2019.
[28] California Energy Commission. *2018 Power Content Label: Pacific Gas and Electric*. July 2019.

reduction is due to the exclusion of the City Parcel from the ARC Site development footprint; however, 6.8 acres of the City Parcel would be subject to some construction activities to establish the agricultural buffer), construction emissions from the ARC Project would likely be similar to the MRIC Project overall. Considering the existing regulations related to the efficient use of on- and off-road vehicles, as well as anticipated improvements to on- and off-road vehicle fleets related to existing California state legislation and fleet turnover, overall, the ARC Project would not result in an inefficient, wasteful, and unnecessary consumption of energy, and a ***less-than-significant*** impact on energy resources during construction would occur.

Mitigation Measure(s)
None required.

3-40 Impacts related to energy associated with operations (reference Impact 4.7-4).

Due to the potential inclusion of on-site data centers, the Certified Final EIR included mitigation sufficient to reduce operational energy consumption to a less-than-significant level. The ARC Project would involve the same amount of non-residential uses, but would introduce 850 residential units in addition to the non-residential uses. Buildout of the ARC Project would result in an increase in energy demand and usage within the City, including building energy usage and transportation energy usage.

Building Energy Usage

Since preparation of the Certified Final EIR the CBSC has been updated twice. Each update of the CBSC has included improvements in the energy efficiency requirements of new development. Ultimately, the State intends for all new development to achieve zero net energy by way of reduced operational energy demands and increased on-site energy generation. The CalEEMod emissions estimations prepared for the ARC Project take into account the most recent updates to the CBSC, which is the 2019 CBSC, and all energy efficiency improvements therein. In addition, the City of Davis requires new developments to meet the Tier 1 standards of the CalGreen Code, which results in a 10 percent improvement in energy efficiency as compared to the mandatory CalGreen Code requirements, and the project applicant has committed to providing at least 50 percent of the ARC Project's energy demand through the incorporation of on-site renewable energy generation systems. In addition to the reductions in energy consumption resulting from implementation of the CBSC and the generation of renewable energy on-site, the ARC Project is anticipated to include the use of shading and passive solar techniques that would further contribute to reductions in energy demand. For instance, through the use of strategic shade tree planting and installation of roof overhangs, building and site design could contribute to reductions in the amount of energy consumed for space heating and cooling purposes. As such, energy demand related to implementation of the non-residential portions of the ARC Project would be greatly reduced as compared to the non-residential portions of the MRIC Project as analyzed in the Certified Final EIR. Nevertheless, the incorporation of 850 residential units in the ARC Project would result in an overall increase in energy demand as compared to the MRIC Project.

Although the inclusion of 850 residential units could increase overall energy demand from the site, the project applicant's commitment to providing at least 50 percent of the ARC Project's energy

demand through on-site renewable sources would apply to energy demand from the residential portions. Basing the analysis presented within this SEIR on provision of on-site renewable energy systems sufficient to provide 50 percent of project-wide energy demand may prove to be a low estimate of on-site energy systems, depending upon the final configuration of the on-site renewable portfolio and advancements in solar technology over time. Similarly, the design of on-site structures to take advantage of passive solar heating and cooling would reduce the energy demand for new residences.

As estimated by CalEEMod, the ARC Project would be expected to result in consumption of electricity of a maximum of 13.64 gigawatt-hours (GWh) per year and consumption of natural gas of approximately 34,607,340 thousand British Thermal Units per year (kBTU/yr). Although the ARC Project would result in an overall increase in the amount of electricity and natural gas being consumed on-site, all buildings within the ARC Site would be required to be designed in compliance with the CBSC in existence at the time of development. Accordingly, the increased energy demand would not represent inefficient or wasteful consumption of energy, as all structures would be constructed to meet California's stringent energy efficiency standards. Moreover, the on-site generation of at least 50 percent of the project's total electricity demand through the incorporation of on-site renewable energy systems represents a significant reduction in demand on grid-supplied power. The foregoing estimates of ARC Project-related energy demand do not incorporate potential energy efficiency improvements, decreased natural gas consumption, or increased on-site renewable energy generation that could occur due to implementation of Mitigation Measure 3-38(a). Thus, the analysis presented herein likely presents a high estimate of potential energy consumption, and full operations of the ARC Project would most likely require the consumption of less energy than presented herein.

The ARC Project is anticipated to buildout over approximately 20 or more years. Although predicting future regulations and building codes is speculative, the California Energy Efficiency Strategic Plan has identified that all new commercial buildings constructed after 2030 shall be zero net energy.[29] Considering the State's intention to require all new commercial buildings to meet zero net energy standards prior to the anticipated date of completion of the ARC Project, portions of the ARC Project area anticipated to be built out under a zero net energy requirement. In order to comply with a zero net energy requirement, future on-site non-residential structures would likely require the installation of on-site renewable energy systems sufficient to provide 100 percent of each structure's energy demand. Provision of renewable energy systems sufficient to provide 100 percent of energy demand for future on-site development would exceed the 50 percent renewable energy generation assumed within this analysis, resulting in a reduction in energy demand from the levels analyzed within this SEIR. Consequently, the energy demand presented herein is likely an overestimation.

Given the above, implementation of the ARC Project would comply with the energy efficiency standards in place at the time of building construction. Due to the existing CBSC and CalGreen requirements as well as the incorporation of on-site renewable energy systems, the consumption of energy during project operations would not be anticipated to conflict or obstruct a state or local

[29] California Public Utilities Commission. *Zero Net Energy*. Available at: https://www.cpuc.ca.gov/ZNE/. Accessed February 2020.

plan for renewable energy or energy efficiency, and would not result in the inefficient consumption of energy on-site. Nevertheless, as discussed for the MRIC Project, implementation of the non-residential uses could involve data centers, which are associated with large amounts of energy consumption. Data centers are spaces specifically designed to accommodate dense arrangements of computer equipment.[30] Any space where dedicated HVAC is installed to handle computing equipment load is likely to be considered a datacenter. As such, the data centers must be designed to be energy efficient to the maximum extent practicable in order to avoid an inefficient, wasteful, or unnecessary consumption of energy.

It should be noted that changes to the Mace Triangle Site have not occurred since the preparation of the Certified Final EIR. Although a development proposal has not been submitted for the Mace Triangle Site, potential future development of the site would benefit from the same Citywide and Statewide policies as discussed above for the ARC Project. For instance, any potential future development within the Mace Triangle Site would be required to adhere to the CBSC in place at the time of development. Furthermore, the City of Davis currently requires that new development projects within the City adhere to the Tier 1 standards of the CalGreen Code and incorporate on-site renewable energy systems. Based on adherence to the existing CBSC, and the foregoing City of Davis standards, operations of the Mace Triangle Site would be anticipated to consume 0.13 GWh of electricity and 728,812 kBTU/yr of natural gas per year. The consumption of energy at the foregoing levels would occur in compliance with all existing requirements related to energy efficiency, which would avoid inefficient, wasteful, or unnecessary consumption of energy. Although energy consumption at the foregoing levels would not be anticipated to result in impacts, in order to comply with mitigation measure 3-38(b), future buildout of the Mace Triangle Site may include additional energy efficiency measures, reduced consumption of natural gas, greater production of on-site renewable energy, or other technologies designed to reduce energy related GHG emissions. Thus, the energy consumption figures presented above are likely an overestimate.

Transportation Energy

The Davis CAAP includes objectives for mobility within the City with priorities to reduce VMT, improve efficiency of the transportation network, improve energy efficiency of the vehicle fleet by implementing more advanced technologies, and reduce the carbon content of fuels through the use of alternative fuels. As the City implements the CAAP objectives, the City's overall dependence on oil would be expected to be reduced, including project-related consumption of gasoline.

Fehr and Peers has estimated that the ARC Project, without consideration of the Mace Triangle, would result in a daily VMT of 309,000 under the existing plus project condition, and 253,000 under the cumulative project condition. The Mace Triangle project would add approximately 10,800 miles per day to the existing plus project condition and 8,500 miles per day to the cumulative project condition. The foregoing increases in daily VMT would result in increased demand for gasoline, and to a lesser extent diesel, for traditionally fueled vehicles. In general, however, the anticipated increases in VMT are not considered unique to the ARC Project, as any project of this scale would result in increases in VMT. In addition, the VMT per service population

[30] Pacific Gas and Electric. *Energy Efficiency Baselines for Data Centers*. October 1, 2009.

for the project would be slightly less than local per service population averages, as discussed in this SEIR. Although the ARC Project would result in increased VMT, the increased demand for energy resources related to the use of vehicles associated with the project would be reduced due to the following project features and programs.

Design of the project would be required to adhere to the electric vehicle parking space requirements included in the City of Davis' Electric Vehicle Charging Plan.[31] Adherence to the City's Electric Vehicle Charging Plan would ensure that the proposed parking areas included in the ARC Project would include infrastructure necessary to facilitate the ongoing use of electric vehicles. By complying with the City's requirements for Electric Vehicle parking, the ARC Project would promote the efficient use of energy in transportation by allowing future employees and residents to use alternatively fueled vehicles.

In addition, the ARC Project would be subject to mitigation measures requiring a TDM Program to be implemented. The TDM Program is intended to increase the average vehicle ridership (i.e., increase the number of people within each vehicle by promoting carpooling, vanpooling, etc.), reduce VMT, and reduce the overall number of vehicle trips related to ARC operations. Implementation of the TDM Program would ensure that transportation-related energy usage is reduced to the maximum extent practicable, and that transportation to and from the site occurs in an efficient manner. In addition to the TDM Program, the ARC Project would include sustainability features, which would contribute to a reduction of the Alternative's potential increase in demand for oil, promote alternative modes of transportation, and encourage fuel consumption reductions and efficiency. Such features include on- and off-site bicycle and pedestrian infrastructure, as well as on-site transit infrastructure. The inclusion of such features would promote active transportation, which requires little if any energy inputs, and public transportation. Considering the implementation of a TDM Program, and the promotion of active and public modes of transportation ensures that despite the anticipated increase in VMT, the energy demanded for the project-related vehicle trips would not be wasteful or inefficient.

By including residential as well as non-residential development, and a mixture of different types of non-residential uses, the project applicants hope to encourage future employees to live and work within the project site, or in close proximity to the project site. The mixture of such uses would allow for utilization of forms of transportation other than single-passenger motor vehicles in compliance with the City's CAAP.

Considering the above, the ARC Project would include measures that would reduce VMT to the extent practicable. Such measures include the incorporation of a mix of on-site uses, implementation of a TDM Program, as well as provision of bicycle, pedestrian, and transit infrastructure. Furthermore, the ARC Project would include measures that would support alternatively fueled vehicles, such as electric vehicle charging stations. The incorporation of such measures and programs would ensure that, the ARC Project would not result in an inefficient, wasteful, or unnecessary consumption of energy.

[31] City of Davis. *Davis Electric Vehicle Charging Plan*. January 2017.

Conclusion

Given the above, and similarly to the conclusions reached for the MRIC Project, the ARC Project would only be anticipated to result in a wasteful, inefficient, or unnecessary usage of energy if future potential data centers are not designed to maximize energy efficiency. As noted for the MRIC Project, development of the ARC Site or the Mace Triangle Site with data centers could result in an inefficient or wasteful use of energy. Nonetheless, similar to the MRIC Project, impacts related to the inefficient or wasteful use of energy during operation of the ARC Project or buildout of the Mace Triangle Site could be reduced to a ***less-than-significant*** level with implementation of mitigation.

Mitigation Measure(s)

ARC Project and Mace Triangle

3-40 *Prior to issuance of building permits for non-residential buildings that include data centers, the applicant shall submit an Energy Management Plan to the City of Davis Department of Community Development and Sustainability demonstrating compliance with principles for energy management for data centers, which could include, but not be limited to the following:*

- *IT Systems;*
- *Air Management;*
- *Centralized Air Handling;*
- *Cooling Plant Optimization;*
- *On-Site Generation;*
- *Uninterruptible Power Supply Systems.*

Other energy efficient technologies and best practices that are available at the time construction drawings are submitted could be included in the Energy Management Plan as well, such as any measures described by US Department of Energy Center of Expertise for Energy Efficiency in Data Centers.

3-41 Conflict, or create an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to GHG emissions and energy conservation (reference Impact 4.7-5).

Impacts related to conflicts with plans, policies, or regulations related to GHG emissions and energy conservation, as they pertain to the proposed non-residential innovation center uses, were evaluated for the proposed project in Section 4.7 and determined to be less than significant. For the ARC Project, there are additional City of Davis housing policies and regulations that are applicable to the residential component of the ARC Project. These additional housing policies and regulations are evaluated in the appropriate sections of this equal-level analysis, namely, the Land Use and Urban Decay section (Impact 3-55), and the Population and Housing section (Impact 3-63). Table 4.7-7 of the Certified Final EIR presents a consistency analysis of the MRIC Project's

compliance with City of Davis policies related to energy. Although the ARC Project includes residential uses and some mitigation measures within this SEIR applicable to the ARC Project have been changed, the conclusions presented in Table 4.7-7 have been determined to generally apply to the ARC Project, and the ARC Project is considered to be consistent with the City of Davis policies identified in Table 4.7-7. Accordingly, the ARC Project would result in a ***less-than-significant*** impact, similar to the conclusion reached in the Certified Final EIR for the MRIC Project.

Mitigation Measure(s)
None required.

Hazards and Hazardous Materials (reference Section 4.8 of the Certified Final EIR)

The impacts related to hazards and hazardous materials as a result of buildout of the site per the ARC Project in comparison to that of the MRIC Project are presented below.

Changes in Circumstances

Since certification of the Final MRIC EIR, the ARC Site has remained vacant and undeveloped. No additional development has occurred on the Mace Triangle Site. Substantial changes in circumstances that would affect the analysis in the EIR related to hazards and hazardous materials have not occurred.

It should be noted that since certification of the Final MRIC EIR, Appendix G of the CEQA Guidelines have been updated to include a new section for Wildfire. While the Appendix G questions related to Wildfire are not included in the Certified Final EIR, wildland fire hazards were still considered in the EIR (see Impact 4.8-4), and as discussed under Impact 3-45 below, the ARC Site and the Mace Triangle Site are not located within a designated State or local fire hazard severity zone. Thus, the new questions included in Appendix G of the CEQA Guidelines related to wildfire hazards are not applicable to the ARC Project.

Changes in the Project

Relative to the MRIC Project and the Mixed-Use Alternative, the ARC Project would involve a slightly reduced development area due to the exclusion of development of the 25-acre City-owned property to the northwest of the ARC Site. Compared to the MRIC Project, the ARC Project would include an additional 850 residential units; however, residential uses are not typically associated with the use, transport, or disposal of hazardous materials. The ARC Project would include a similar amount of residential development as was previously evaluated in the Certified Final EIR for the Mixed-Use Alternative. Substantial changes in the project that would affect the analysis in the Certified Final EIR related to hazards and hazardous materials have not occurred.

3-42 Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials (reference Impact 4.8-1).

Impacts related to the routine transport, use, or disposal of hazardous materials were determined to be less-than-significant for the MRIC Project. The amount of non-residential uses would be equal to the buildout of the MRIC Project (2,654,000 sf), but the ARC Project would introduce a total of 850 residential units. Because similar non-residential uses would still occur on-site under the ARC Project, the same potential for such uses to involve the routine transport, use, or disposal of hazardous materials would occur. Any businesses that may involve the use and/or storage of hazardous materials would be required to be reviewed by the Davis Fire Department and/or the Yolo County Environmental Health Division for compliance with Fire Code and other related regulations. Accordingly, similar to the MRIC Project, impacts related to the routine transport, use, or disposal of hazardous materials under the ARC Project would be ***less than significant***.

Mitigation Measure(s)
None required.

3-43 Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment associated with potential on-site tanks, well, or soil contamination (reference Impact 4.8-2).

Impacts related to the release of hazardous materials were determined to be less-than-significant with mitigation for the MRIC Project. The following evaluation of potential impacts of the ARC Project associated with hazards and hazardous materials was primarily based on the Phase I ESA prepared for the MRIC Project.

On-Site Wells

Potential upset or accident conditions involving the release of hazardous materials into the environment associated with wells are discussed for the ARC Site and the Mace Triangle Site separately below.

ARC Project

According to the Phase I ESA prepared for the MRIC Project, two active irrigation wells with associated diesel-powered engines on trailers were identified on the ARC Site. Evidence of spills or discharges was not observed in the vicinity of either of the trailers.

The ARC Project would be supplied domestic water from the City by new connections to the existing water infrastructure in the vicinity of the project site. While three irrigation wells are located along the western boundary of the ARC Site, the project applicant proposes to install a new irrigation well in the west-central portion of the site, within the proposed park area adjacent Mace Boulevard. As an alternative to installing a new irrigation well, the project may utilize an existing agricultural well, provided the well proves adequate for the intended use. In the event that the ARC Project would not require use of the existing on-site irrigation wells, the wells would need to be properly abandoned. Without proper abandonment of the existing wells, the potential exists for upset or accident conditions to occur involving the release of hazardous materials into the environment associated with the existing on-site wells.

Mace Triangle

The Phase I ESA prepared for the MRIC Project did not investigate the Mace Triangle Site. Thus, whether existing on-site wells are present on the site cannot be verified at this time. Future development of the Mace Triangle Site would require submittal of a Phase I ESA in order to identify any on-site hazard, including on-site wells, and include recommendations, as necessary, for mitigation (see Mitigation Measure 3-43(c) below).

On-Site Canals

Potential upset or accident conditions involving the release of hazardous materials into the environment associated with canals are discussed for the ARC Site and the Mace Triangle Site separately below.

ARC Project

A former canal was located on the southern portion of the ARC Site. The former canal was located on the site from at least 1957 to at least 1992 and was filled and graded in 1993. According to interviews conducted by WKA, soil from the excavation of the detention basin was placed within the canal area and the backfill was leveled with surrounding grade. A record of these operations is not available. As a result, WKA is not aware whether any trash or other debris was within the canal at the time it was backfilled. WKA has recommended that if any debris is encountered within the former canal on APN 033-630-009 during construction activities, WKA should be called to evaluate potential impacts to the site.

Mace Triangle

On-site canals are not located on the Mace Triangle Site; therefore, no discussion is necessary.

Nearby Uses

The following discussion pertains to the existing uses in the vicinity of both the ARC Site and the Mace Triangle Site.

Nearby Hazardous Materials Sites

To confirm that nearby known or suspected contaminated properties would not have any negative impacts on the ARC Site, vapor encroachment screening was conducted at the ARC Site. The vapor encroachment screening consisted of performing a Search Distance Test to identify if any known or suspect contaminated properties are surrounding or upgradient of the ARC Site within a specific search radii, and a Chemicals of Concern (COC) Test (for those known or suspect contaminated properties identified within the Search Distance Test) in order to evaluate whether or not COC are likely to be present. Based on the completion of the vapor encroachment screening, vapor encroachment conditions do not or are not likely to exist at the ARC Site.

Soil Contamination

Potential upset or accident conditions involving the release of hazardous materials into the environment associated with soil contamination are discussed for the ARC Site and the Mace Triangle Site separately below.

ARC Project

The ARC Site is currently and has historically been used for agricultural operations. Agricultural operations generally involve the use of pesticides and/or herbicides, as well as diesel-fueled farming equipment. Significant pesticide contamination to cropland is commonly associated with inorganic pesticides, as well as large farm headquarter facilities or agricultural dusting airstrips where the storage and repeated mixing of chemicals and the rinsing of application equipment have occurred. The ARC Site and current operations would not be considered a large farming headquarter facility and is not an agricultural dusting airstrip. Nonetheless, the potential exists for the presence of persistent pesticide residues due to application during historical agricultural activities on-site. Therefore, a Surface Soil Investigation Report was prepared by WKA for the ARC Site, which included evaluation of surface soil within the ARC Site, detention basin, and canal for concentrations of organochlorine pesticides (OCPs), total arsenic, and total lead that would pose a threat to human health under a commercial land use exposure scenario.

WKA developed a soil sample collection plan using the Department of Toxic Substances Control Interim Guidance for Sampling Agricultural Properties (Third Revision), dated August 7, 2008 (DTSC Guidance). As stated in the DTSC Guidance, in characterizing a site's impact from past historic land use, particularly pesticide application, DTSC accepts the logic that a site is likely to be applied uniformly with deterrent (i.e. pesticide). Given the logic of uniform pesticide application, it is common practice on larger Phase II agricultural investigations to conduct a preliminary sampling to determine if there are specific areas of concern that warrant additional testing. A total of 34 soil samples were collected by WKA for the characterization of the presence of OCPs in the soil. According to the laboratory analysis results, OCP was not present in any soil samples at concentrations exceeding reporting limits. Thus, OCP concentrations in the on-site soils would not pose a risk to human health. WKA also collected 13 soil samples to characterize the presence of total arsenic and lead in the soil. The maximum concentration of arsenic detected in the on-site soils was below the applicable threshold (12 mg/kg) for a sensitive land use. In addition, the associated increase in cancer risk associated with the maximum concentration of arsenic at the site was calculated to be within the California EPA typical range of acceptable exposure levels. Lead concentrations at the ARC Site range from 5.4 mg/kg to 7.4 mg/kg, which is below the 80 mg/kg threshold for residential exposure and the 320 mg/kg threshold for commercial exposure.

Based on the results of the Surface Soil Investigation Report, the on-site soils would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Based on the logic of uniform pesticide application across the entire site, WKA has a high degree of confidence that results from the preliminary sampling is equivalent to forecasting concentrations of OCPs, lead, and arsenic in the remainder of the site soil. Had any of the 34 sample locations indicated the presence of elevated concentrations of pesticides, additional soil testing would have been implemented. Instead, based on results of the soil

sampling performed, WKA has independently concluded that the results of the Phase II support a decision for no further study of the site.

Off-Site Sewer Alignment Options

The two off-site sewer pipe alignments are located within agricultural areas immediately north and east of the ARC Site. These adjacent sites have undergone agricultural practices similar to those historically occurring on the ARC Site. Therefore, any contaminant concentrations that may be found within sewer pipe alignment soils would be expected to be similar to the levels detected in the ARC Site soils, all of which were found to be acceptable.

Mace Triangle

Only the easternmost parcel of the Mace Triangle Site is currently in agricultural production. However, given the agricultural history of the easternmost parcel, persistent pesticides may be present in the Mace Triangle Site soils, which could result in adverse effects to construction workers. Therefore, prior to future development of the Mace Triangle Site, soil sampling shall be completed in a Phase I ESA.

Conclusion

In summary, the ARC Project would not create a hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials related to nearby uses or potential soil contamination. The ARC Project would involve development over the same site as the MRIC Project, excluding the 25-acre City-owned property. As such, in general, the same potential on-site hazards would occur for the ARC Project as the MRIC Project, including abandoned tanks or wells or contaminated soils. Thus, similar to the MRIC Project, impacts related to creating a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment associated with potential on-site tanks, well, or soil contamination under the ARC Project would be ***less-than-significant*** with mitigation.

Mitigation Measure(s)

ARC Project

3-43(a) *Prior to any ground disturbance activities within 50 feet of a well on the ARC Site, the applicant shall hire a licensed well contractor to obtain a well abandonment permit for any wells not anticipated to be used from the Yolo County Environmental Health Services Department, and properly abandon the on-site wells, pursuant to review and approval by the City Engineer and the Yolo County Environmental Health Services Department.*

3-43(b) *If any debris is encountered within the former canal on APN 033-630-009 during construction activities, as shown on the construction plans for the ARC Site, the*

contractor shall contact the project applicant, who shall retain the services of a qualified environmental hazard firm, to evaluate the debris to determine whether it poses any environmental contamination risks. A written evaluation shall be submitted to the City of Davis Department of Community Development and Sustainability. If the debris is trash or other non-hazardous material, then the contractor shall dispose of the debris and no further mitigation shall be required. If the debris is associated with signs of soil staining or odors indicative of hazardous materials, the environmental hazard firm shall conduct additional evaluation, including but not necessarily limited to soil sampling. If soil samples detect concentrations of hazardous materials above applicable Regional Screening Levels (RSL), then the soils shall be remediated and disposed of at a landfill licensed to accept hazardous waste. If constituent concentrations are below RSLs, then no further mitigation shall be necessary.

Mace Triangle

3-43(c) *In conjunction with submittal of a final planned development and/or tentative map for any parcel in the Mace Triangle property, the applicant shall submit a Phase I Environmental Site Assessment for that parcel, which shall evaluate on-site conditions, including but not limited to the presence of any wells, evidence of soil staining, or odors indicative of hazardous substances.*

In addition, due to the past agricultural operations on the easternmost parcel, a soil sampling program shall be implemented to assess potential agrichemical impacts to surface soil within the easternmost parcel, as follows:

A soil sampling and analysis workplan shall be submitted for approval to Yolo County Environmental Health Department. The sampling and analysis plan will meet the requirements of the Department of Toxic Substances Control Interim Guidance for Sampling Agricultural Properties (2008).

If the sampling results indicate the presence of agrichemicals that exceed commercial screening levels, a removal action workplan shall be prepared in coordination with Yolo County Environmental Health Department. The removal action workplan shall include a detailed engineering plan for conducting the removal action, a description of the onsite contamination, the goals to be achieved by the removal action, and any alternative removal options that were considered and rejected and the basis for that rejection. A no further action letter will be issued by County Health for the proposed commercial development upon completion of the removal action. The removal action shall be deemed complete when the confirmation samples exhibit concentrations below the commercial screening levels, which will be established by the agencies.

If any stained soil or odor-impacted areas are encountered during the Phase I ESA, then soil sampling of these areas shall be included in the above soil sampling

workplan, and depending upon the sampling results, included in the removal action workplan as well.

3-44 Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan (reference Impact 4.8-3).

Impacts related to emergency response plans were determined to be less-than-significant for the MRIC Project. The ARC Project, similar to the MRIC Project, would not involve any operations or changes to the existing roadway network that would impair implementation or physically interfere with any adopted emergency response plan or emergency evacuation plan. According to the City's General Plan, the City of Davis Multi-Hazard Functional Planning Guide states that all major roads are available for emergency evacuation routes in the event of a disaster, depending on the location and type of emergency that arises. Major roads identified for evacuation include Russell Boulevard, SR 113, I-80, Richards Boulevard, CR 102/Pole Line Road, Mace Boulevard southbound, CR 32A, Covell Boulevard/CR 31, "F" Street/CR 101A, and North Sycamore Frontage Road. The residents and employees resulting from the ARC Project would utilize the aforementioned roadways in case of an emergency evacuation, and the ARC Project does not involve any operations or changes to the existing roadway network that would impair implementation or physically interfere with the City's Multi-Hazard Functional Planning Guide or the County's Emergency Operations Plan or Multi-Hazard Mitigation Plan (MHMP). Although the ARC Project would include residential units, the emergency response and evacuation routes would be similar to the MRIC Project. Therefore, impacts associated with emergency response under the ARC Project would be ***less than significant***.

Mitigation Measure(s)
None required.

3-45 Expose people or structure to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands (reference Impact 4.8-4).

The project site is bounded to the north and east by agricultural land. Mace Boulevard followed by an Arco gasoline station, University Covenant Church, and land under construction are located to the west of the site. CR 32A is located immediately south of the project site. The Mace Triangle Site contains Ikeda's Market, a City-owned water tank and Park-and-Ride lot, and agricultural uses. The agricultural uses to the north and east of the project site would continue after project development is complete. During certain portions of the year, the northerly fields could contain dry grasses that may pose a risk with respect to ignition of dry vegetation. The agricultural land to the east is planted with almond trees, which reduces the potential for grass fires along the site's eastern boundary. The proposed buildings would be set back from adjacent agricultural land, which would help minimize threats from wildland fires.

According to the County's MHMP, fire is of concern to the County, not only for destructive tendencies, but also because of the potentially dangerous smoke produced. Fires could occur as a result of system failure (downed power lines), human action (arson), natural occurrence (lightning strike), and accidental occurrence (i.e. hazardous materials, motor vehicle accident, industrial

explosion, etc.). During the fire season, generally June through November, Yolo County and its municipalities are called upon to fight a large number of vegetation fires, especially along the major highways and railways that are interspersed throughout the County. The interface of residential and business development near highways that have dry, un-mowed vegetation along medians and shoulders are especially vulnerable.

To quantify the potential risk from wildland fires, the California Department of Forestry (Cal Fire) has developed a Fire Hazard Severity Scale which uses three criteria in order to evaluate and designate potential fire hazards in wildland areas. The criteria are fuel loading (vegetation), fire weather (winds, temperatures, humidity levels, and fuel moisture contents) and topography (degree of slope). According to Cal Fire maps for Yolo County, the City of Davis, including the project site, is not within a state or local fire hazard severity zone.[32,33]

Overall, based upon the above factors, implementation of the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, and, similar to the MRIC Project, impacts would be ***less than significant***.

Mitigation Measure(s)
None required.

3-46 Conflict, or create an inconsistency, with applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigation environmental effects related to hazards and hazardous materials (reference Impact 4.8-5).

Impacts related to conflicts with plans, policies, or regulations related to hazards and hazardous materials, as they pertain to the ARC Project non-residential uses, were evaluated for the MRIC Project in Section 4.8 and determined to be ***less than significant***. For the ARC Project, there are additional City of Davis housing policies and regulations that are applicable to the ARC residential component. These additional housing policies and regulations are evaluated in the appropriate sections of this equal-level analysis, namely, the Land Use and Urban Decay section (Impact 3-55), and the Population and Housing section (Impact 3-63). The consistency discussion provided in Table 4.8-1 of the Certified Final EIR with respect to City hazards and hazardous materials policies remains applicable to the the ARC Project, as it generally pertains to historic site uses and hazardous materials that could be used in the non-residential portions of the project.

Mitigation Measure(s)
None required.

[32] CAL FIRE. Yolo County FHSZ Map, State Responsibility Area (SRA). Adopted November 2007.
[33] CAL FIRE. Yolo County FHSZ Map, Local Responsibility Area (LRA). Adopted June 2008.

Hydrology and Water Quality (reference Section 4.9 of the Certified Final EIR)

The impacts related to hydrology and water quality as a result of buildout of the site per the ARC Project in comparison to that of the MRIC Project are presented below. The following discussion is based on the *Drainage Study for Mace Ranch Innovation Center Mixed Use Alternative* prepared by Watermark Engineering, Inc.[34], and the subsequent memo prepared for the ARC Project.[35]

Changes in Circumstances

Since certification of the Certified Final EIR, the ARC Site has remained vacant and undeveloped. Substantial changes in circumstances that would affect the analysis in the EIR related to hydrology and water quality have not occurred, and Existing Environmental Setting and Regulatory Context from the Certified Final EIR remain applicable.

Changes in the Project

Relative to the MRIC Project and the Mixed-Use Alternative, the ARC Project would involve a slightly reduced development area due to the exclusion of development of most of the 25-acre City Parcel to the northwest of the ARC Site. However, due to shifts in the arrangement of land uses within the ARC Project, the total amount of impervious surfaces created would be slightly increased.

Per a technical memorandum (Drainage Memo) prepared for the ARC Project by Watermark Engineering, Inc. (see Appendix D), compared to the Mixed-Use Alternative, the ARC Project would result in an approximately 12 percent decrease in disturbance area and an estimated 11 percent increase in imperviousness. With respect to the MRIC Project, the ARC Project would result in an estimated four percent increase in imperviousness.

The net effect of the changes in disturbance area and imperviousness is expected to be a small decrease in the overall peak flow and volume relative to the Mixed-Use Alternative. The estimated 100-year peak unit runoff from the ARC Project is approximately 1.8 cubic feet per second (cfs) per acre compared to approximately 1.7 cfs per acre for the Mixed-Use Alternative. The increase over the 187-acre ARC development footprint would be approximately 19 cfs. However, because the ARC development footprint is approximately 25 acres smaller than the Mixed-Use Alternative site, total peak flow would be decreased by approximately 42 cfs (25 acres x 1.7 cfs per acre). The net decrease of peak flow is expected to be between 10 and 30 cfs.

Per the Drainage Memo, the volume of runoff is expected to be slightly less for the ARC Project, compared to the Mixed-Use Alternative, based on similar assumptions and calculations. Specifically, the Drainage Memo concluded that while the expected increase in impervious surface would equate to an approximately four acre-foot-increase in the volume of runoff, the decrease in

[34] Watermark Engineering, Inc. *Drainage Study for Mace Ranch Innovation Center Mixed Use Alternative.* June 30, 2015.

[35] Watermark Engineering, Inc. *Applicability of MRIC Drainage Study (2015) for Aggie Research Campus Development Project*. February 3, 2020; and *Applicability of MRIC Drainage Study (2015) for Aggie Research Campus Development Project – Supplemental Professional Opinion Letter*. February 10, 2020.

site acreage by 25 acres would equate to an approximately five acre-foot-decrease in the runoff volume. The total net runoff volume associated with the ARC Project would remain in the range of 44 to 45 acre-feet. Given that the increase in percent imperviousness would essentially be negated by the decrease in total development area, little or no difference in runoff volume exists between the Mixed-Use Alternative and the ARC Project. However, as shown in Table 3-19 below, the Mixed-Use Alternative would have a greater volume of runoff compared to the MRIC Project. Thus, it follows that the ARC Project would increase the volume of runoff generated compared to that which would be generated by the MRIC Project.

3-47 Substantially alter the existing drainage pattern of the site or area, or create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site (reference Impact 4.9-1).

ARC Project

The development footprint of the ARC Project would be reduced by approximately 25 acres compared to the MRIC Project, due to the exclusion of development of the City Parcel to the northwest of the ARC Site. Overall, the ARC Project would result in an approximately 12 percent decrease in disturbance area and an estimated 11 percent increase in imperviousness. Landscaping and agricultural buffers would be included for the ARC Project, similar to the MRIC Project.

Rate of Runoff

With development of the ARC Project, the on-site impervious area would increase, leading to faster runoff rates. The increased rate of runoff would be attenuated using on-site facilities. The conceptual design of the on-site drainage facilities is to minimize the use of storm drains. Rather, runoff would be conveyed along shallow landscaped corridors that would flow to the buffer areas at the northern and southern edges. From there, the runoff would be conveyed to the eastern buffer area where it would flow towards the MDC. The northern, southern, and eastern buffer areas would provide a combination of conveyance and detention storage via wide relatively shallow areas that may be "benched" as the runoff moves toward the MDC. Stormwater discharge from each of the north and south buffer areas would outfall into the MDC, near the eastern boundary of ARC Site.

The MDC was originally designed as a trapezoidal channel with a 15-foot bottom width, 2 to 1 (vertical to horizontal) side slopes, a channel slope of 0.0007 feet per foot, and a Manning's roughness of 0.040. A City maintenance program exists to help maintain the design capacity. Table 3-21 provides a summary of the design flows.

The original MDC Improvement Plans show the channel depth to be a minimum of seven feet deep along the entire length, except the reach through the ARC Site. Recent topographic data indicate this reach is also at least seven feet deep. Downstream of the improved section of the channel, downstream of the Swingle PG&E site, the Railroad Channel is not as deep but much wider.

Table 3-21
Summary of Design Flows along Mace Drainage Channel

Location	Design 100-yr flow (cfs)	Depth of Flow (ft)
Downstream of Mace Boulevard.	255[(a)]	4.8
Downstream of Detention Basin	225	4.5
At the Eastern Boundary of Mixed-Use Site	260	4.9
Upstream of CR 105	273	5.0
Downstream of CR 105	305	5.3
Downstream of Schultz Crossing	313	5.4
Downstream of Swingle PG&E Pumping Station	330	5.5

Notes:
[(a)] Based on recent updated modeling
cfs = cubic feet per second

Source: Watermark Engineering, Inc. March 13, 2015, Revised May 29, 2015

It is expected that both the MDC and detention basin would undergo modifications. Conceptual designs of the conveyance corridor and detention facilities that are being considered include the following:

- A portion of the MDC may be configured to include a low-flow pipe or low-flow channel, coupled with a high-flow channel. If a low-flow channel is used, water depths would be designed to provide a healthy environment for mosquito fish. It is expected that the high flow channel would be landscaped and maintained to be viewed as an amenity. The preliminary channel would have a 15-foot bottom width and 2:1 side slopes.
- The applicant intends to remove the existing on-site detention basin, and reconfigure it with varied side-slopes and a more rectangular shape. It would be an offline storage facility and only fill during extreme storm events. In addition, the 150-foot agricultural buffer area along the eastern and northeastern site boundaries would provide detention storage for storm events. Furthermore, another proposed detention basin would be located along CR 32A.

The overall drainage system design would be such that the combination of attenuated on-site flows and the channel and off-line detention modifications would reduce 100-year flows leaving the developed ARC Site to the original design capacity of 260 cfs.[36] This means that there would be no increase in the rate of flow leaving the ARC Site, and consequently, no downstream impacts related to the existing capacity of the MDC.

A vehicle crossing exists at the curved section of the MDC, just east of the ARC Site; and the two channels are connected by two 24-inch corrugated metal pipes (CMPs). One pipe is located at the channel slow lines, and the other is several feet higher. The connection represents a significant bottleneck along the MDC. Any potential overtopping of flood waters as a result of the bottleneck is addressed by the interim overland release facilities

[36] Watermark Engineering, Inc. *Applicability of MRIC Drainage Study (2015) for Aggie Research Campus Development Project – Supplemental Professional Opinion Letter*. February 10, 2020.

currently in place. In addition, the risk of damage is low because structures in the affected area do not currently exist. The proposed project would be required to connect the Phase 1 and Phase 2 channels.

Volume of Runoff

For the ARC Project, the rate of runoff would be attenuated on-site, as described above, such that peak runoff would mimic existing conditions. However, the volume of runoff is expected to increase as a result of development. During most rainstorms, this increased volume is unnoticed as the channel conveys all of the collected runoff to the Yolo Bypass.

Approximately 7.5 square miles of land drain to the eastern terminus of the Railroad Channel at the Yolo Bypass, into which the MDC flows. This includes about 730 acres of Mace Ranch and about 4,100 acres of agricultural land west of the Covell Drain and bounded by the Willow Slough Bypass levee to the north, the UPRR to the south, and the Yolo Bypass levee to the east. During typical rainstorms, runoff from this area discharges into the Yolo Bypass.

When there is heavy and prolonged rainfall in Northern California, flow in the Yolo Bypass rises. High flow in the Bypass creates backwater and can completely stop MDC flows from entering the Bypass. When this occurs, runoff from the 7.5-square mile tributary area ponds "behind" the Bypass levee and would remain there until the ponded water level is higher than the Bypass water level. In addition, during extreme storm events, and when the Bypass is high, both the Covell Drain and the North Davis Drain overflow to the east, adding runoff volume to the ponding area east of the Bypass levee.

The local storm event occurring over the City would not necessarily be the same magnitude of storm event that occurred over Northern California causing high water levels in the Yolo Bypass. Also, the duration of the high water levels in the Yolo Bypass would probably last much longer than the duration of flooding from the local storm. Thus, to develop a "worst case" evaluation, it was assumed that the water levels would block the flow into the Yolo Bypass for the full duration of the local storm events occurring over the City and Yolo County. This means that all of the increase in runoff from the ARC Project would contribute to increased flooding in the study area west of the Yolo Bypass. The drainage engineers for the Mixed-Use Alternative, which would result in similar rates and amounts of stormwater runoff as the ARC Project, as verified by Watermark Engineering,[37] have estimated the increase in runoff from the development area for various, larger storm events, as summarized in Table 3-22. The increase in runoff from the Mace Triangle for various, larger storm events, has also been estimated and shown in Table 3-22, given that the Mace Triangle is included in the approval process for the ARC Project.

[37] Watermark Engineering, Inc. *Applicability of MRIC Drainage Study (2015) for Aggie Research Campus Development Project – Supplemental Professional Opinion Letter*. February 10, 2020.

Table 3-22
Increases in Runoff Volumes Resulting from ARC Project and MRIC Project

Local Storm Event	Triangle Increase in Runoff Volume, ac-ft	MRIC Project Increase in Runoff Volume, ac-ft	ARC Project Increase in Runoff Volume, ac-ft	Total Volume Increase (Triangle and ARC), ac-ft
10-Year, 24-Hour	2.0	20	22	24
100-Year 24-Hour	2.5	26	31	34
100-Year, 10-Day	6.7	63	78	85
200-Year, 10-Day	7.2	68	82	89

Source: Watermark Engineering, Inc., June 30, 2015.

Replacement Storage Alternative

The first option involves storing the increased runoff volume off-site, until such time that the Bypass flows recede and MDC and Railroad drain flows can enter the Yolo Bypass through the existing Bypass levee culvert. In order to accomplish this, a portion of an off-site field could be lowered to store the increased incremental volume. The applicant has identified a potential off-site location, which is the easternmost parcel owned by the City of Davis, adjacent to the MDC and Yolo Bypass levee (APN 033-300-015; 204 acres; see Figure 3-14). Although this parcel is the applicant's preferred location due to the fact that it is some of the lowest agricultural land in the area, the other two, City-owned parcels, between the ARC Site and the parcel adjacent to the Yolo Bypass levee, could alternatively be lowered to provide the necessary storage (APN 033-300-001: 248 acres; and 300-650-006: 327 acres). If one of these higher City-owned properties is lowered, then some field ponding would occur at the lower elevations, adjacent to the levee, before the storage benefits are realized.

To accommodate the increased volume from ARC Site and the Mace Triangle Site during major storm events, the lowered area would be relatively shallow, approximately 1-foot deep, depending on the footprint selected, and approximately 100 acres in size. The maximum excavation should be limited to 2.5 feet. Topsoil would be removed and stockpiled, the selected area excavated to the design depth, and the topsoil then spread back over the lowered field. Excavated materials, not including the temporarily removed topsoil, would be imported to the ARC Site. The field would be returned with the same slopes so that irrigation would continue in a manner similar to existing conditions. Drainage patterns would not be changed and the small elevation change would not adversely impact the irrigation methodology.

It is expected that the storage area would be used several times in any 10-year period. Ponding in this area occurs as a result of both heavy, local rainfall, and when the Bypass has high flow that restricts or blocks the local outflow. Extent and duration of ponding is completely dependent on both local runoff and the water elevation in the Bypass. Regardless, the off-site volumetric storage would be available whenever significant ponding would occur. This approach will allow for continued agricultural operations, but

provide detention storage during major storm events, when the Bypass is flowing at a high level.

Figure 3-14
Conceptual Location of ARC Project and Triangle Off-site Detention Area



Source: Watermark Engineering, Inc. June 30, 2015

Pumping Alternative

An alternative method to convey the increased runoff volume into the Bypass, when the outfall is blocked by high water in the Bypass, consists of a small pump station. The pump station would have a capacity of approximately three cfs, and could be a permanent installation or a portable trailer-mounted unit. It would take approximately 12 days to pump about 70 acre-feet (ac-ft) of water, resulting from post-project runoff in the 100-year, 10-day storm event.

A permanent installation would be sited near the existing outfall. Pump intake would be in the railroad channel and the conveyance pipe would go "over" the Bypass levee, rather than "through" the levee, in order to maintain levee integrity. No impact to the Yolo Bypass would be expected because the pump would be used only when there is at least moderately high flow in the Bypass, at least 10,000 cfs.

Similarly, a portable trailer-mounted, self-contained pump could be used. It could be stored at City facilities when not in use, and set up for pumping in several hours. The portable pump would require fewer and/or less rigorous approvals from the Flood Protection Board and could also be used at other locations.

Mace Triangle Site

It is anticipated that potential future development of up to 71,056 sf of research/Office/R&D and/or ancillary retail could occur on the Triangle, which would increase the amount of impervious surface area. For the conceptual drainage analysis, it was assumed that the Park-and-Ride lot impervious surface area would not change, but the Ikeda's percent impervious surface cover would increase from 20 to 90 percent, and the easternmost parcel from two to 90 percent.

Runoff from the Mace Triangle Site currently flows south or southeast to the existing drainage channel located between CR 32A on the north and east, and the UPRR embankment to the south. The increased runoff volume resulting from future development of the Mace Triangle will also need to be addressed, similar to the ARC Project.

Conceptual design criteria and facilities for the Mace Triangle are as follows:

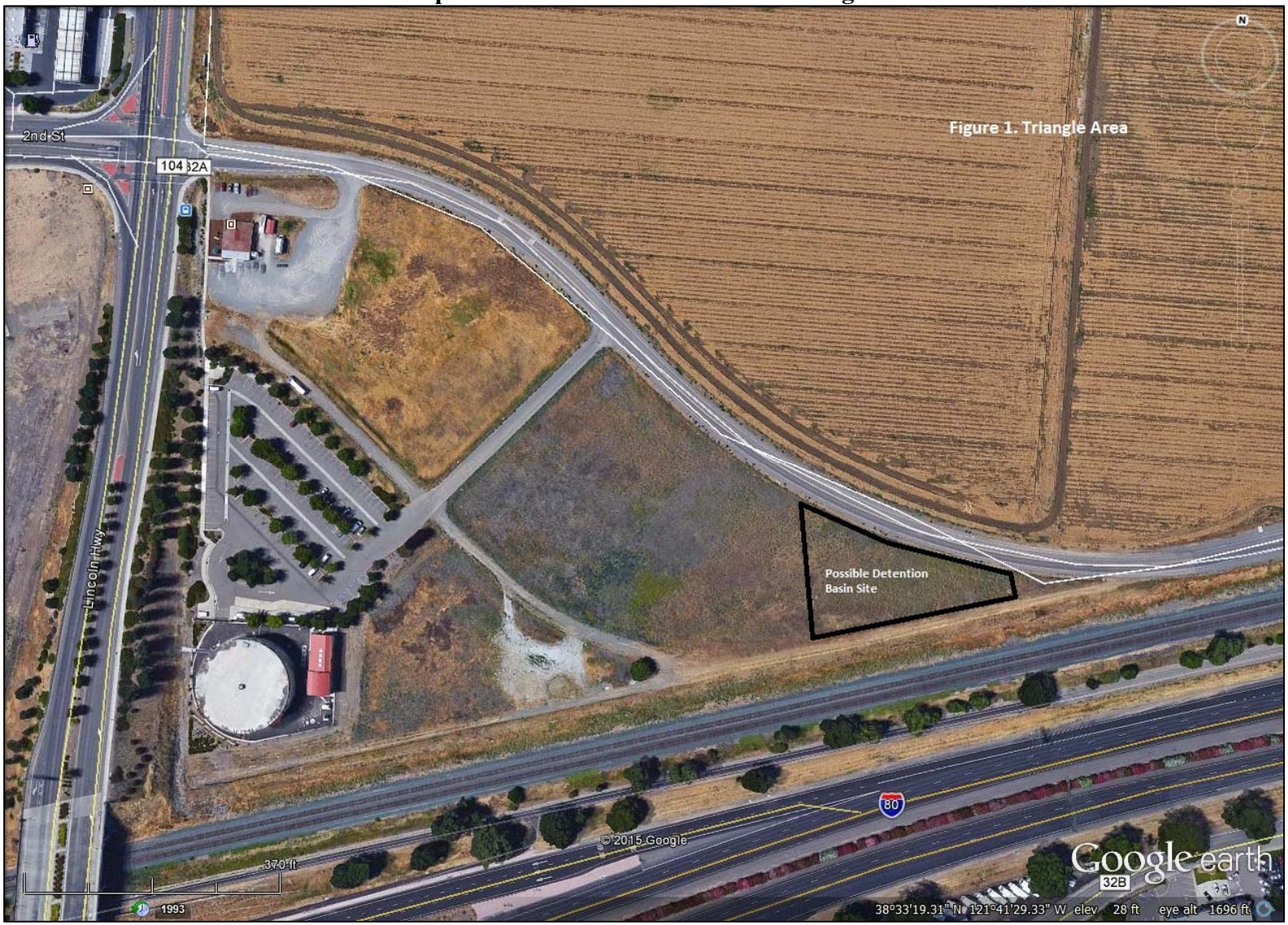
- The increased rate of flow as a result of development will be attenuated to mimic existing conditions.
- On-site drainage facilities will be some combination of surface and pipe conveyance to a detention basin at the east end of the Mace Triangle.
- The outfall pipe from the detention basin is sized to restrict outflow to be equal or less than existing conditions.

A summary of the drainage report findings are as follows:

- Existing conditions peak flow is about 9 cubic feet per second (cfs).
- Developed peak flow is about 24 cfs.
- Basin footprint about 0.5-acre.
- Basin depth is four to five feet.
- Basin outfall pipe flow ≈ 9 cfs.
- Required storage about 1.1 acre-feet (af).
- Basin side-slopes would be 4:1 or flatter.

A conceptual location for a single detention basin is shown in Figure 3-15. The single detention basin would likely be constructed in the eastern portion of the Mace Triangle Site. The single basin scenario assumes that the involved property owners agree to locate a single detention basin at the proposed location. If such an agreement is not reached, then each property owner would need to develop its own independent drainage system, either on a permanent basis, or temporary basis, until such time that a central detention facility is constructed. The detention basin and storm drain facilities would be designed to meet City design standards in place at the time of development.

Figure 3-15
Conceptual Detention Basin at Mace Triangle Site



Volume of Runoff

The increased runoff volume from the Mace Triangle Site for several design storms, assuming full build out, is shown in Table 3-22 above. As discussed, the 100-year, 10-day storm event would result in an increased volume at the developed Mace Triangle Site of 6.7 ac-ft. This volumetric increase could be addressed by replacement storage or a pump station, as discussed in detail above.

Conclusion

Impacts related to substantial alteration of the existing drainage pattern were determined to be less-than-significant with mitigation for the MRIC Project. Development of the ARC Project would alter the existing drainage pattern of the site, and surrounding area, and would increase impervious surfaces on the site. Per the Drainage Memo prepared for the ARC Project, the ARC Project design would be such that the combination of attenuated on-site flows and the reconfigured channel and off-line detention would reduce 100-year flows leaving the developed ARC Site to the original design capacity of 260 cfs. This means that there would be no increase in the rate of flow leaving the ARC Site, and consequently, no downstream impacts related to the existing capacity of the MDC. However, at this time, the drainage system design is conceptual.

In addition, with respect to the ARC Project's increase in the volume of runoff, the ARC Project's volume of runoff is anticipated to be similar to the Mixed-Use Alternative, based upon Watermark Engineering's February 10, 2020 Memo. As shown in Table 3-19 above, the Mixed-Use Alternative would have a greater volume of runoff compared to the MRIC Project. Thus, it follows that the ARC Project will increase the volume of runoff compared to that which would be generated by the MRIC Project. The ARC Project development needs to address this increased volume by either constructing off-site replacement storage, installing a pump station, or some other acceptable engineering alternative, as approved by the City of Davis. Otherwise, the project would result in an increase in downstream flooding of the City's agricultural property and adjacent properties during heavy storm events.

The increased runoff volume resulting from Mace Triangle development will also need to be addressed, similar to ARC Project, by constructing off-site replacement storage, installing a pump station, or implementing another acceptable engineering solution.

Implementation of the following mitigation measures, similar to the MRIC Project, would reduce to a ***less-than-significant*** level the impacts associated with substantially altering the existing drainage pattern of the site or area, creating or contributing runoff water which would exceed the capacity of existing or planned stormwater drainage systems, and substantially increasing the rate or amount of surface runoff in a manner that would result in flooding on- or off-site.

Mitigation Measure(s)

ARC Project

3-47(a) *In conjunction with submittal of the first final planned development for the ARC Site, a design-level drainage report shall be submitted to the City of Davis Public Works Department for review and approval. The drainage report shall identify specific storm drainage design features to control the 100-year, 24-day increased runoff from the project site to ensure that the rate of runoff leaving the developed ARC Site does not exceed the original Mace Drainage Channel (MDC) design capacity of 260 cfs. This may be achieved through: on-site conveyance and detention facilities, off-site detention or retention facilities, channel modification, or equally effective measures to control the rate and volume of runoff.*

The design-level drainage report shall include off-site drainage facilities sufficient to detain and control the increased runoff volume when the flow from the MDC into the Yolo Bypass is blocked by high water levels in the Bypass. Preliminary estimates of increased runoff volumes are 78 acre-feet. The final amount of runoff volume to be detained would be determined with the design-level drainage report. This could result in detaining run-off volume for an extended time period. During this time period, additional large storms could occur; thus, the proposed detention storage facilities shall also be able to manage (detain with a controlled release) the 100-year, 24-hour storm event.

The design-level drainage report shall also include design for detaining and controlling the increased run-off volume from the Mace Triangle Site. Preliminary estimates of increased runoff volumes are as much as 7 acre-feet. The final amount of runoff volume to be detained would be determined with the design-level drainage report prepare for the ARC Site.

Design-level recommendations provided in the drainage report shall be included in the improvements plans prior to their approval by the Davis Public Works Department.

3-47(b) *Prior to approval of the Phase 1 improvement plans for the ARC Site, the Public Works Department shall ensure that the plans include the development of the Phase 2 MDC improvements. The Phase 2 improvements shall consist of removal of the two 24-inch corrugated metal pipes in order to provide a continuous channel between the Phase 1 and Phase 2 improvements.*

Mace Triangle

3-47(c) *In conjunction with submittal of each final planned development for the Mace Triangle Site, a design-level drainage report for the development shall be completed and submitted to the City of Davis Public Works Department for review and approval. The drainage report shall identify specific storm drainage design*

features to control the 100-year, 24-hour increased runoff from the project site. This may be achieved through: onsite conveyance and detention facilities, offsite detention or retention facilities, channel modification, or equally effective measures to control the rate and volume of runoff.

The design-level drainage report shall include off-site drainage facilities sufficient to detain and control the increased run-off volume when the flow from the Mace Drainage Channel into the Yolo Bypass is blocked by high water levels in the Bypass. Preliminary estimates of increased runoff volumes for the Mace Triangle Site are as much as 7 acre-feet. The final amount of runoff volume to be detained for each proposed development would be determined with the design-level drainage report. This could result in detaining run-off volume for an extended time period. During this time period, additional large storms could occur; thus, the proposed detention storage facilities shall also be able to manage (detain with a controlled release) the 100-year, 24-hour storm event.

Design-level recommendations provided in the drainage report shall be included in the improvement plans prior to their approval by the Davis Public Works Department.

3-48 Violate any water quality standards or waste discharge requirements, provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality through erosion during construction (reference Impact 4.9-2).

Impacts related to violation of water quality standards during construction were determined to be less-than-significant with mitigation for the MRIC Project. The ARC Project would involve development over the same site as the MRIC Project, excluding most of the 25-acre City-owned property. Accordingly, the ARC Project would result in the potential to create or contribute additional sources of polluted runoff, violate water quality standards or waste discharge requirements, or otherwise degrade water quality during construction activities.

Because development at the ARC Site and possible future development at the Mace Triangle Site would require construction activities that would result in a land disturbance greater than one acre, the applicants would be required by the State to obtain a General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit), which pertains to pollution from grading and project construction. Compliance with the Permit requires the project's applicant to file a Notice of Intent (NOI) with the SWRCB and prepare a SWPPP prior to construction. The SWPPP would incorporate BMPs in order to prevent, or reduce to the greatest feasible extent, adverse impacts to water quality from erosion and sedimentation. In addition, treatment of stormwater runoff would be addressed via the proposed on-site detention basins. The ARC's required compliance with the SWRCB standards would ensure that construction activities would not result in degradation of downstream water quality.

Similar to the MRIC Project, compliance with the following mitigation measures, requiring a SWPPP and implementation of BMPs during construction, would ensure that the projects' impacts to water quality during construction would be ***less than significant***.

Mitigation Measure(s)

ARC Project and Mace Triangle

3-48 *Prior to initiation of any ground disturbing activities, the project applicant(s) for each discretionary development application shall prepare a Stormwater Pollution Prevention Plan (SWPPP), and implement Best Management Practices (BMPs) that comply with the General Construction Stormwater Permit from the Central Valley RWQCB, to reduce water quality effects during construction. Such BMPs may include: temporary erosion control measures such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation. The SWPPP shall be kept on-site and implemented during construction activities and shall be made available upon request to representatives of the City of Davis and/or RWQCB.*

3-49 Violate any water quality standards or waste discharge requirements, provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality during operations (reference Impact 4.9-3).

ARC Project

Impacts related to violation of water quality standards during operations were determined to be less-than-significant for the MRIC Project. The ARC Project would involve development over the same site as the MRIC Project, excluding most of the 25-acre City-owned property. Accordingly, the ARC Project would result in the potential to create or contribute additional sources of polluted runoff, violate water quality standards or waste discharge requirements, or otherwise degrade water quality during operational activities.

The ARC Project would be designed to provide water quality treatment to storm runoff as required by the City Municipal Code. With respect to water quality effects from operation of the proposed project, permanent stormwater quality treatment control measures (TCMs) for development in the City of Davis must be designed in accordance with the State's Phase II Small MS4 General Permit, the development standards of which have been adopted by reference in Chapter 30 of the City's Municipal Code. The Phase II Small MS4 General Permit requires that permanent stormwater control measures be incorporated into the proposed project to ensure that new development does not result in the discharge of polluted water or the increase in sources of polluted runoff. Regulated Projects, under the Phase II Small MS4 General Permit, are required to divide the project area into Drainage Management Areas (DMAs) and implement and direct water to appropriately-sized TCMs consistent with the sizing standards in Section E.12.e.(ii)(c). TCMs are designed after the inclusion of Site Design Measures (SDMs) consistent with the standards of Section E.12.b. and E.12.e.(ii)(d). Baseline Hydromodification Measures are implemented consistent with the prescriptive standards of Section E.12.e.(ii)(f). Regulated Projects must additionally include Source Control Best Management Practices (BMPs) where possible. The City requires preliminary Stormwater Quality Plans at the discretionary phase to ensure that DMAs, TCMs and hydromodification measures are adequately designed into the conceptual development plan, demonstrating full compliance of the project's drainage system with the Phase II Small MS4

General Permit. Each phase of the project would be required, as conditions of approval, to provide stormwater system sizing information, a Stormwater Quality Plan, stormwater calculations, a Stormwater Quality Maintenance Plan, and a Drainage Plan.

Conceptually, for the project site, extensive green space and landscaped corridors, grassy swales and attenuation areas would provide treatment to stormwater resulting from the ARC Project. Building downspouts would be directed to surface treatment areas rather than underground storm drains. The stormwater treatment areas would treat stormwater through sedimentation and biological uptake of pollutants by surrounding vegetation, algae, and bacteria. While pollutants settle out within the treatment areas, only the clean surface water within the basins would be allowed to exit into the MDC via outlet control structures. The facilities would be designed in accordance with all City guidelines. The stormwater treatment areas would be integrated within landscaped areas without having the appearance of treatment areas.

In addition, drainage channels and swales would be utilized to reduce the velocity of the stormwater flow and help to remove pollutants through the use of vegetated swales, water detention, landscape open space, gravel filters, or other typical measures. Runoff control would be designed to mimic natural conditions as much as possible and protect water quality while utilizing existing drainage structures.

Compliance with Phase II Small MS4 General Permit, as required by Chapter 30 of the City's Code, would ensure that the ARC Project would have a less-than-significant impact on long-term stormwater quality.

Mace Triangle Site

Any future development on the Ikeda's parcel and adjacent agricultural parcel, within the Mace Triangle Site, would increase the amount of impervious surfaces on the site. Additional sources of polluted runoff, or degradation of water quality associated with development at the Mace Triangle Site could be adverse. However, similar to the ARC Site, any development would be required to comply with the Phase II Small MS4 General Permit requirements, as codified in Chapter 30 of the City Code. Through the preparation of improvement and grading plans, these measures would be refined so that they will functionally minimize stormwater quality impacts. Consistency with the City of Davis stormwater treatment requirements will ensure that any future Mace Triangle Site projects would have a less-than-significant impact on long-term stormwater quality.

Conclusion

Development of the ARC Site and any future development at the Mace Triangle Site would increase impervious surfaces that could transport urban pollutants during storm events. However, all development will be required to comply with the City of Davis' stormwater treatment standards included in the Municipal Code. Such compliance would ensure that the ARC Project, similar to the MRIC Project, would have a ***less-than-significant*** impact on long-term stormwater quality during operations.

Mitigation Measure(s)
None required.

3-50 Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g, the production rate or preexisting nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted) (reference Impact 4.9-4).

Impacts related to groundwater supplies and groundwater recharge were determined to be less-than-significant for the MRIC Project. The ARC Project would likely install a new well for irrigation purposes, similar to the MRIC Project. Two existing irrigation wells are located on-site, which are utilized to irrigate crops on approximately 185 acres each year. Utilization of groundwater at the site to meet a portion of the ARC's irrigation demand would not be a new occurrence, which would be expected to lower the groundwater table and affect the production rate of preexisting wells. It should be noted that impacts related to groundwater supply are discussed in Impact 3-82. In short, the City's now relies heavily on surface water supplies, as would the ARC Project. Thus, the project would not substantially deplete groundwater supplies.

The ARC Project would involve an increase in impervious surfaces (e.g., buildings, parking areas, and internal roads) on the ARC Site, which would reduce the amount of natural soil surfaces available for the infiltration of rainfall and runoff to the underlying aquifer. However, the ARC Project would incorporate an agricultural buffer and several parks and green space areas throughout the site, totaling approximately 49.2 acres of parks and green space. Runoff from the developed portions of the ARC Project area would drain to the on-site detention areas and the MDC. In addition, a portion of the runoff from the ARC Site may be routed to an off-site detention area on a City-owned property. The aforementioned areas would provide an opportunity for groundwater recharge in the area.

Therefore, similar to the MRIC Project, impacts related to a substantial depletion of groundwater supplies or substantial interference with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level would be ***less than significant***.

Mitigation Measure(s)
None required.

3-51 Place structure within a 100-year flood hazard as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or flood hazard delineation map; or place within a 100-year floodplain structures which would impede or redirect flood flows; or expose people or structures to significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam (reference Impact 4.9-5).

ARC Project

Unlike the MRIC Project, the ARC Project includes development of housing on the site. However, the entire ARC Site is located in Zone X on the applicable FIRM (Panels 604, 610, 612, and 620 of 785). Zone X is not considered a FEMA Special Flood Hazard Area.[38] Zone X includes areas determined to be outside the 0.2 percent annual chance floodplain. Therefore, the entire ARC Site is not located within the regulatory floodplain, and the ARC Project would not place structures within a 100-year flood hazard area, place within a 100-year floodplain structures that would impede or redirect flood flows, or expose people or structures to a significant risk of loss, injury or death involving flooding.

In addition, implementation of Mitigation Measures 8-47(a) through 8-47(c) would ensure that the ARC Project would not result in induced off-site flooding in downstream areas. Furthermore, these downstream areas consist of farmland, and do not contain any habitable structures.

Mace Triangle

The Mace Triangle Site is located in Zone X (Panel 612 of 785). As noted above, Zone X includes areas determined to be outside the 0.2 percent annual chance floodplain. Thus, impacts related to placing structures within a 100-year flood hazard area would not occur associated with the Mace Triangle Site.

Conclusion

Based on the above discussions, similar to the MRIC Project, the ARC Project would not place structures within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or flood hazard delineation map, or place within a 100-year floodplain structures which would impede or redirect flood flows. Therefore, similar to the MRIC Project, impacts associated with the 100-year floodplain would be ***less than significant***.

Mitigation Measure(s)
None required.

3-52 Impacts related to conflicts, or creation of an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to hydrology and water quality (reference Impact 4.9-6).

Impacts related to conflicts with plans, policies, or regulations related to hydrology and water quality, as they pertain to the non-residential ARC uses, were evaluated for the MRIC Project in Section 4.9 and determined to be ***less than significant***. For the ARC Project, there are additional City of Davis housing policies and regulations that are applicable to the ARC residential component. These additional housing policies and regulations are evaluated in the appropriate sections of this equal-level analysis, namely, the Land Use and Urban Decay section (Impact 3-

[38] Watermark Engineering, Inc. *Drainage Study for Mace Ranch Innovation Center [Attachments 4-1, 4-2, 4-3, and 4-4]*. January 7, 2015.

55), and the Population and Housing section (Impact 3-63). The consistency discussion provided in Table 4.9-5 of the Certified Final EIR with respect to City hydrology and water quality policies remains applicable to the the ARC Project, as it generally pertains to water quality and flood protection through compliance with local and state regulations, which would be required for both MRIC and ARC.

Mitigation Measure(s)
None required.

Land Use and Urban Decay (reference Section 4.10 of the Certified Final EIR)

The impacts related to land use and urban decay as a result of buildout of the site per the ARC Project in comparison to that of the MRIC Project are presented below.

Changes in Circumstances

Since the release of the Certified Final EIR, the ARC Site has remained vacant and undeveloped. However, construction of a new hotel (Residence Inn) has begun to the southwest of the Mace Boulevard/2nd Street intersection. In addition, construction of a new office park located northwest of the Mace Boulevard and Alhambra Drive intersection has begun. The office park will include three office buildings with up to 2,000 sf of ancillary retail. Such new development has altered the land uses in the vicinity of the ARC Site, but would not be considered substantial changes with respect to the circumstances under which the project is undertaken, thus requiring major revisions of the previous EIR due to the involvement of new significant effects. In addition, the City of Davis is in the process of preparing a Downtown Davis Specific Plan. Although not yet adopted, the fiscal impact analysis for the Plan reflects the following net new development by 2040: 1,000 new residential units; 600,000 sf of commercial development, which is assumed to include 450,000 sf of office space and 150,000 sf of hotel space.

Changes in the Project

Relative to the MRIC Project and the Mixed-Use Alternative, the ARC Project would involve a slightly reduced development area due to the exclusion of the 25-acre City-owned property to the northwest of the ARC Site. Compared to the MRIC Project, the ARC Project would include an additional 850 residential units, and, thus, would be subject to additional policies and standards related to land use and planning. However, the ARC Project would include an equivalent amount of residential development as was previously evaluated in the Certified Final EIR for the Mixed-Use Alternative. Substantial changes in the project that would affect the analysis in the Certified Final EIR related to land use and urban decay have not occurred.

3-53 Physical division of an established community (reference Impact 4.10-1).

Impacts related to the physical division of an established community were determined to be less-than-significant for the MRIC Project. The ARC Site is located within Yolo County, just outside the eastern City limits of Davis. The ARC Project and potential future Mace Triangle development would result in development of predominately vacant land adjacent to urbanized areas of Davis to the west and south. As a result, similar to the MRIC Project, the ARC Project would not result in any division of an established community and a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

3-54 Economic and social change and/or effect that result in urban decay (reference Impact 4.10-2).

Impacts related to urban decay were determined to be less-than-significant with mitigation for the MRIC Project. ARC Project consists of buildout on the same site as the MRIC Project, excluding the 25-acre City-owned property. The ARC Project would consist of 2,654,000 sf of R&D, manufacturing, ancillary retail, and hotel/conference uses, as well as 850 residential units. The housing would consist of 570 multifamily units within multi-story buildings, as well as 280 single-family attached products. Therefore, the same potential to impact office, retail, and hotel uses in the Davis market would occur, as compared to the MRIC Project. Therefore, the office and industrial components of the ARC Project are not anticipated to cause adverse physical impacts leading to urban decay, despite the anticipated potential of some prolonged existing office and industrial base vacancies. While time has passed since the Urban Decay analysis was performed for the Mace Ranch Innovation Center by ALH Urban & Regional Economics, the original findings regarding the effects of the proposed office and industrial space are reasonably anticipated to remain applicable.

As discussed in the EIR (pg. 4.10-32), given the long time horizon associated with project buildout, there is no knowing how many tenants and the associated amount of additional existing space that could be at risk of potential innovation type space relocation. In all likelihood it would be confined to the City's existing innovation sector tenants, as these are the type of tenants to which the project R&D/technology-oriented uses will be targeted. As noted, these tenants are estimated to occupy about 506,600 sf of the existing Davis office and industrial base.[39] Excluded are Expression Systems and DMG/Mori, given the likelihood that these businesses may be less likely to relocate because of the customization of their space to meet their specific needs.[40] As was the case during the original urban decay analysis, though now for different reasons,[41] the expectation is that FMC/Schilling Robotics would vacate 120,000 sf, leaving another 386,600 sf of innovation tenant space. If tenants comprising one-half this remaining balance were to relocate, this would result in 313,300 sf becoming vacant (i.e., 120,000 sf for FMC/Schilling Robotics and ½ the 386,800-sf balance).

It should be noted that the Urban Decay analysis assumed buildout of both the Nishi Gateway Project and the Davis Innovation Center Project, which were anticipated to include non-residential uses. Since certification of the Final MRIC EIR, Nishi Gateway was revised to eliminate the non-residential components, and the Davis Innovation Center Project has been withdrawn; thus, the Urban Decay analysis generally overestimates the amount of vacant retail space that will be available within the City. While a portion of that retail space may be offset by the potential retail space included in the forthcoming Downtown Davis Specific Plan, the overall conclusions presented within the analysis are generally conservative.

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[39] This estimate is based upon innovation-based employment in Davis in 2008, which equated to 1,427. Translating this into the amount of square feet was done using a metric of 355 square feet of space per worker, using Business Park Land Strategy data (see ALH Urban & Regional Economics. *Mace Ranch Innovation Center Urban Decay Analysis*. March 2015, pg. 18).

[40] ALH Urban & Regional Economics. *Mace Ranch Innovation Center Urban Decay Analysis*. March 2015, pg. 20.

[41] See https://www.dailydemocrat.com/2020/02/07/west-sacramento-welcomes-new-businesses/; accessed February 15, 2020.

Accounting for the additional demand for vacated office and industrial space that may result from related SACOG-projected job growth between 2008 and 2035 (1,617 new jobs in Davis), ALH concluded there may yet be vacant space in 2035 (see Table 4.10-3 of the EIR). Based on the illustrative 313,300 sf increase in vacancy due to relocated innovation sector businesses, this would leave a balance of 151,575 sf of vacant office and industrial space. ALH's 2015 Urban Decay Analysis accounted for the demand for the project's use types by accounting for related job growth through 2035. This, coupled with consideration that substantial new R&D/office type buildings have not been developed in Davis since the 2015 ALH analysis, render the 2015 findings applicable to the present time.

ALH Economics concluded that the illustrative analysis suggests that regardless of the amount of space, some increment of existing office and industrial space is at risk of sustained vacancy following development of the ARC Project. The vacancies would remain sustained until such time as yet additional demand was generated due to economic growth and expansion. Numerous market factors could likely boost this demand potential, including the attraction of larger increments of office and industrial space and the draw of the City of Davis to businesses located in other regional locations like Woodland and West Sacramento that would prefer a Davis location.

The regulatory controls suggest existing City of Davis measures to avoid the onset of deterioration or decay are effective with regard to these types of land uses. In addition, innovation space is not subject to the same anchor tenant/small tenant forces to which retail space is subject, whereby small tenants can be greatly affected by larger anchor tenants going out of business. Moreover, many of the office and industrial properties in Davis are owned by major institutional and private real estate companies, with the financial wherewithal to provide them with the option of withstanding prolonged vacancy and funding the maintenance necessary for upkeep even during times of vacancy. Therefore, the potential for properties to be well-maintained during periods of prolonged vacancy exists. ALH Economics therefore concludes that the office and industrial components of the project are not anticipated to cause adverse physical impacts leading to urban decay, despite the anticipated potential of some prolonged existing office and industrial base vacancies.

With respect to the proposed hotel, ALH's analysis determined that sufficient demand was anticipated to exist in the City of Davis to support the ARC Project's 150-room hotel along with the existing hotels. Notably, since ALH's analysis was prepared, a new 120-room hotel (Residence Inn) has been constructed proximate to the project site, southwest of the intersection of Mace Boulevard/2nd Street. In addition, the Downtown Davis Specific Plan currently being prepared includes the potential for an additional 150,000 sf of hotel space, which could accommodate 150 rooms. While this is a change in circumstances, the Certified Final EIR, through mitigation, prohibits the applicant from building the on-site hotel until the applicant demonstrates to the City's satisfaction that there is sufficient unmet demand from a combination of hotel demand from ARC Project employees and businesses and/or hotel demand from elsewhere within the Davis marketplace to support the hotel space for which the building permit is requested.

The objective of this requirement is to ensure that the hotel developed within the ARC will not re-allocate demand from existing Davis hotels, but will instead help the City to provide new hotel

offerings that will satisfy currently unmet demand. This will ensure that the project's hotel would not lead to urban decay.[42]

Furthermore, the ARC Project's planned retail component would not cause or contribute to urban decay, as existing retailers are not anticipated to close as a result of the ARC Project. The BAE *Economic Evaluation of Innovation Park Proposals* (2015) generally concluded that there would be more than sufficient internal demand to support the project's ancillary retail space by buildout. In addition, the on-site residents resulting from the residential portion of the ARC Project would provide additional demand for the on-site retail space. However, the BAE study suggested that it would be reasonable for the City of Davis to establish phasing controls for the retail space to ensure that the new retail space being developed does not outpace the increase in employee demand for daytime retail, dining, and services, and therefore not divert sales from existing Davis retail establishments. As a result, the EIR, through mitigation, requires that, in conjunction with submittal of any final planned development for the ARC Project that includes ancillary retail uses, an analysis shall be submitted to the City, which shall demonstrate that the proposed ancillary retail development will not exceed the anticipated demand increase from new employees. If the analysis cannot demonstrate that the proposed amount of ancillary retail space will not outpace employee-generated demand, then the ancillary retail uses shall be removed from the final planned development, or scaled back to be commensurate with the projected employee-generated demand. This will ensure that the project's ancillary retail space would not lead to urban decay.

As a result, similar to the MRIC Project, impacts related to urban decay under the ARC Project would be ***less-than-significant*** with mitigation.

Mitigation Measure(s)

ARC Project

3-54(a) *In conjunction with submittal of any final planned development for the ARC Project that includes ancillary retail uses, an analysis shall be submitted to the City of Davis Department of Community Development and Sustainability, which shall demonstrate that the proposed ancillary retail development will not exceed the anticipated demand increase from new employees. The demonstration to the City may be premised upon the number of employees (and/or residents) on-site, the commercial (and/or residential) square footage developed, or other factors*

[42] It is useful to focus on what constitutes the *environmental* impact known as urban decay. In *Bakersfield Citizens for Local Control v. City of Bakersfield*, the court described the phenomenon as "a chain reaction of store closures and long-term vacancies, ultimately destroying existing neighborhoods and leaving decaying shells in their wake." The court also discussed prior case law that addressed the potential for large retail projects to cause "physical deterioration of [a] downtown area" or "a general deterioration of [a] downtown area." (Id. at pp. 1206, 1207). When looking at the phenomenon of urban decay, it is also helpful to note economic impacts that do not constitute urban decay. For example, a vacant building is not urban decay, even if the building were to be vacant over a relatively long time. Similarly, in the context of retail development, even a number of empty storefronts would not constitute urban decay. Based on the above description regarding urban decay, therefore, ALH Economics' analysis examined whether there was sufficient market demand to support the ARC's various land use components without affecting existing retailers or other businesses so severely such as to lead to a downward spiral toward decay of the existing physical environment.

relevant to the generation of on-site demand. If the analysis cannot demonstrate that the proposed amount of ancillary retail space will not outpace employee-generated demand, then the ancillary retail uses shall be removed from the final planned development, or scaled back to be commensurate with the projected employee-generated demand.

3-54(b) *Prior to building permit issuance for the proposed hotel, the applicant shall demonstrate to the City's satisfaction that there is sufficient unmet demand from a combination of hotel demand from ARC Project employees and businesses and/or hotel demand from elsewhere within the Davis marketplace to support the hotel space for which the building permit is requested. The objective of this requirement is to ensure that the hotel developed within the ARC Project will not re-allocate demand from existing Davis hotels, but will instead help the City to provide new hotel offerings that will satisfy currently unmet demand.*

Mace Triangle

None required.

3-55 Conflict, or create an inconsistency, with any applicable land use and urban decay plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect (reference Impact 4.10-3).

Impacts related to conflicts with plans, policies, or regulations related to land use and urban decay, as they pertain to the ARC Project's non-residential uses, were evaluated for the MRIC Project in Section 4.10 and determined to be ***less than significant***. For the ARC Project, there are additional City of Davis housing policies and regulations that are applicable to the ARC Project residential component. These additional housing policies and regulations are, in some cases, applicable to land use. Therefore, Table 3-23 has been included in order to analyze these applicable policies, or regulations.

Table 3-23
Applicable Land Use Plan, Policy, or Regulation Consistency Discussion

Plan, Policy, or Regulation		Project Consistency
Policy LU A.2	A minimum of 50% of future residential lots (exclusive of any required affordable or multifamily lots) within a new residential development of 50 single-family lots or more shall be designated as "diverse architecture lots" (DAL). These lots shall be designated as part of the project zoning and on the tentative and final maps. Houses built on DAL lots may not be of the same stock plan nor have a floor plan and front elevation substantially similar to	The ARC Project includes up to a maximum of 850 residential, workforce housing units. The housing for this project does not include detached single-family housing and is not anticipated to be subject to this policy.

Table 3-23
Applicable Land Use Plan, Policy, or Regulation Consistency Discussion

Plan, Policy, or Regulation		Project Consistency
	any other house within the same final map area. All residential lots not designated as DALs, including any required single-family affordable housing lots and lots within new developments of 50 units or less, shall comply with the City's new site design standards, to be developed under Action UD 5.1e.	
Policy LU A.3	Require a mix of housing types, densities, prices and rents, and designs in each new development area.	The ARC Project includes up to a maximum of 850 residential units, including 570 multi-family units and 280 single-family attached units, intended for workforce housing, with an average density at or above 30 du/ac. Therefore, the project includes a mix of housing types, densities, and sizes. The mix of housing types, densities, and sizes would also correlate to a variety of prices and rents. For example, smaller units would likely have lower prices or rents, while larger units would likely have higher prices or rents. The project would be developed as a Planned Development, as provided by Article 40.22 of the City of Davis Municipal Code. Project-specific design guidelines and development standards would be developed and must be approved by the City of Davis, prior to the construction of any buildings on the site.
Policy LU A.4	Allow home occupations, home offices and live/work uses by right where appropriate provided that the home occupation is compatible with the surrounding neighborhoods and does not cause significant negative impacts on the surrounding neighborhoods.	The ARC Project would provide up to a maximum of 850 residential units intended for the ARC Project employees. Future home occupations, home offices and live/work uses could be permitted on the ARC Site. Any potential home occupations would be subject to Davis Municipal Code Section 40.26.150, Home Occupations. The purpose of the home occupations provisions is to permit the conduct of a business in residential districts and residential uses in

Table 3-23
Applicable Land Use Plan, Policy, or Regulation Consistency Discussion

Plan, Policy, or Regulation		Project Consistency
		other districts, and is limited to those uses which may be conducted within a residential dwelling without in any way changing the appearance or conditions of the residence and neighborhood.
Policy LU A.5	Require neighborhood greenbelts in all new residential development areas. Require that a minimum of 10 percent of newly-developing residential land be designated for use as open space primarily for neighborhood greenbelts.	The ARC Project includes parks, gathering area, and green spaces. See Figure 3-5 for the size and types of green spaces. In total, the ARC Project includes 49.8 acres of parks, gathering area, and green spaces. The acreage includes approximately 22.6 acres of agricultural buffer area along the perimeter of the ARC Site. Therefore, over 10 percent of the ARC Site would be designated for use as open space.
Policy LU A.6	A maximum of three acres of commercial uses may be permitted within an area with residential designation on the map provided that it is compatible with the surrounding neighborhood and that it does not cause significant negative impacts.	The ARC Site would not have a residential designation, per se, though residential uses will be permitted. The ARC Project would include ancillary commercial uses to support the needs of the on-site employees.

As demonstrated in Table 3-23, the ARC Project is generally consistent with applicable land use plans, policies, or regulations. Therefore, similar to the MRIC Project, impacts related to conflicting, or creating an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to land use would be ***less than significant***.

Mitigation Measure(s)
None required.

Noise and Vibration (reference Section 4.11 of the Certified Final EIR)

The impacts related to noise and vibration as a result of buildout of the site per the ARC Project in comparison to that of the MRIC Project are presented below.

Changes in Circumstances

As a result of ongoing growth and development within the City of Davis, traffic noise along Mace Boulevard and other roadways in the vicinity of the ARC Site has increased since the release of the Certified Final EIR. Changes to the ambient noise environment in the ARC Site vicinity have been analyzed in a technical memorandum (Noise Memo) prepared for the proposed project by Saxelby Acoustics, which is included as Appendix E to this SEIR.[43]

Changes in the Project

Relative to the MRIC Project, the ARC Project would include an additional 850 residential units. As a result of the increased development intensity, the ARC Project would have a greater potential to generate noise during construction activities. In addition, due to the increased vehicle trip generation resulting from the 850 units and the changes in the trip generation methodology outlined in the Transportation and Circulation discussion further below, the ARC Project could result in increased traffic noise. However, the amount of residential and non-residential development included in the ARC Project is equivalent to what was analyzed for the Mixed-Use Alternative.

3-56 A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without project (reference Impact 4.11-1).

Impacts related to a temporary or periodic increase in ambient noise levels were determined to be less-than-significant for the MRIC Project. Because the ARC Project would involve buildout over a slightly reduced development footprint, due to the exclusion of most of the 25-acre City-owned property from development, the overall area of disturbance for development of the ARC Project would be reduced compared to that of the MRIC Project. During the construction of the ARC Project, including roads, water and sewer lines, and related infrastructure, noise from construction activities would temporarily add to the noise environment in the project vicinity. As shown in Table 3-24, activities involved in construction would generate maximum noise levels ranging from 76 to 90 decibels (dB) at a distance of 50 feet.

Phase 1 is anticipated to consist of building on approximately 45 acres in the western portion of the site, and would include 540,000 sf of non-residential building space and up to 270 residential units comprised of single-family attached and multi-family housing types. Phase 2 is projected to include 700,000 sf of commercial space, including the proposed hotel/conference center, various research/office/R&D proximate to the Oval park, and additional ancillary retail space. In addition, Phase 2 includes the construction of up to 350 housing units. Phase 3 would include an additional

[43] Saxelby Acoustics. *Traffic noise review for the Aggie Research Campus project– City of Davis, California.* February 12, 2020.

700,000 sf of building space, comprised of research/office/R&D and manufacturing/research uses, and the final 230 housing units. Phase 3 completes improvements to the MDC and the campus's core area, and establishment of the North-South Commons. Concurrent with the MDC improvements, Phase 3 finalizes the East/West Greenway and adds a second park along the eastern boundary of the site. Phase 4 consists of the northerly portion of the ARC Site and is projected to include approximately 714,000 sf of manufacturing and research/office/R&D uses. At the completion of Phase 4, the site will include up to 2,654,000 sf of non-residential uses and up to 850 units of workforce housing.

Table 3-24
Construction Equipment Noise

Type of Equipment	Maximum Level (dB) at 50 feet
Auger Drill Rig	84
Backhoe	78
Compactor	83
Compressor (air)	78
Concrete Saw	90
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Jackhammer	89
Pneumatic Tools	85

Source: Roadway Construction Noise Model User's Guide. Federal Highway Administration. FHWA-HEP-05-054. January 2006.

Activities involved in project construction would typically generate maximum noise levels ranging from 85 to 90 dB at a distance of 50 feet. The University Covenant Church is the nearest sensitive receptor and is located approximately 150 feet west of the ARC Site. Assuming a worst-case scenario where construction activities were to occur at this distance, maximum construction noise levels would be 75 to 80 dB L_{max}. However, the majority of construction activity on the ARC Site would occur at distances much greater than 150 feet. Construction activity occurring in the center of the ARC Site would be located approximately 1,500 feet from the church. At this distance, construction noise levels would be approximately 55 to 60 dB L_{max}. In addition, outdoor use areas at the church are located on the west side of the church building. Therefore, the additional distance and building shielding would provide an additional 5 dB of noise reduction to these outdoor use areas. Noise levels at outdoor use areas would be approximately 50 to 55 dB.

The nearest existing residential receptors would be located 650 feet or more from on-site construction activities. At this distance, construction-related activities are predicted to generate maximum noise levels ranging between 63 to 68 dB L_{max}. Off-site construction of sewer lines (northerly sewer alternative) could occur within approximately 60 to 80 feet of the existing rural residential receptor located north of the ARC Site. At this distance, temporary construction-related activities are predicted to generate maximum noise levels ranging between 81 to 86 dB L_{max}. While on-site construction activity after the first phase of development may occur near occupied buildings or developed open spaces on the ARC Site, noise effects on such on-site structures from

construction elsewhere on the ARC Site would be similar to those already identified above for nearby sensitive receptors, and is not an issue within the purview of CEQA, which is focused on the project's effects on the surrounding environment.

Mace Triangle Site

Development of the Mace Triangle Site is not proposed as part of the ARC Project. However, future development of the Mace Triangle Site would temporarily add to the noise environment in the project vicinity. As shown in Table 3-24, activities involved in construction would generate maximum noise levels ranging from 76 to 90 dB at a distance of 50 feet.

The nearest residential receptors would be located 700 feet or more from construction activities on the Mace Triangle Site. At this distance, construction related activities are predicted to generate maximum noise levels ranging between 57 to 62 dB L_{max}.

Compliance with Existing Law

The Davis Municipal Code makes exemptions for certain typical activities which may occur within the City. The exemptions are listed in Article 24.02.040, Special Provisions, and are summarized below:

a) Normal operation of power tools for non-commercial purposes are typically exempted between the hours of 8 AM and 8 PM unless the operation unreasonably disturbs the peace and quiet of any neighborhood.
b) Construction or landscape operations would be exempt during the hours of 7 AM to 7 PM Mondays through Fridays and between the hours of 8 AM to 8 PM Saturdays and Sundays assuming that the operations are authorized by valid city permit or business license, or carried out by employees or contractors of the city and one of the following conditions apply:
    (1) No individual piece of equipment shall produce a noise level exceeding eighty-three dBA at a distance of twenty-five feet. If the device is housed within a structure on the property, the measurement shall be made outside the structure at a distance as close to twenty feet from the equipment as possible.
    (2) The noise level at any point outside of the property plane of the project shall not exceed eighty-six dBA.
    (3) The provisions of subdivisions (1) and (2) of this subsection shall not be applicable to impact tools and equipment; provided, that such impact tools and equipment shall have intake and exhaust mufflers recommended by manufacturers thereof and approved by the director of public works as best accomplishing maximum noise attenuation, and that pavement breakers and jackhammers shall also be equipped with acoustically attenuating shields or shrouds recommended by the manufacturers thereof and approved by the director of public works as best accomplishing maximum noise attenuation. In the absence of manufacturer's recommendations, the director of public works may prescribe such means of accomplishing maximum noise attenuation as he or she may determine to be in the public interest.

Construction projects located more than two hundred feet from existing homes may request a special use permit to begin work at 6:00 AM on weekdays from June 15th until September 1st. No percussion type tools (such as ramsets or jackhammers) can be used before 7:00 AM. The permit shall be revoked if any noise complaint is received by the police department.

(4) No individual powered blower shall produce a noise level exceeding seventy dBA measured at a distance of fifty feet.

(5) No powered blower shall be operated within one hundred feet radius of another powered blower simultaneously.

(6) On single-family residential property, the seventy dBA at fifty feet restriction shall not apply if operated for less than ten minutes per occurrence.

c) The City Code also exempts air conditioners, pool pumps, and similar equipment from the noise regulations, provided that they are in good working order.
d) Work related to public health and safety is exempt from the noise requirements.
e) Safety devices are exempt from the noise requirements.
f) Emergencies are exempt from the noise requirements.

Given the requirement for the ARC Project and potential future Mace Triangle development to comply with existing law, the ARC Project's construction noise impacts would be less-than-significant.

Conclusion

Construction would result in periods of elevated ambient noise levels and the potential for annoyance. However, the City of Davis Noise Ordinance establishes allowable hours of operation and noise limits for construction activities. Because construction activities are required to comply with the City's Noise Ordinance, phased construction of the ARC Project, similar to the MRIC Project, would result in a ***less-than-significant*** impact.

Mitigation Measure(s)
None required.

3-57 Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels (reference Impact 4.11-2).

ARC Project

The Certified Final EIR concluded that impacts related to exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels would be less than significant. The primary vibration-generating activities associated with the proposed project would occur during construction when activities such as grading, utilities placement, and parking lot construction occur. As discussed above, construction of the ARC Project would occur over a slightly reduced area of disturbance compared to the MRIC Project.

The primary vibration-generating activities associated with the ARC Project would occur during construction when activities such as grading, utilities placement, and parking lot construction occur. Sensitive receptors which could be impacted by construction-related vibrations, especially vibratory compactors/rollers, are located approximately 150 to 650 feet, or further, from the ARC Site. Off-site sewer improvements could be as close as 60 to 80 feet from an existing residential use (northerly sewer alternative). At the aforementioned distances, construction vibrations are not predicted to exceed acceptable levels. In addition, construction activities would be temporary in nature and would likely occur during normal daytime working hours.

Construction vibration impacts include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural. Table 3-25 shows the typical vibration levels produced by construction equipment.

The Table 3-25 data indicate that construction vibration levels anticipated for the ARC Project are less than the 0.2 inches per second peak particle velocity (in/sec p.p.v.) threshold of damage to buildings and less than the 0.1 in/sec threshold of annoyance criteria at distances of 50 feet. Therefore, construction vibrations are not predicted to cause damage to existing buildings or cause annoyance to sensitive receptors.

Table 3-25
Vibration Levels for Various Construction Equipment

Type of Equipment	Peak Particle Velocity @ 25 feet	Type of Equipment	Peak Particle Velocity @ 25 feet
Large Bulldozer	0.089	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Small Bulldozer	0.003	0.001	0.000
Auger/drill Rigs	0.089	0.031	0.011
Jackhammer	0.035	0.012	0.004
Vibratory Hammer	0.070	0.025	0.009
Vibratory Compactor/roller	0.210	0.074	0.026

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidelines, May 2006.

Mace Triangle

Development of the Mace Triangle Site is not proposed as part of the ARC Project. The City of Davis has included the Mace Triangle Site within the overall project boundaries to allow the continuation of existing uses, while recognizing, and evaluating in the SEIR, the potential for additional urban development on the Ikeda's parcel and adjacent agricultural parcel. However, future development of the Mace Triangle Site would temporarily generate construction vibration in the vicinity of the site. As shown in Table 3-25, anticipated construction vibration levels are less than the 0.2 in/sec p.p.v. threshold of damage to buildings and less than the 0.1 in/sec threshold of annoyance criteria at distances of 50 feet. Therefore, future construction vibrations associated with the Mace Triangle Site are not predicted to cause damage to existing buildings or cause annoyance to sensitive receptors.

Conclusion

Impacts related to excessive groundborne vibration were determined to be less-than-significant for the ARC Project. Because construction vibrations are not predicted to cause damage to existing buildings or cause annoyance to sensitive receptors, implementation of the ARC Project would not expose persons to or generate excessive groundborne vibration or groundborne noise levels. Therefore, potential impacts related to construction vibration would, similar to the MRIC Project, be considered ***less than significant***.

Mitigation Measure(s)
None required.

3-58 Transportation noise impacts to existing sensitive receptors in the project vicinity (reference Impact 4.11-3).

Impacts related to transportation noise levels at existing sensitive receptors were determined to be less-than-significant for the MRIC Project. Specifically, the Certified Final EIR concluded that the MRIC Project would not result in new exceedances of the City's 60 dB L_{dn} threshold or cause a substantial noise level increase relative to traffic noise levels occurring without the MRIC Project. Vehicle trips associated with operation of the ARC Project would result in changes to traffic on the existing roadway network within the project vicinity. As a result, ARC Project buildout would cause an increase in traffic noise levels on local roadways. To assess noise impacts due to project-related traffic increases on the existing local roadway network, noise levels have been calculated for both the Existing and Existing Plus ARC Project traffic conditions. Project trip generation volumes were provided by the project traffic engineer (Fehr & Peers, February 2020); truck usage and vehicle speeds on the local area roadways were estimated from field observations.

The test of significance for increases in off-site traffic noise is two-fold. First, traffic noise levels are reviewed to see if the ARC Project's contribution to traffic noise would exceed the Federal Interagency Committee on Noise (FICON) levels identified in Table 4.11-9 of Section 4.11, Noise and Vibration, of the Certified Final EIR. If the ARC Project's incremental increase in traffic noise levels along surrounding roadways would exceed the FICON criteria, the ARC Project would be considered to have a significant noise impact along that roadway segment.

The second part of the significance test would be applied if the ARC Project does not result in the traffic noise level increases shown in Table 4.11-9 of Section 4.11 (i.e., the ARC Project does not exceed the FICON criteria). In this case, each roadway segment is assessed to determine whether the ARC Project's traffic noise contribution would cause any receptors along the roadway to be exposed to exterior noise levels exceeding the City's General Plan Noise Element standards. Specifically, Noise Element Policy 1.1-c requires the following:

With respect to the first part of the test of significance, Table 3-26 demonstrates that the criteria would not be exceeded as a result of project traffic. As shown in Table 3-26, the largest increase in transportation noise levels from the ARC Project would be 1.6 dB on Covell Boulevard from Alhambra to Harper Junior High School, less than the 3 dB changes significance criteria for that location.

Table 3-26
Existing and Existing Plus ARC Project Traffic Noise Levels

Roadway	Segment	Noise Levels (L_{dn}, dB) at Outdoor Activity Areas of Nearest Sensitive Receptors				
		Existing	Existing + ARC Project	Change	Significance Criteria[1]	Significant? (Y/N)
Alhambra	South of Covell	51.9	52.0	0.1	+5 dB or > 60 dB	No
Alhambra	West of Mace	54.0	55.5	1.5	+5 dB or > 60 dB	No
Covell Blvd.	L to Pole Line	63.2	63.9	0.7	+3 dB	No
Covell Blvd.	Pole Line to Birch	62.8	64.1	1.3	+3 dB	No
Covell Blvd.	Birch to Baywood	62.4	63.7	1.3	+3 dB	No
Covell Blvd.	Baywood to Manzanita	62.6	63.9	1.3	+3 dB	No
Covell Blvd.	Manzanita to Wright	60.1	61.5	1.4	+3 dB	No
Covell Blvd.	Wright to Monarch	60.4	61.8	1.4	+3 dB	No
Covell Blvd.	Monarch to Alhambra	61.8	63.2	1.4	+3 dB	No
Covell Blvd.	Alhambra to Harper JR HS	61.0	62.6	1.6	+3 dB	No
Cowell Blvd	Drummond to Mace	58.9	59.1	0.2	+5 dB or > 60 dB	No
Cowell Blvd	East of Mace	56.9	57.0	0.1	+5 dB or > 60 dB	No
Mace Blvd.	Harper JR HS to Alhambra	51.0	52.4	1.4	+5 dB or > 60 dB	No
Mace Blvd.	Alhambra to 2nd	63.0	64.4	1.4	+3 dB	No
Mace Blvd.	Chiles to Cowell	53.9	54.2	0.3	+5 dB or > 60 dB	No
Mace Blvd.	Cowell to El Macero	61.3	61.5	0.2	+3 dB	No
Mace Blvd.	South of El Macero	60.2	60.4	0.1	+3 dB	No
Pole Line Road	North of Covell	66.3	66.7	0.4	+1.5 dB	No
Pole Line Road	Covell to Claremont	60.9	61.0	0.0	+3 dB	No

Note:
[1] Where existing noise levels are less than 60 dB an increase of 5 dB would be a significant increase. Additionally, any increase causing noise levels to exceed the City's Normally Acceptable 60 dB L_{dn} noise level standard at an existing outdoor activity area of a residential use would also be significant. Where existing noise levels exceed 60 dB but are less than 65 dB, an increase of 3 dB or more would be significant. Where existing noise levels exceed 65 dB, an increase of 1.5 dB or more would be significant.

Source: Saxelby Acoustics, Inc., 2020.

The project-related increases in transportation noise levels would be less than the FICON criteria outlined in the table. Some noise-sensitive receptors located along the project-area roadways are currently exposed to exterior traffic noise levels exceeding the City of Davis 60 dB L_{dn} exterior noise level standard for residential uses. The receptors would continue to experience elevated exterior noise levels with implementation of the ARC Project; however, under Existing Plus ARC Project conditions, the ARC Project's contribution to traffic noise increases is predicted to be 1.6 dB, or less. For example, sensitive receptors located adjacent to Covell Boulevard from Pole Line Road to Birch Lane currently experience an exterior noise level of approximately 62.8 dB L_{dn}, which exceeds the City's Normally Acceptable exterior noise level standard of 60 dB L_{dn}. Under Existing Plus ARC Project conditions, exterior traffic noise levels are predicted to be approximately 64.1 dB L_{dn}, which would still exceed the City's Normally Acceptable exterior noise level standard of 60 dB L_{dn}. However, the project's contribution of 1.3 dB would not exceed the FICON criteria of 3.0 dB where existing noise levels are between 60 and 65 dB. Therefore, transportation noise levels would have a less-than-significant impact at sensitive receptors located adjacent to Covell Boulevard from Pole Line Road to Birch Lane.

With respect to the second part of the test of significance, the ARC Project is not predicted to cause increases in existing traffic noise levels which would trigger a new exceedance of the City of Davis' 60 dB L_{dn} exterior noise level standard at sensitive receptor locations. Therefore, traffic-related noise increases attributable to project-related vehicles would, similar to the MRIC Project, result in ***less-than-significant*** impacts to existing sensitive receptors along nearby roadways.

Mitigation Measure(s)
None required.

3-59 Transportation noise impacts to new sensitive receptors in the project vicinity (reference Impact 4.11-4).

Impacts related to transportation noise at new sensitive receptors were determined to be less-than-significant with mitigation for the MRIC Project. Subsequent to the release of the Certified Final EIR, case law has established that impacts of the environment on a project (as opposed to impacts of a project on the environment) are beyond the scope of required CEQA review. "[T]he purpose of an EIR is to identify the significant effects of a project on the environment, not the significant effects of the environment on the project." (*Ballona Wetlands Land Trust v. City of Los Angeles,* (2011) 201 Cal.App.4th 455, 473 (*Ballona*).) The impacts evaluated in the Certified Final EIR relate both to noise that may be caused by the MRIC Project (e.g. construction noise and operational traffic added to surrounding streets) as well as effects of existing environmental noise sources on future users of the MRIC Project (e.g. background traffic on surrounding streets). The California Supreme Court recently held that "CEQA does not generally require an agency to consider the effects of existing environmental conditions on a proposed project's future users or residents. What CEQA does mandate… is an analysis of how a project might exacerbate existing environmental hazards." (*California Building Industry Assn. v. Bay Area Air Quality Management Dist.* (2015) 62 Cal.4th 369, 392; see also *Mission Bay Alliance v. Office of Community Investment & Infrastructure* (2016) 6 Cal.App.5th 160, 197 ["identifying the effects on the project and its users of locating the project in a particular environmental setting is neither consistent with CEQA's legislative purpose nor required by the CEQA statutes"], quoting *Ballona*, *supra*, 201 Cal.App.4th

at p. 474.) Therefore, for the purposes of the CEQA analysis, the relevant inquiry is not whether the proposed project's future users or residents will be exposed to preexisting environmental noise-related hazards, but instead whether project-generated noise will exacerbate the pre-existing conditions.

Based on the above, analysis of transportation noise impacts to new sensitive receptors introduced by the ARC Project is no longer required under CEQA. However, it is important to note that the City will require submittal of an acoustical analysis in conjunction with the submittal of each final planned development and/or tentative map, which will model the predicted future traffic noise levels at the proposed development area to evaluate whether predicted transportation noise levels (traffic and train) would exceed the City of Davis' exterior and interior noise level criteria at such use areas and determine consistency with General Plan noise standards. If the City's noise level criteria would be exceeded, the acoustical analysis will include a detailed list of any noise attenuation measures needed for the proposed uses to comply with the City's exterior and interior noise level standards, for review and approval by the Department of Community Development and Sustainability.

Mitigation Measure(s)
None required.

3-60 Operational noise (reference Impact 4.11-5).

Impacts related to operational noise were determined to be less-than-significant for the MRIC Project. Operational noise sources generated from the implementation of the ARC Project in addition to the existing ambient noise could potentially affect the noise-sensitive receptors located in the project vicinity. Specifically, parking lot activities, Heating, Ventilation, and Air-Conditioning (HVAC) units, and outdoor events at the Oval park are noise sources that could exceed the City of Davis's exterior noise level standards.

ARC Project

Potential sources of operational noise resulting from development of the ARC Project include commercial and office land uses, mechanical equipment, parking lots, and the Oval park.

Commercial and Office Land Uses

Commercial and office land use activities can produce noise levels which affect adjacent sensitive land uses. The noise sources can be continuous and may contain tonal components which may be annoying to individuals who live in the nearby vicinity. In addition, noise generation from fixed noise sources may vary based upon climatic conditions, time of day and existing ambient noise levels. The primary noise sources generally include HVAC equipment operation and parking lot use.

Mechanical Equipment

HVAC equipment can be a primary noise source associated with commercial or office uses. The types of equipment are often mounted on roof tops, located on the ground, or located within mechanical rooms. The noise sources can take the form of fans, pumps, air compressors, chillers, or cooling towers. Noise levels from these types of equipment can vary significantly and generally range between 45 dB to 70 dB at a distance of 50 feet. Shielding from rooftop parapets substantially reduces noise from these types of equipment.

Based upon measurements conducted at various commercial and retail facilities, HVAC mechanical equipment is not expected to generate noise levels exceeding 45 to 50 dB L_{eq} at distances beyond 50 feet from building facades. The nearest residential property lines would be located approximately 800 feet or more from the nearest building façades. At this distance, HVAC noise from the ARC Project would be approximately 20 to 25 dBA L_{eq}, or less. The aforementioned noise levels would be well below the City's Noise Ordinance limit of 50 dBA L_{eq} during nighttime hours.

Parking Lots

Parking lot noise typically includes periods of conversation, doors slamming, engines starting and stopping and vehicle passage. j.c. brennan & associates, Inc. file data for parking lot activities was used to model the parking lot noise environment for the ARC Site. An average SEL of 71 dB at a distance of 50 feet is typical for a passenger vehicle arrival and departure in a parking lot.

It should be noted that parking lot activity would be spread across the entire project site, and would not be concentrated in any one specific area. Therefore, to determine parking lot noise generation at the nearest off-site residential sensitive receptors, the total noise generation of 71 dBA L_{eq} at 50 feet is adjusted based upon the distance from the center of the ARC Site to the nearest residential receptors. The center of the project site to the nearest residential receptors ranges from approximately 1,550 to 2,050 feet. Based upon these distances, parking lot noise levels would range between 39 to 41 dBA L_{eq} at the nearest receivers. If the noise generation was further adjusted based upon the distance from the westernmost proposed parking area to the nearest residential receptors, or approximately 900 feet, parking lot noise levels would be approximately 46 dBA L_{eq} at the nearest receivers. The aforementioned noise levels would be well below the City's Noise Ordinance limit of 55 dBA L_{eq} during daytime hours.

The Oval

The Oval park area would be privately maintained but made available for public uses. Other than general use by employees within the ARC Project, and some use by the public, periodic concerts may be scheduled by on-site businesses who would

like to host events. Certain events are exempted by the City of Davis (Municipal Code Section 24.04.070) when approved through a registration process by the City. The process is outlined in Section 21.04.040 of the City's Municipal Code.

It should be noted that special events that require amplified noise may be allowed on-site. Any amplified sound at an event with more than 100 people in attendance is required to obtain a Sound (Noise) Permit from the Davis Police Department prior to the noise event. Should the Permit be approved by the Police Department, the noise event would be subject to the noise requirements and other limitations in order to ensure interior noise levels at nearby receptors are below acceptable levels.

Mace Triangle

Based upon the General Commercial land use designation proposed for the Ikeda's parcel and the easternmost agricultural parcel, the City has identified a future development potential for these parcels consisting of approximately 45,901 sf of research/office/R&D, and 25,155 sf of ancillary retail. At this time, a specific development plan has not been proposed for the Mace Triangle Site. Based upon the proposed General Plan designation for the Mace Triangle Site, the types of uses are expected to be similar to the ARC Site. Therefore, noise generation from future similar uses would be similar to the ARC Project. Based upon the analysis presented above, noise levels from project operations are likely to be in the range of 20 to 40 dBA L_{eq} at the nearest receivers. The aforementioned noise levels would be well below the City's noise ordinance limit of 55 dBA L_{eq} during daytime hours.

Conclusion

As discussed above, the non-residential uses on the ARC Site would comply with the City of Davis exterior noise level limits without any additional noise control measures. Therefore, impacts related to operational noise sources generated from the ARC Project, similar to the MRIC Project, would be considered ***less than significant***.

Mitigation Measure(s)
None required.

3-61 Conflict, or create an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to noise (reference Impact 4.11-6).

Impacts related to conflicts with plans, policies, or regulations related to noise, as they pertain to the proposed non-residential innovation center uses, were evaluated for the MRIC Project in Section 4.11 and determined to be ***less than significant***. For the ARC Project, there are additional City of Davis housing policies and regulations that are applicable to the ARC residential component. These additional housing policies and regulations are evaluated in the appropriate sections of this equal-level analysis, namely, the Land Use and Urban Decay section (Impact 3-55), and the Population and Housing section (Impact 3-63). The consistency discussion provided in Table 4.11-14 of the Certified Final EIR with respect to City noise policies remains applicable

to the the ARC Project, as it generally pertains to City noise policies, to which both MRIC and ARC would be subject. See above discussion as it relates to the ARC's compliance with City noise policies.

Mitigation Measure(s)
None required.

Population and Housing (reference Section 4.12 of the Certified Final EIR)

The impacts related to population and housing as a result of buildout of the site per the ARC Project in comparison to that of the MRIC Project are presented below.

Changes in Circumstances

Since the release of the Certified Final EIR, new population and housing growth has occurred within the City of Davis. In addition, new State law related to housing has gone into effect, such as SB 330, which became effective January 1, 2020. SB 330 establishes a statewide housing emergency to be in effect until January 1, 2025. During the housing emergency period, cities and localities in urban areas, including the City of Davis, are generally prohibited from rezoning actions or imposing new development standards that would reduce the zoned capacity for housing, or adopting new design standards that are not objective.

In addition, on November 18, 2019, the Sacramento Area Council of Governments (SACOG) adopted an update to the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS), which includes new growth projections and transportation strategies for the City of Davis and the surrounding region.

Substantial changes in circumstances have not occurred requiring major revisions to the previous EIR.

Changes in the Project

Relative to the MRIC Project, the ARC Project would include an additional 850 residential units and, thus, would have a greater potential to result in population growth. However, the ARC Project would include an equivalent amount of residential development as was previously anticipated for the Mixed-Use Alternative and evaluated in the EIR. Thus, substantial changes in the project that would affect the analysis in the EIR related to population and housing have not occurred.

3-62 Induce substantial population growth (reference Impact 4.12-1).

Impacts related to substantial population growth were determined to be significant and unavoidable for the MRIC Project due to the fact that the City of Davis would not be able to accommodate its fair share of employee housing demand generated by the MRIC. The ARC Project would consist of the same amount of sf of office, R&D, ancillary retail, and hotel uses (2,654,000 sf). According to the Population and Housing chapter of the Certified Final EIR, the non-residential portion of the ARC Project would generate approximately 5,882 employees, which correlates to an additional 815 housing units within the City needed to serve the projected employee population. This is explained in the EIR as follows. The estimated employee housing demand at buildout of the ARC is 3,763 (5,882 employees divided by 1.62 employed residents per household). Assuming that 45.4 percent of new ARC employees would seek housing outside of the City of Davis, which implies 54.6 percent of new ARC employees would live in Davis, similar to the inference made for existing Davis area employees based upon empirical commute patterns, the ARC Project would result in an employee housing demand of 2,053 units within the City of

Davis. The remaining housing units (1,710) needed to meet the ARC Project employee housing demand would be met outside of the City of Davis, within the six-county SACOG region. After accounting for City of Davis residential unit capacity, it was determined that of the 2,053 units demanded by ARC Project employees within the City of Davis, the ARC Project would need to provide approximately 815 units.

Unlike the MRIC Project, the ARC Project would meet its housing need within the City by providing up to 850 residential, workforce units. As a result, the increase in housing demand associated with the ARC Project could be met within the City rather than the surrounding SACOG region, as would be required for the MRIC Project. In addition, the ARC Project would provide secondary environmental benefits associated with on-site residential opportunities, such as reduced VMT on regional roadways, as well as potentially reducing the amount of regional residential development needed to support the employees generated from the ARC Project. Overall, unlike the significant and unavoidable impact of the MRIC Project, impacts related to population growth as a result of the ARC Project would be ***less than significant***.

Mitigation Measure(s)
None required.

3-63 Conflict, or create an inconsistency, with any applicable population and housing plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect (reference Impact 4.12-2).

Impacts related to conflicts with plans, policies, or regulations related to population and housing, as they pertain to the non-residential innovation center uses, were evaluated for the MRIC Project in Section 4.12 and determined to be ***less than significant***. For the ARC Project, there are additional City of Davis housing policies and regulations that are applicable to the ARC residential component. Therefore, Table 3-27 has been included in order to analyze the applicable plans, policies, or regulations related to housing.

As demonstrated in Table 3-27, the ARC Project is generally consistent with applicable land use plans, policies, and regulations. Therefore, impacts related to conflicting, or creating an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to land use would be ***less than significant***.

Mitigation Measure(s)
None required.

Table 3-27
Applicable Land Use Plan, Policy, or Regulation Consistency Discussion

Plan, Policy, or Regulation			ARC Project Consistency
Goal HOUS 1	Promote an adequate supply of housing for people of all ages, income, lifestyles, and types of households consistent with General Plan policies and goals.		The ARC Project also incorporates up to 850 workforce housing units on-site. The housing would consist of 570 multifamily units within multi-story buildings, as well as 280 single-family attached products. Therefore, the ARC Project includes a mix of housing types, densities, and sizes. The mix of housing types, densities, and sizes would also correlate to a variety of prices and rents. For example, smaller units would likely have lower prices or rents, while larger units would likely have higher prices or rents. Although the residential units are intended for workplace housing, people of various lifestyles could occupy the residences.
	Policy HOUS 1.1	Encourage a variety of housing types that meet the housing needs of an economically and socially diverse Davis.	See the discussion for Goal HOUS 1. As noted above, the ARC Project would provide a variety of housing types, densities, and sizes which would contribute to the economically and socially diverse housing stock in Davis.
	Policy HOUS 1.2	Strive to maintain an adequate supply of rental housing in Davis to meet the needs of all renters, including students.	See the discussion for Goal HOUS 1. As noted above, the mix of housing types, densities, and sizes would correlate to a variety of prices and rents. For example, smaller units would likely have lower prices or rents, while larger units would likely have higher prices or rents. Although the residential units are intended for workplace housing, students and other groups could occupy the residences. The vacant rate of rental units in Davis continues to be very low. There were only 40 vacant apartments available for lease on a unit-lease basis in 2019, resulting in a vacancy rate of 0.6 percent.[44]
	Policy HOUS 1.3	Encourage the construction of housing to meet the needs of single persons and households with children with extremely low, very low, and low incomes.	The ARC Project would include up to 850 residential units and, thus, be required to comply with applicable affordable housing requirements established in the City's Municipal Code, including Section 18.05.040, Provision of Affordable Housing.

[44] BAE Urban Economics. 2019 Apartment Vacancy and Rental Rate Survey. 2019.

Table 3-27
Applicable Land Use Plan, Policy, or Regulation Consistency Discussion

Plan, Policy, or Regulation		ARC Project Consistency
Policy HOUS 1.4	Encourage a variety of housing types and care choices for disabled persons.	See the discussion for Goal HOUS 1. As noted above, the ARC Project would provide a variety of housing types, densities, and sizes which would contribute to the economically and socially diverse housing stock in Davis. Consistent with State requirements, the residential units within the ARC Project would be constructed to accommodate persons with disabilities.
Policy HOUS 1.5	Encourage a variety of housing types that accommodate persons with disabilities and promote aging in place, including a requirement of 100 percent Universal Access features in all new single-family residential units not otherwise subject to multi-family building code requirements.	See the discussion for Goal HOUS 1. As noted above, the ARC Project includes a variety of housing types, densities, and sizes which would contribute to the economically and socially diverse housing stock in Davis. Consistent with State requirements, the multi-family residential units within the ARC Project would be constructed to accommodate persons with disabilities.
Policy HOUS 1.9	Encourage a variety of housing types and care choices, as well as housing innovation, for seniors.	Senior housing opportunities exist throughout the City of Davis. The residential units included as part of the ARC Project are intended to be utilized for workplace housing. However, the units would not be restricted to such uses, and other populations, such as seniors, would be able to utilize the housing units.
Policy HOUS 1.10	Encourage construction of housing to meet the needs of farmworkers.	Farmworker opportunities exist throughout Yolo County. The residential units included as part of the ARC Project are intended to be utilized for workplace housing. However, the units would not be restricted to such uses, and other populations, such as farmworkers, would be able to utilize the housing units.
Goal HOUS 2	Provide housing that is affordable for residents with low incomes and low-paying jobs, fixed incomes, and pensions.	See the discussion for Policy HOUS 1.3.
Policy HOUS 2.1	Strive to meet the identified current and projected local need for housing and for housing	See the discussion for Policy HOUS 1.3.

Table 3-27
Applicable Land Use Plan, Policy, or Regulation Consistency Discussion

Plan, Policy, or Regulation			ARC Project Consistency
		affordable to extremely low-, very low-, low-, and moderate-income households including provision of Davis' eight-year fair share of regional housing needs.	
	Policy HOUS 2.2	Provide housing opportunities for the local workforce in the Davis area.	The residential units included as part of the ARC Project are anticipated to be utilized for workforce housing due to the proximity to the ARC R&D, manufacturing, ancillary retail, and hotel/conference uses.
Goal HOUS 3	Increase equal housing opportunities for all persons and households in Davis.		
	Policy HOUS 3.1	Affirmatively further fair housing opportunities for all persons regardless of race, color, religion, sex, national origin, familial status, disability, age, marital status, sexual orientation, source of income, and receipt of Section 8 or other subsidized rental program.	The ARC Project would not hinder the City's ability to further housing opportunities for all persons regardless of race, color, religion, sex, national origin, familial status, disability, age, marital status, sexual orientation, source of income, and receipt of Section 8 or other subsidized rental program. Instead, the ARC Project would provide 850 residential units with a variety of sizes and densities that would not be restricted in any manner. In other words, while the on-site housing would be workforce oriented, it would not be restricted to ARC Project employees.
	Policy HOUS 3.2	Strive to ensure that required affordable housing is occupied by those with the greatest need.	See the discussion for Policy HOUS 1.3.
	Policy HOUS 3.5	Promote a linkage between new ownership housing and the local workforce.	The residential units included as part of the ARC Project are anticipated to be utilized for workforce housing due to the proximity to the proposed innovation center uses. The ARC Project would provide a direct linkage between housing and jobs, and the residential units could potentially be utilized by first-time homebuyers.
Goal HOUS 4	Disperse affordable and rental housing fairly throughout the City.		The residential units included as part of the ARC Project, which would include affordable units consistent with City of Davis requirements, would be located in an area which currently contains an abundance of single-family housing units. Although some multi-family housing

Table 3-27
Applicable Land Use Plan, Policy, or Regulation Consistency Discussion

Plan, Policy, or Regulation		ARC Project Consistency
		units are located in the vicinity of the ARC Site (i.e., the Seville Apartments), implementation of ARC would increase the multi-family housing stock in east Davis. Therefore, the ARC Project would increase the amount of affordable and rental housing within east Davis.
Policy HOUS 4.4	Encourage senior housing in all parts of Davis and near neighborhood centers, shopping centers, public transportation, and/or parks and greenbelts where compatible with existing uses.	The residential units included as part of the ARC Project would be located in the vicinity of existing neighborhood centers, shopping centers, and public transportation. In addition, support retail and conference spaces would be included within the innovation center portion of the ARC Project. Furthermore, the ARC Project includes 49.8 acres of parks, gathering areas, and green spaces. Although the majority of the residential units are anticipated to be utilized by the ARC employees, the residential units could be utilized by a variety of persons, including seniors.
Policy HOUS 4.5	Encourage housing for special needs to be dispersed throughout the community to avoid an over-concentration in one area and to be located near neighborhood services and facilities. Special needs housing may include, but is not limited to, housing for physically and mentally disabled individuals, affordable low-income housing for single persons, emergency shelters, and transitional housing.	See the discussion for Policy HOUS 1.3. As noted above, the ARC Project would be required to comply with the City's affordable housing requirements. The residential units included as part of the ARC Project could be utilized for physically and mentally disabled and single persons. However, the units are not anticipated to be used for emergency shelters or transitional housing. The aforementioned housing types currently exist within the City of Davis.

Public Services and Recreation (reference Section 4.13 of the Certified Final EIR)

The impacts related to public services and recreation as a result of buildout of the site per the ARC Project in comparison to that of the MRIC Project are presented below.

Changes in Circumstances

Substantial changes in circumstances related to public services and recreation within the City of Davis have not occurred since the certification of the Final MRIC EIR.

Changes in the Project

Compared to the MRIC Project, the ARC Project would include an additional 850 residential units and, thus, would have a greater potential to result in new demands for public services, as well as parkland and other recreation facilities. However, the ARC Project would include an equivalent amount of residential development as was previously anticipated for the Mixed-Use Alternative and evaluated in the EIR. Thus, substantial changes in the project that would affect the analysis in the EIR related to public services and recreation have not occurred.

3-64 Result in substantial adverse physical impacts associated with the provisions of new or physically altered fire protection facilities, and/or the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection facilities (reference Impact 4.13-1).

Impacts related to fire protection were determined to be less-than-significant for the MRIC Project.

The ARC Site and Mace Triangle Site are within the East Davis County Fire Protection District. Fire protection and prevention services within the East Davis County Fire Protection District are provided by the Davis Fire Department (DFD). Therefore, while a change in service provider would not result upon annexation to the City of Davis, the ARC Site and Mace Triangle would need to be formally detached from the East Davis County Fire Protection District.

The ARC Project would result in an increased population of approximately 2,119 persons (using 2.44 persons per household for the proposed multi-family units and 2.60 persons per household for the proposed single-family units). Similar to the MRIC Project, 2,654,000 sf of manufacturing, R&D, ancillary retail, and hotel/conference space is proposed, which could result in a projected total of 5,882 employees. Potential future development for the Mace Triangle could result in approximately up to 45,901 sf of research/office/R&D, 25,155 sf of ancillary retail, and up to 158 additional employees. While the additional employee and residential population could increase demand for DFD equipment and personnel resources, the relevant CEQA question is whether the project would result in substantial adverse physical impacts associated with the need for new or physically altered fire facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives. Given the close proximity of Station 33, new fire facilities would not be required to serve the project.

Station 33, located at 425 Mace Boulevard, is approximately 0.50-mile south of the project site. Station 33 currently provides fire protection and emergency medical services to the site and its vicinity. In addition, Station 33 provides backup response to Station 31 in the downtown core of the City. In 2015, the Davis Fire Chief indicated that Station 33 would adequately serve the MRIC and Mace Triangle.[45] The DFD can still adequately respond to the east Davis area where the project site is located.[46]

The multi-story project would likely necessitate use of a ladder truck in the event of a fire emergency on the upper floors. The UC Davis Fire Department currently operates Truck 34, which has a 100-foot ladder. Pursuant to the City's automatic aid agreement with UC Davis, Truck 34 would be dispatched, as needed, to incidents at the project site. The proposed maximum building height would be approximately 85 feet; thus, with sufficient access, the 100-foot ladder could safely reach all floors of the proposed buildings.

Fire protection service is evaluated and addressed annually on a city-wide level by the Davis City Council and Fire Chief. The City Council adopts an annual budget allocating resources to fire protection services, which effectively establishes the service ratio for that particular year. The annual budget is based on community needs and available resources as determined by the City Council and the Fire Chief. Additionally, the City of Davis has adopted citywide development impact fees, which include Public Safety Impact Fees. In accordance with existing law, prior to issuance of any building permits for any phase of development, the project applicant shall pay the City's Public Safety Impact Fees. Development impact fees can be adjusted by the City, as needed.

In addition, the proposed structures would be designed in compliance with all applicable provisions of the California Fire Code and would include features such as fire sprinklers and smoke alarms to reduce potential fire hazards. Fire Code consistency review would be performed as part of the construction and development review process for the proposed project, which would include the payment of any necessary development impact fees related to Fire safety services and facilities.

For the above-discussed reasons, similar to the conclusion for the MRIC Project, the ARC Project would be anticipated to result in a ***less-than-significant*** impact associated with the need for new or physically altered fire facilities, the construction of which could create physical environmental effects.

Mitigation Measure(s)
None required.

[45] Personal communication with Chief Nathan J. Trauernicht, City of Davis Fire Department. February 5, 2015.

[46] See for example the Davis State of the City Report, 2017, pg. 134, which indicates that most of the development within the City is currently within a five-minute response time of an existing station, with the exception of the planned development in the north central part of the City, served by the Core area station and the west station.

3-65 Result in substantial adverse physical impacts associated with the provisions of new or physically altered police protection facilities, and/or the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for police protection facilities (reference Impact 4.13-2).

Per Appendix G of the CEQA Guidelines, the relevant inquiry is whether development would result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, and/or the need for new or physically altered facilities, the construction of which could cause significant environmental impacts. The Davis Police Department determined additional or expanded facilities would not be needed to serve the MRIC upon implementation; and the Davis Police Department would be able to continue to provide adequate police protection services to the existing developed areas of the City of Davis.[47] Thus, while development of the MRIC Project was determined to increase demand for police protection services, impacts related to police protection were determined to be less-than-significant for the MRIC Project.

The ARC Project would result in an increased population of approximately 2,119 persons (using 2.44 persons per household for the proposed multi-family units and 2.60 persons per household for the proposed attached single-family units). Similar to the MRIC Project, 2,654,000 sf of manufacturing, R&D, ancillary retail, and hotel/conference space is proposed, which could result in a projected total of 5,882 employees. Potential future development for the Mace Triangle could result in up to approximately 45,901 sf of research/office/R&D, 25,155 sf of ancillary retail, and up to 158 additional employees.

All non-residential and multi-family structures would be designed in accordance with the City's Security Ordinance, which is contained in the City's Municipal Code as Article 8.14. Article 8.14 includes various minimum requirements for security measures to be included in new non-residential and multi-family residential structures and are reviewed as part of the construction documents. Features required for multi-family dwellings include self-locking devices on exterior doors, proper unit identification, properly secured windows, and minimum security standards for doors. For non-residential structures, required features include silent intrusion alarm systems and use of burglar resistant glass. Furthermore, Article 8.14 includes regulations to ensure that proper lighting is provided in stairwells, walkways, public areas, and parking lots. The inclusion of the aforementioned design features would increase the security of the proposed non-residential and multi-family structures, which would help to minimize security risks related to the ARC Project, and reduce the project's demand on police services.

In addition, the City of Davis maintains Development Impact Fees for various types of new development within the City, including residential and commercial uses. The fees are based on the anticipated demand, and are periodically reviewed by the City. The ARC Project and future Mace Triangle development would be required to pay applicable development impact fees to fund police protection services.

[47] Personal communication with Assistant Chief Darren Pytel, City of Davis Police Department. January 20, 2015.

For the above-discussed reasons, similar to the conclusion for the MRIC Project, the ARC Project would be anticipated to result in a ***less-than-significant*** impact associated with the need for new or physically altered police facilities, the construction of which could create physical environmental effects.

Mitigation Measure(s)
None required.

3-66 Result in substantial adverse physical impacts associated with the provisions of new or physically altered school facilities, and/or the need for new or physically altered school facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for school facilities (reference Impact 4.13-3).

Impacts related to schools were determined to be less-than-significant for the MRIC Project, given that the MRIC Project did not include residential uses with the potential to house school-age residents. Unlike the MRIC Project, the ARC Project would include the development of 850 residential units on-site and, thus, would result in the introduction of additional students to the Davis Joint Unified School District (DJUSD). Table 3-28 presents the estimated increase in student enrollment as a result of the ARC Project. The ARC Project is expected to generate approximately 384 additional students for the DJUSD. Under the provisions of SB 50, a project's impacts on school facilities are deemed fully mitigated with the payment of the requisite new school construction fees established pursuant to Government Code Section 65995. In addition, the DJUSD recognizes that parents/guardians of students who reside in one district may, for a variety of reasons, choose to enroll their child in a school in another district. DJUSD approves interdistrict transfer requests based upon space availability in the requested grade level at the requested school. If a parent/guardian of a student is employed in Davis a minimum of 10 hours per week, they are eligible for the transfer based upon parent/guardian employment. Through the payment by the applicant of applicable impact fees, and ongoing revenues that would come from taxes, project impacts to school services would be ***less than significant*** for the ARC Project, similar to the MRIC Project.

Table 3-28
ARC Project Student Enrollment

Grade Levels	Student Generation Factor per Household	# of Units	New Students
K-6	0.29	850	247
7-9	0.09		77
10-12	0.07		60
		Total	**384**

Mitigation Measure(s)
None required.

3-67 Result in substantial adverse physical impacts associated with the provisions of new or physically altered park facilities, and/or the need for new or physically altered park facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for park facilities (reference Impact 4.13-4).

ARC Project

The Certified Final EIR concluded that with implementation of mitigation, the MRIC Project would result in a less-than-significant impact related to resulting in substantial adverse physical impacts associated with the provisions of new or physically altered park facilities, and/or the need for new or physically altered park facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for park facilities

The Davis General Plan establishes a park dedication standard of five acres of parkland per 1,000 residents. The non-residential portion of the ARC Project would generate approximately 5,882 employees. In addition, 850 residential units would be included on-site and are intended to be utilized by ARC Project employees.

Since the certification of the EIR, City staff has reevaluated the prior park/recreation facility analysis performed for the MRIC Project. In the prior analysis, the City applied its adopted park service ratios to the projected 5,882 employees as well. City staff has carefully considered this aspect of the prior methodology and has determined that it is no longer supportable. For example, the Quimby Act, on which the City's park standards are based, only applies to residential subdivisions. In addition, according to Section 36.08.040(L) of Davis Municipal Code, *Not Applicable to Certain Subdivisions*, the park dedication provisions of Chapter 36, Subdivisions, shall not apply to commercial or industrial subdivisions. As a result, this SEIR will appropriately require parkland acreage, in accordance with City standards, only for the residential portion of the project.

Chapter 36 of the Municipal Code requires 0.0131 acres per dwelling unit. In addition, General Plan Policy POS 3.1(a) and (1) requires 10 percent of the overall project acreage to be greenbelt. These requirements result in the following for the ARC Project:

- *Parklands*: 11.14 acres (850 residential units x 0.0131 acres per unit).
- *Greenways/open space*: 18.7 acres (10 percent of 187 acres; not combined with parklands, but can be combined with interior 50 feet of agricultural buffer).
- *Agricultural buffer*: Approximately 22.60 acres (eastern and northern property lines x 150 feet). One-third of that total, 7.53 acres, can 'overlap' with use as part of the greenways/open space total above, for a total of 15.07 required acres.

Therefore, the ARC Project is required to dedicate a total of 44.71 acres of appropriate parklands and facilities. The ARC Project includes approximately 49.8 acres, as per the project applicant's project description. Of that, 22.60 acres are defined as green space or agricultural buffer areas

along the property edge, to provide a variety of uses, and the remaining 27.2 acres are internal plazas, courtyards and landscaped areas. The following totals and types of green space are proposed in the ARC Project:

- *Parks*: 12.1 acres are proposed.
- *Greenways*: 3 acres are proposed (can be combined with interior 50 feet of agricultural buffer).
- *Agricultural buffer*: Approximately 22.6 acres agricultural buffer are proposed.
- *Private residential and commercial courts*: 11.5 acres are proposed.

Mace Triangle

The Ikeda's parcel and other agricultural parcel of the Mace Triangle would be designated General Commercial to allow for the continuation or expansion of the existing agricultural retail (Ikeda's Market) and/or for the development of up to 71,056 sf of new commercial uses. Given the lack of future residential uses, park acreage would not be required.

Compliance with Existing Law

The City of Davis has adopted citywide development impact fees, which include Parks Impact Fees. Therefore, in compliance with existing law, prior to issuance of any building permits for any phase of development, the project applicant shall pay the City's Park Impact Fees.

Conclusion

The ARC Project includes sufficient park and greenbelt acreage per the City's standard requirements. In addition, the Mace Triangle would not include residential uses requiring provision of park acreage. Therefore, similar to the MRIC Project, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

3-68 Result in substantial adverse physical impacts associated with the provisions of new or physically altered other public facilities, and/or the need for new or physically altered other public facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for other public facilities (reference Impact 4.13-5).

Impacts related to other public facilities were determined to be less-than-significant for the MRIC Project. The ARC Project would involve development of the ARC Site with innovation center/business uses, as well as high-density residential uses. The amount of non-residential uses would be equal to that of the MRIC Project, but the ARC Project would introduce approximately 850 residential units. In compliance with existing law, prior to issuance of any building permits for any phase of development, the project applicant shall pay the City's Roadways and General

Facilities Impact Fees. In addition, in accordance with LAFCo law, the City of Davis would be required to negotiate a tax sharing agreement with the County of Yolo to ensure that the ARC Project incorporation would result in a similar exchange of both revenue and responsibility for service delivery among the County and the City. Therefore, similar to the MRIC Project, the ARC Project would not result in a need for new, or improvements to existing, other public facilities, construction of which could cause significant environmental impacts; therefore, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

3-69 Conflict, or create an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to public services and recreation (reference Impact 4.13-6).

Impacts related to conflicts with plans, policies, or regulations related to public services and recreation, as they pertain to the ARC Project non-residential innovation center uses, were evaluated for the MRIC Project in Section 4.13 and determined to be ***less than significant***. For the ARC Project, there are additional City of Davis housing policies and regulations that are applicable to the ARC residential component. These additional housing policies and regulations are evaluated in the appropriate sections of this equal-level analysis, namely, the Land Use and Urban Decay section (Impact 3-55), and the Population and Housing section (Impact 3-63). The consistency discussion provided in Table 4.13-2 of the Certified Final EIR with respect to City public services and recreation policies remains applicable to the the ARC Project, as it generally pertains to City public services policies, to which both MRIC and ARC would be subject. See above discussion as it relates to the ARC's compliance with these policies.

Mitigation Measure(s)
None required.

Transportation and Circulation (reference Section 4.14 of the Certified Final EIR)

The impacts related to transportation and circulation as a result of buildout of the site per the ARC Project in comparison to that of the MRIC Project are presented below.

Changes in Circumstances

As noted in the updated Transportation Impact Analysis (TIA) prepared for the ARC Project (see Appendix F), the following changes in circumstances related to transportation and circulation have occurred since the release of the Certified Final EIR:

- **Background traffic volume increases:** The existing conditions analysis and subsequent impact analyses in the Certified Final EIR utilized baseline traffic count data collected in October 2014.[48] Traffic counts conducted in May and October of 2019 indicate that peak hour traffic volumes on roadways within the vicinity of the ARC Site have increased substantially since that time, particularly during the PM peak hour. This is primarily due to increased delays and extended periods of congested conditions on eastbound I-80, diverted regional travel demand onto local roadways, the increased prevalence of navigation apps (e.g., WAZE), and changes to roadway capacity and operations, particularly modifications to the eastbound I-80 ramp meters and the four-to-two lane reduction on Mace Boulevard south of Cowell Boulevard. Therefore, the baseline traffic conditions that the project would interact with on study area roadways reflect higher levels of traffic volumes and delay than those studied in the Certified Final EIR. For example, these changed conditions affect southbound Mace Boulevard north of the interchange, a critical movement to which the project would add substantial PM peak hour travel demand. Thus, as a result, ARC Project effects may differ for various modes of travel, new travel routes may be selected, and the types of site access improvements may change. Such potential changes are evaluated in further detail below.
- **New Travel Demand Model:** In 2016, an updated travel demand model was developed as part of the UC Davis Long Range Development Plan (LRDP). The updated model covers the entire City of Davis and UC Davis campus, is calibrated to 2018 conditions, and has a 2036 horizon year. In contrast, the Certified Final EIR relied upon the then most recent version of the City's travel demand model, which was originally developed in 2004 and manually adjusted for development over time.
- **New Highway Capacity Manual (HCM):** The 6th Edition (2016 version) of the Highway Capacity Manual (HCM) is used in the TIA, whereas the 2010 HCM was used in the Certified Final EIR.
- **Changes to CEQA Guidelines:** On December 28, 2018, the CEQA Guidelines were amended consistent with SB 743 to include Section 15064.3, Determining The Significance of Transportation Impacts, which states that generally, vehicle miles traveled is the most appropriate measure of transportation impacts. According to 15064.3(a), "*Except as provided in subdivision (b)(2) (regarding roadway capacity), a project's effect on automobile delay shall not constitute a significant environmental impact*." Beginning on July 1, 2020, the provisions of 15064.3 shall apply statewide. As a result, CEQA lead

[48] Fehr & Peers. *Aggie Research Campus, Volume I - Transportation Impact Study*. February 2020.

agencies are shifting the focus of transportation impact analyses from level of service (LOS) analysis, to vehicle miles travelled (VMT) analysis. This shift is further driven by the Third Appellate District's published opinion regarding *Citizens for Positive Growth & Preservation v. City of Sacramento* (2019), which will be further discussed in the thresholds section below. This SEIR now evaluates both LOS and VMT.

As discussed in further detail below, as a result of the changes in methodology employed in this SEIR for calculating vehicle trip generation rates and VMT, vehicle trip generation associated with the ARC Project would increase relative to the MRIC Project and the Mixed-Use Alternative. In addition, the estimated average daily VMT for the ARC Project would increase from the estimates in the Certified Final EIR. In addition, due to the changed traffic conditions described above, the assignment of project trips on the study area transportation system differs from that in the Certified Final EIR to reflect likely routing to/from the project site in response to peak hour congestion and resulting route travel times.

Overall, due to the growth in background traffic and approach to trip generation methodology, substantial changes have occurred with respect to the circumstances under which the project is undertaken which require major revisions to the traffic section of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

Changes in the Project

Relative to the MRIC Project, the ARC Project would include an additional 850 residential units and, thus, would have potential to result in increased vehicle trip generation, but also greater trip internalization opportunities. Relative to the Mixed-Use Alternative, the ARC Project would include an equivalent amount of residential units and non-residential square footage. Subtle modifications have been made to the layout of land uses, site access, and internal roadway alignments within the ARC Site. The effects of such changes are evaluated in further detail below.

With respect to site access changes, the original MRIC Project included two access points along Mace Boulevard, as follows:

1. Mace Boulevard/Alhambra Drive/Central Project Access Driveway – a fourth leg would be built at this existing signalized intersection, providing full access into the central part of the site from Mace Boulevard.
2. Mace Boulevard/North Project Access Driveway – located approximately 500 feet to the north of Alhambra Drive, this driveway would be side-street stop-controlled and provide full access to the site.

The Mace Boulevard access points to the ARC Site have been modified, as described below. Generally, Access 2 above has been shifted further north to provide more spacing between access intersections, and a third partial access point further north has been added.

1. Full access via existing signalized intersection at Mace Boulevard/Alhambra Drive. The project would construct a new fourth leg (east leg) at the intersection. The project site plan

shows the construction of channelized right-turns for the northbound and westbound approaches.
2. Full access via a connection from CR 30B immediately east of its existing unsignalized full access intersection with Mace Boulevard.
3. Partial access (right-in/right-out only) on Mace Boulevard between Alhambra Drive and CR 30B. This would be a new unsignalized intersection with an east leg serving the project site.

The proposed changes are meant to improve the site access and internal circulation for the mixed-use project; thus, substantial changes are not proposed in the project which will require major revisions of the previous EIR due to new significant environmental effects.

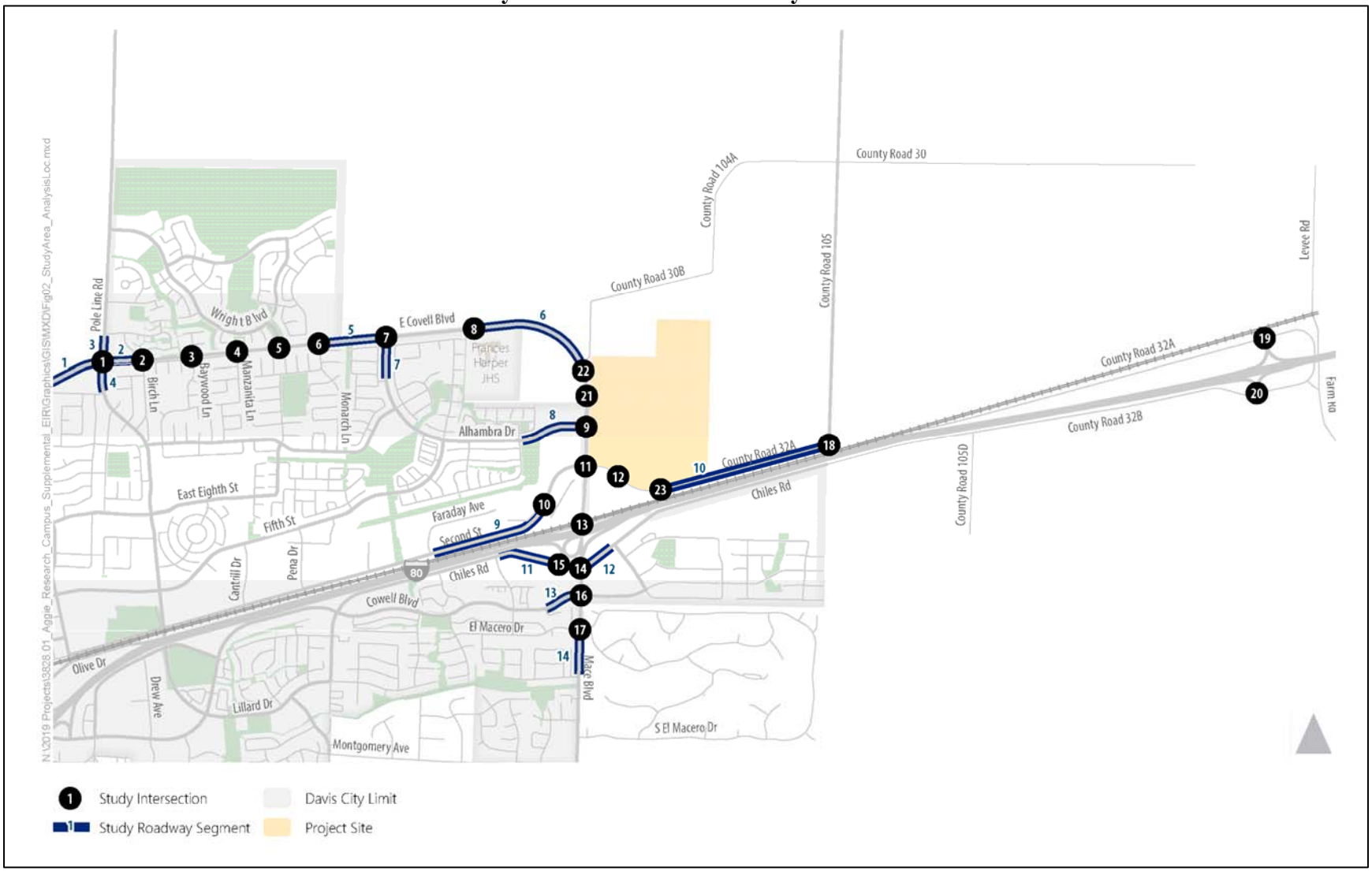
Existing Operating Conditions

Figure 3-16 displays the locations of the study intersections and roadway segments, which were selected in consultation with City of Davis staff and based on the ARC Project's expected travel characteristics (i.e., project location and amount of project trips), as well as facilities susceptible to being impacted by the ARC Project. This analysis includes the following study locations:

Study Intersections

1. East Covell Boulevard/Pole Line Road;
2. East Covell Boulevard/Birch Lane;
3. East Covell Boulevard/Baywood Lane;
4. East Covell Boulevard/Manzanita Lane;
5. East Covell Boulevard/Wright Boulevard;
6. East Covell Boulevard/Monarch Lane;
7. East Covell Boulevard/Alhambra Drive;
8. East Covell Boulevard/Harper Junior High School;
9. Mace Boulevard/Alhambra Drive/South ARC Driveway;
10. 2nd Street/Fermi Place/Target Driveway;
11. Mace Boulevard/2nd Street/CR 32A;
12. CR 32A/Mace Park-and-Ride Driveway/West ARC Driveway;
13. Mace Boulevard/I-80 WB Ramps;
14. Mace Boulevard/Chiles Road;
15. Chiles Road/I-80 EB Ramp;
16. Mace Boulevard/Cowell Boulevard;
17. Mace Boulevard/El Macero Drive;
18. CR 32A/CR 105;
19. CR 32A/I-80 WB Ramps;
20. CR 32B/Chiles Road/I-80 EB Ramps;
21. Mace Boulevard/Central ARC Driveway;
22. Mace Boulevard/CR 30B/North ARC Driveway; and
23. CR 32A/East ARC Driveway.

Figure 3-16
Study Intersection and Roadway Locations



Study Roadway Segments[49]

1. East Covell Boulevard: west of Pole Line Road;
2. East Covell Boulevard: east of Pole Line Road;
3. Pole Line Road: north of East Covell Boulevard;
4. Pole Line Road: south of East Covell Boulevard;
5. East Covell Boulevard: west of Alhambra Drive;
6. East Covell Boulevard: east of Harper Junior High School;
7. Alhambra Drive: south of East Covell Boulevard;
8. Alhambra Drive: west of Mace Boulevard;
9. 2nd Street: west of the Fermi Place;
10. CR 32A: east of ARC Site;
11. Chiles Road: west of I-80 EB Off-Ramp;
12. Chiles Road: east of Mace Boulevard;
13. Cowell Boulevard: west of Mace Boulevard; and
14. Mace Boulevard: south of El Macero Drive.

Note that the Certified Final EIR transportation study considered the transportation system effects of not just the MRIC Project, but also the proposed Davis Innovation Center and Nishi Gateway projects, for which the combined transportation system effects were expected to cover a larger geographic area and a greater number of local and regional roadway facilities. Because this SEIR is being prepared for the ARC Project alone, the study area has been revised to focus on roadway facilities susceptible to being impacted by the ARC Project, particularly along the Mace Boulevard and East Covell Boulevard corridors. This results in fewer study intersections and roadway segments analyzed in this SEIR when compared to those analyzed in the Certified Final EIR.

Intersection turning movement counts were conducted during the morning (7:00 AM to 9:00 AM) and evening (4:00 PM to 6:00 PM) peak periods on Thursday, May 30, 2019 and Thursday, October 16, 2019. Intersection counts included volumes for vehicles, bicyclists, and pedestrians. During the traffic counts, local schools and UC Davis were in regular session and weather conditions were dry and clear. Based on the traffic data collection, the AM peak hour within the study area occurred from 7:45 to 8:45 AM, and the PM peak hour occurred from 5:00 to 6:00 PM. Peak hour traffic volumes derived from the intersection turning movement counts are illustrated in Appendix A of the TIA (Appendix F to this SEIR).

Additionally, peak period field observations were conducted by Fehr & Peers staff during the peak period traffic counts. The field observations, including observed maximum queues, were utilized to calibrate the existing conditions traffic operations analysis presented under Impact 3-70 below.

[49] It should be noted that impacts to the study roadways listed above were only evaluated for the Cumulative Plus Project condition (see Impact 3-103). This is because a cumulative intersection operations analysis was completed for the project vicinity/Mace interchange area, but not for the rest of the study intersections (intersections #1 through #8) analyzed in the Existing Plus Project scenario. This is consistent with the approach taken in the Certified Final EIR. The reasons for this approach are stated on pages 5-52 and -53 of the EIR.

- Under Existing No Project conditions, during the AM peak hour, vehicle traffic within the study area generally progresses smoothly. Queues generally do not extend to the adjacent upstream intersection and clear within one cycle at signalized intersections. During the PM peak hour, considerable delay and queuing occurs on local roadways within the vicinity of the Mace Boulevard interchange at I-80. Field observations, data collection, and analysis conducted by Fehr & Peers over the past year indicate that these conditions can be attributed to the following factors:
- Diverted local and regional traffic onto study area roadways due to extended periods of very low travel speeds on eastbound I-80 from the causeway, through Davis, and into Solano County. During congested conditions, low mainline travel speeds substantially increase travel times for motorists on eastbound I-80. Hence, diverting off of I-80 onto local roadways often provides a faster alternative to remaining on the freeway through Davis. Similarly, locally-generated traffic utilizing eastbound I-80 can experience faster travel times by accessing I-80 as far east as possible (e.g., motorists departing Downtown Davis for Sacramento accessing I-80 at Mace Boulevard or CR 32A instead of Richards Boulevard). Moreover, the increased prevalence and use of navigation apps (e.g., Google Maps, WAZE, etc.) in recent years provides motorists with real-time and predictive travel time information that can influence route selection.
- Ramp metering at the eastbound I-80 on-ramps controls the amount of study area traffic that can enter the freeway from Mace Boulevard. The ramp meters are designed to improve operating conditions on eastbound I-80 by increasing or decreasing on-ramp flow rates according to mainline traffic volumes. Therefore, when congested conditions occur on eastbound I-80, flow rates decrease for the Mace Boulevard on-ramps, causing additional delays and queueing on Mace Boulevard and connecting local roadways.

Based on field observations by Fehr & Peers staff and anecdotal information provided by City staff, these conditions are particularly prevalent on Wednesday, Thursday, and Friday afternoons and evenings.

On the day that PM peak period traffic counts were collected for the TIA (Thursday, October 16, 2019), field observations indicated that congested conditions were present on both eastbound I-80 and local roadways surrounding the Mace Boulevard interchange. Queue spillbacks were observed on southbound Mace Boulevard from the eastbound I-80 on-ramp to beyond Alhambra Drive and on northbound Mace Boulevard from the eastbound I-80 on-ramp to beyond San Marino Drive. Queue spillbacks were also observed on eastbound and westbound Chiles Road near the I-80 on-ramp.

Method of Analysis

Methods of analysis used by Fehr & Peers to evaluate the vehicle trip generation and VMT associated with the ARC Project are described below. The impacts related to transportation and circulation as a result of buildout of the ARC Site per the ARC Project in comparison to that of the MRIC Project are presented further below.

Vehicle Trip Generation

This analysis utilizes Fehr & Peers' MXD+ model for the purposes of estimating project trip generation. MXD+ recognizes that traffic generation by mixed-use and other forms of sustainable development relate closely to the density, diversity, design, destination accessibility, transit proximity, and scale of development. These factors result in higher levels of trip internalization and shifts to non-automobile travel modes (e.g. walking and biking), yielding lower levels of external trip generation compared to those that would otherwise be calculated using traditional trip generation resources such as the ITE Trip Generation Manual.

The MXD+ method explains 97 percent of the variation in trip generation among mixed-use developments, compared to 65 percent for the methods previously recommended by ITE. While remaining slightly (two to four percent) conservative to avoid systematically understating impacts, it substantially reduces the 35 to 37 percent average overestimate of traffic generation produced by conventional ITE methods. Fehr & Peers has applied MXD+ on hundreds of EIRs throughout California over the past decade, including EIRs for several projects in the City of Davis, such as The Cannery and the West Davis Active Adult Community projects. An earlier version of MXD+ was also applied to the Certified Final EIR.

It is important to note that in the Certified Final EIR, the trip generation and internalization estimates for the Mixed-Use Alternative estimated by the MXD+ model were adjusted based upon the presumption that on average, one MRIC employee would reside within each MRIC dwelling unit. Conversely, this analysis does not establish any explicit association between ARC Project dwelling units and ARC Project employees, and instead relies upon empirical data in the MXD+ model (i.e., trip generation data collected at other mixed-use project sites) to estimate the degree to which on-site residential and commercial uses at the ARC Project would internalize travel.

Table 3-29 summarizes the estimated weekday and peak hour trip generation for the ARC Project using the MXD+ tool. As shown in this table, the ARC Project would generate an estimated 23,888 new external daily vehicle trips, 2,232 new external AM peak hour vehicle trips, and 2,479 new external PM peak hour vehicle trips during a typical weekday. The Mace Triangle would generate an estimated 762 new external daily vehicle trips, 93 new external AM peak hour vehicle trips, and 82 new external PM peak hour vehicle trips during a typical weekday.

The following factors influence the estimated trip reductions resulting from internalization and shifts to transit, walk, and bike trips:

- Suburban location on the edge of the developed area.
- Low-density surroundings.
- Low on- and off-site intersection density, which is a proxy for walkability within the site and overall internal trip-making.

Table 3-29
ARC Project Trip Generation

Land Use	Units	ITE Code	Quantity	Daily	AM In	AM Out	AM Total	PM In	PM Out	PM Total
ARC Project Component										
Net New Uses										
Office/R&D	1,000-sf GLA	710[1]	1,610	16,383	1,392	226	1,618	274	1,436	1,710
Manufacturing	1,000-sf GLA	140[2]	884	3,474	422	126	548	184	408	592
Hotel	Rooms	310[3]	150	1,267	41	29	70	44	42	86
Single Family Attached Residential	Dwelling Units	220[4]	280	2,076	29	98	127	96	55	148
Multifamily Residential	Dwelling Units	221[5]	570	3,103	49	142	191	148	94	242
Raw External Project Trips				*26,303*	*1,933*	*621*	*2,554*	*743*	*2,035*	*2,778*
Reductions										
Internal Capture				-2,032	-204	-66	-270	-68	-188	-256
External Walk and Bike				-183	-17	-5	-22	-5	-13	-18
External Transit				-200	-20	-10	-30	-10	-15	-25
Total Reductions				*-2,415*	*-241*	*-81*	*-322*	*-83*	*-216*	*-299*
Net New External Project Trips				**23,888**	**1,692**	**540**	**2,232**	**660**	**1,819**	**2,479**
Mace Triangle Component										
Office/R&D	1,000-sf GLA	710[1]	81	762	80	13	93	13	69	82
Project Total (ARC + Mace Triangle)										
Net New External Project Trips				**24,650**	**1,772**	**553**	**2,325**	**673**	**1,888**	**2,561**

[1] ITE Trip Generation land use category (710) – General Office Building (Adj Streets, 7-9A, 4-6P). Includes 100,000 sf of proposed ancillary retail space for ARC and 25,000 sf of proposed ancillary retail space for the Mace Triangle, as permitted by ITE for this land use category.
- Daily: Ln(T) = 0.97 * ln(X) + 2.50
- AM Peak Hour: T = 0.94(X) + 26.49 (88% in, 12% out)
- PM Peak Hour: Ln(T) = 0.95 * ln(X) + 0.36 (17% in, 83% out)

[2] ITE Trip Generation land use category (140) - Manufacturing (Adj Streets, 7-9A, 4-6P)
- Daily: T = 3.93(X)
- AM Peak Hour: T = 0.62(X) (73% in, 27% out)
- PM Peak Hour: T = 0.67(X) (44% in, 56% out)

[3] ITE Trip Generation land use category (310) - Hotel (Adj Streets, 7-9A, 4-6P)
- Daily: T = 11.29(X) + -426.97

Table 3-29
ARC Project Trip Generation

Land Use	Units	ITE Code	Quantity	Daily	AM In	AM Out	AM Total	PM In	PM Out	PM Total

- AM Peak Hour: T = 0.50(X) + -5.34 (59% in, 41% out)
- PM Peak Hour: T = 0.75(X) + -26.02 (51% in, 49% out)

[4] ITE Trip Generation land use category (220) - Multifamily Housing Low Rise (Adj Streets, 7-9A, 4-6P). This land use category was selected for use for the proposed 290 dwelling units of single-family housing. ITE indicates that this land use category is appropriate for use for attached housing between one and three stories in height, which is aligned with the proposed single-family housing product as described in the project description. Alternative options identified by ITE include detached single-family housing and mid-rise multi-family housing, neither of which align with the proposed single-family housing product as described in the project description.

- Daily: T = 7.56(X) + -40.86
- AM Peak Hour: Ln(T) = 0.95 * ln(X) + -0.51 (20% in, 80% out)
- PM Peak Hour: Ln(T) = 0.89 * ln(X) + -0.02 (65% in, 35% out

[5] ITE Trip Generation land use category (221) - Multifamily Housing Mid-Rise (Adj Streets, 7-9A, 4-6P)

- Daily: T = 5.45(X) + -1.75
- AM Peak Hour: Ln(T) = 0.98 * ln(X) + -0.98 (21% in, 79% out)
- PM Peak Hour: Ln(T) = 0.96 * ln(X) + -0.63 (65% in, 35% out)

Sources: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017; Fehr & Peers, 2020.

- Relatively poor walk/bike access to off-site trip generators/activity centers, particularly due to long travel distances. U.S. Census American Community Survey (ACS) journey to work data from 2017 indicates that approximately nine percent of existing workers living near the project site (i.e., Mace Ranch and South Davis) commute to work via bicycling or walking, compared to a City-wide average of approximately 26 percent. Moreover, Target and Nugget Market, the nearest existing major shopping destinations, are located 0.65-mile and 0.81-mile from the ARC Project residential uses, respectively. Additionally, access to Nugget Market would require a bicyclist or pedestrian to traverse the Mace Boulevard interchange at I-80.
- Relatively poor intercity/commuter transit access for project employees. Adjacent intercity transit routes are currently designed to serve Davis residents working in Sacramento, but not the 'reverse commute' in the opposite direction.
- High jobs/population ratio (approximately 2.78 jobs for every resident), which would result in the project attracting a large number of commute trips from outside the project site.
- Recent housing data indicates low vacancy rates in the City of Davis, resulting in a significant percentage of ARC employees that would reside outside of Davis under Existing Plus Project conditions. Given the long trip distances and the lack of intercity/commuter transit services, these external commute trips would not be candidates for walk, bike, or transit trips.
- Lack of uses complementary to residential land uses (e.g., grocery retailer).

Based on data provided by Fehr & Peers, the ARC Project would generate vehicle trips as shown in Table 3-30. As shown in the table, the ARC Project would generate 2,232 AM peak hour trips and 2,479 PM peak hour trips, a six percent decrease and a 13 percent increase from the peak hour trips estimated for the MRIC Project, respectively.

Table 3-30
ARC Project Trip Generation Comparison

Alternative	Daily New (External) Trips	AM Peak Hour Trips	PM Peak Hour Trips
MRIC Project	15,550	2,361	2,175
MRIC Mixed-Use Alternative	13,470	1,480	1,435
ARC Project	**23,888**	**2,232**	**2,479**
ARC Project: Percent Difference from MRIC Project	+54%	-6%	+13%

Source: Fehr & Peers, 2020.

Vehicle Miles Travelled

This analysis uses VMT as the primary metric for transportation impacts. By definition, one VMT is defined as a motor vehicle being driven one mile. Within this analysis, VMT is expressed on a daily basis for a typical weekday. VMT values in this analysis represent the full length of a given trip, and are not truncated at city, county, or region boundaries.

This analysis uses the VMT per service population metric for the purposes of analyzing potential impacts to VMT. This methodology calculates VMT by summing the "VMT from" and "VMT to" a specified area. The VMT accounting is:

$$VMT = (II + IX) + (II + XI) = (2 \times II) + IX + XI$$

- Internal-internal (II): The full length of all trips made entirely within the geographic area limits is counted.
- Internal-external (IX): The full length of all trips with an origin within the geographic area and destination outside of the area is counted.
- External-internal (XI): The full length of all trips with an origin outside of the geographic area and destination within the area is counted.

The intra-zonal VMT and VMT between traffic analysis zones, or TAZs, that are both in the study area are double counted. To cancel out the double counting, the VMT is divided by the service population (residential population plus employment population), the generators of both trip ends of the VMT. This is necessary when expressing VMT as an efficiency metric that also represents the VMT generation rate of the service population. The resulting VMT is then compared to the existing VMT and a determination made as to whether the project VMT exceeds the applicable thresholds.

VMT estimates were prepared using the UC Davis/City of Davis travel demand model, SACOG's SACSIM travel demand model, and the California Statewide Travel Demand Model. For ARC Project-generated VMT calculations, the following calculations were performed:

- ARC Project-Generated VMT = ARC Project's estimated weekday external vehicle trips x average trip length

The average trip lengths were derived from the UC Davis/City of Davis travel demand model, with extra distance appended to project trips with trip ends outside of that local model's boundaries using the SACMET travel demand model and the California Statewide Travel Demand Model (e.g., to capture longer trips to/from the Bay Area that would not otherwise be reflected in the local model).

The following process was employed to prepare estimates for VMT generated at the local and regional level:

- **Local VMT generated by the City of Davis and UC Davis –** The UC Davis/City of Davis travel demand model was used to estimate VMT associated with trips ends within the model boundaries (i.e., the City of Davis sphere of influence and the UC Davis campus). The travel demand model was selected for this analysis due to the model's smaller Traffic Analysis Zone (TAZ) structure relative to other available travel demand models, which allows for a more granular evaluation of trips internal to the model boundaries (i.e., to avoid underreporting VMT associated with internal-internal trips associated with a given TAZ). Extra distance was added to trips with trip ends outside of the local model

boundaries using the SACSIM travel demand model and the California Statewide Travel Demand Model. Land use inputs for the TAZ containing the ARC Site were calibrated to match the estimated (for Existing Plus Project and Cumulative Plus Project conditions) daily trip generation associated with the ARC Site based on the ARC Project trip generation estimates.

- **Regional VMT generated by the SACOG region –** The SACSIM travel demand model, prepared by SACOG for regional travel demand forecasting purposes, was utilized to estimate VMT associated with trips with trip ends within the model boundaries (i.e., the SACOG region). Extra distance was added to trips with trip ends outside of the SACSIM model boundaries (e.g., based on actual distance from edge of model to destinations within Solano or Napa Counties for instance) using the California Statewide Travel Demand Model. VMT associated with SACSIM trips with trip ends within the City of Davis sphere of influence or the UC Davis campus were deleted and replaced with the VMT calculated from the UC Davis/City of Davis travel demand model as described in the previous step.

Traffic Operations Analysis Methods

The Traffic Operations discussion of the TIA analyzes roadway operating conditions using intersection LOS as a primary measure of operational performance. Motorized vehicle LOS is a qualitative measure of traffic flow from the perspective of motorists and is an indication of the comfort and convenience associated with driving. Typical factors that affect motorized vehicle LOS include speed, travel time, traffic interruptions, and freedom to maneuver. Empirical LOS criteria and methods of calculation have been documented in the *Highway Capacity Manual, 6th Edition* (HCM) published by the Transportation Research Board of the National Academies of Science (Transportation Research Board, 2016). The HCM defines six levels of service ranging from LOS A (representing free-flow vehicular traffic conditions with little to no congestion) to LOS F (oversaturated conditions where traffic demand exceeds capacity resulting in long queues and delays). The LOS definitions and calculations contained in the HCM are the prevailing measurement standard used throughout the United States and are used in this study.

The TIA prepared for the ARC Project analyzes 11 of the 23 existing study intersections using Trafficware's Synchro 10 software. Synchro 10 calculates the control delay consistent with the HCM 6th Edition methodology. These intersections are situated along Covell Boulevard between Pole Line Road and the Mace Boulevard curve, as well as along CR 32A and 32B. To account for the effects of turn-pocket overflows, vehicle queuing interactions between adjacent intersections, and interactions between vehicles, bicyclists, and pedestrians, micro-simulation analysis was performed for the remaining 12 study intersections along Mace Boulevard and at/near the I-80/Mace Boulevard interchange using the SimTraffic micro-simulation software, which captures the nature of driver behavior and models the interaction between vehicles in a study network. SimTraffic better accounts for the effects of turn-pocket queue overflows, queue blocking, queue interactions between adjacent intersections, and pedestrian crossing interactions when compared to conventional, deterministic analysis methods, such as those outlined in the HCM 6th Edition and applied in Synchro 10. The SimTraffic model was calibrated and validated to existing conditions based on travel time data, peak hour volumes, and observed maximum queue lengths.

Because micro-simulation models rely on the random arrival of vehicles into the network, multiple runs are needed to provide a reasonable level of statistical accuracy and validity. The SimTraffic models were run over 20 times (each using a different random seed number) and 10 of those runs were selected and averaged to determine final model outputs. Selected runs were screened to exclude outliers that under- or over-emphasized delay compared to observed conditions.

The study roadway segments were evaluated based on the AM and PM peak hour traffic volumes. Roadway segment analysis is included for purposes of evaluating future year traffic operations. Intersections tend to govern peak hour traffic operations of the local roadway network since they represent the location where traffic movements conflict and capacity of the roadway segment is reduced based on the allocation of right-of-way by traffic control devices such as traffic signals. However, performing intersection analysis for future conditions beyond five to 10 years can be speculative given the difficulty of accurately predicting inputs such as individual turning movement volumes and traffic signal operations. To gauge the adequacy of roadway capacity for future conditions, roadway segment analysis can be used instead. The specific methodology involves developing roadway segment volume thresholds correlated to peak hour LOS expectations based on the HCM 6th Edition. The HCM procedures consider a variety of capacity factors associated with the type of roadway and how intersections are controlled but does not require forecasting individual turning movement volumes.

Travel Demand Forecasting

The TIA utilized several tools to forecast travel demand changes associated with the ARC Project, as well as planned local and regional land use development and transportation system modifications. For the purposes of forecasting traffic volumes for the study intersections and roadway segments, the local UC Davis/City of Davis travel demand model was utilized. This model has a base year calibrated to 2019 conditions and forecast years of 2030 and 2036. The model was developed in close coordination with the City of Davis and UC Davis in order to incorporate planned land use and transportation system changes both within the City and its sphere of influence and on the UC Davis campus.

The UC Davis/City of Davis travel demand model was applied to generate study intersection traffic volume forecast inputs for the cumulative analysis scenarios described above, as well as to inform the distribution and assignment of project trips under all "plus project" analysis scenarios. Separate model runs were performed for each scenario and the model-produced volume forecasts were extracted for final adjustments to account for differences between the model's base year volume estimates and observed traffic counts. The adjustment involves isolating the incremental change in volume between the base year model and the future year analysis scenario and adding that difference to the baseline (2019) traffic counts. This adjustment process helps to minimize potential errors in the model's base year estimates and is based on the methodology contained in *Analytical Travel Forecasting Approaches for Project-Level Planning and Design, National Cooperative Highway Research Program (NCHRP) Report 765* (Transportation Research Board, 2014).

Standards of Significance

This section describes the thresholds or criteria that determine whether the project causes a significant impact on the roadway, bicycle, pedestrian, or transit systems.

As briefly discussed above, this SEIR will continue to determine traffic impact significance based on both LOS and VMT. The Third Appellate District court's published opinion regarding *Citizens for Positive Growth & Preservation v. City of Sacramento* (2019) is an important consideration in this regard. Among other points, *Citizens* challenged the City of Sacramento's adoption of its General Plan based on its use of the LOS metric instead of the VMT metric in the transportation impacts section. In 2018, the Secretary of the Natural Resources Agency promulgated and certified CEQA Guidelines section 15064.3 to implement Public Resources Code section 21099(b)(2). The Court held that the plain language of Public Resources Code section 21099(b)(2) provides that "*[u]pon certification of the guidelines* by the Secretary of the Natural Resources Agency pursuant to this section, automobile delay, as described solely by LOS or similar measures of vehicular capacity or traffic congestion *shall not be considered a significant impact* on the environment pursuant to this division, except in locations specifically identified in the guidelines, if any." On this basis, the Court concluded that the General Plan's LOS determinations could not constitute a significant environmental impact.

Citizens argued that if potential automobile delay caused by the General Plan's LOS determinations did not constitute a significant impact pursuant to Public Resources Code section 21099(b)(2), then the City should have been required to conduct a VMT analysis pursuant to CEQA Guidelines section 15064.3. The Court disagreed because the City's EIR was certified before CEQA Guidelines section 15064.3 was enacted, and the criteria set forth therein only apply prospectively (i.e., Statewide beginning on July 1, 2020).

Importantly, the Court did not provide any guidance as to other suggested method(s) by which an agency should determine significant traffic impacts during this "interim" period. As a result, the City believes it has discretion to determine the appropriate metric of traffic impacts for the ARC Project. The City believes that the shift towards VMT on a statewide basis, starting in July 2020, provides a compelling rationale for determining impact significance in the SEIR based on VMT. However, the City also believes it is important to include significance determinations based on LOS in order to 1) provide a meaningful comparison between the LOS analysis in the Certifed Final EIR and the analysis in this SEIR, 2) to consider whether there are physical improvements (whether imposed as mitigation measures or as conditions of approval) needed to further the current LOS-based General Plan policies, and 3) because the Draft SEIR was released for public review before July 1, 2020 when VMT analysis becomes required. As a result, thresholds of significance are included below for both LOS and VMT.

> The following provides discussion regarding the approach to thresholds for each of the involved agencies.

City of Davis

Per the City of Davis General Plan Transportation Element, LOS E is the minimum acceptable LOS for the majority of intersections within the City, and for each City-operated study intersection in the study area. LOS F is acceptable for other areas (e.g., Downtown Davis and the Richards Boulevard corridor) as established in the General Plan and contingent on approval by the City Council. For the purposes of this traffic study analysis, significant traffic impacts at intersections within the City of Davis jurisdiction are defined when the addition of proposed project traffic causes any of the following:

a) For signalized intersections outside the Core Area, causes overall intersection operations to deteriorate from an acceptable level (LOS E or better in the AM or PM peak hour) to an unacceptable level (LOS F in the AM or PM peak hour);
b) For signalized intersections outside the Core Area, exacerbate unacceptable (LOS F) operations by increasing an intersection's average delay by five seconds or more;
c) For unsignalized intersections outside the Core Area, causes the worst-case movement (or average of all movements for all-way stop-controlled intersections) to deteriorate from an acceptable level (LOS E or better in the AM or PM peak hour) to an unacceptable level (LOS F in the AM or PM peak hour) and meet the California Manual on Uniform Traffic Control Devices (MUTCD) peak hour signal warrant;
d) For unsignalized intersections outside the Core Area that operate unacceptably (LOS F in the AM or PM peak hour) and meet MUTCD's peak hour signal warrant without the project, exacerbate operations by increasing the overall intersection's volume by more than one percent;
e) For unsignalized intersections that operate unacceptably, but do not meet MUTCD's peak hour signal warrant without the project, add sufficient volume to meet the MUTCD peak hour signal warrant;
f) For roadway segments, cause peak hour operations to deteriorate from an acceptable level (LOS E or better) to an unacceptable level (LOS F); or
g) For roadway segments that operate unacceptably, cause an increase in volume by more than 10 percent. The 10 percent allowance is based on the normal fluctuation in weekday traffic that occurs and the level of variability associated with traffic forecasts.

Yolo County

Per the Yolo County General Plan, LOS C is the minimum acceptable LOS in the unincorporated county, except as specified on designated roadways. LOS D is the minimum acceptable LOS for CR 32A. For the purposes of this traffic study analysis, significant traffic impacts at intersections within the jurisdiction of Yolo County are defined when the addition of proposed project traffic causes any of the following:

a) For intersections in the unincorporated county with the exceptions noted below, cause peak hour intersection operations to deteriorate from an acceptable level (LOS C) to an unacceptable level (LOS D or worse);

b) For intersections on CR 32A, cause peak hour intersection operations to deteriorate from an acceptable level (LOS D) to an unacceptable level (LOS E or worse);
c) An intersection or roadway segment operates unacceptably under a no project scenario and the project adds 10 or more peak hour trips;
d) The project adds 100 daily passenger vehicle trips (or Truck Trip Equivalencies) to an existing roadway that does not meet current County design standards (e.g., structural section, horizontal and vertical curves, lane and shoulder width, etc.); or
e) The addition of project traffic causes an all-way stop-controlled or side street stop-controlled intersection to meet MUTCD signal warrant criteria.

Caltrans

Caltrans' Local Development – Intergovernmental Review Program (LD-IGR) provides guidance on the evaluation of traffic effects on State highway facilities. In light of SB 743 and related changes to the CEQA Guidelines, Caltrans has announced in its *Caltrans Draft VMT-Focused Transportation Impact Study Guide* (Caltrans, February 2020) that it will use VMT as the CEQA transportation impact metric for projects on the State highway system and has indicated it will rely on the Governor's Office of Planning and Research (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA* when preparing LD-IGR comments on local agency land use projects.

To analyze potential LOS impacts to the State highway system, this study utilizes the performance expectations established in the *Caltrans District 3 Interstate 80 Transportation Concept Report (TCR)* (August 2017). According to the I-80 TCR, the horizon year LOS for I-80 within the study area (including ramp terminal intersections) is LOS F. Therefore, LOS F is considered the design operating goal on the I-80 mainline and at I-80 ramp terminal intersections. However, for the purposes of this traffic analysis, significant traffic impacts to I-80 are defined when the addition of proposed project traffic causes any of the following:

a) For signalized intersections, causes operations to deterioriate to LOS F and increases an intersection's average delay by five seconds or more;
b) For signalized intersections, exacerbate LOS F operations by increasing an intersection's average delay by five seconds or more;
c) For unsignalized intersections, causes the worst-case movement (or average of all movements for all-way stop-controlled intersections) to deteriorate to LOS F and meet the California Manual on Uniform Traffic Control Devices (MUTCD) peak hour signal warrant;
d) For unsignalized intersections that operate at LOS F and meet MUTCD's peak hour signal warrant without the project, exacerbate operations by increasing the overall intersection's volume by more than one percent;
e) For freeway segments, causes operations to deteriorate to LOS F and increases peak hour traffic volume by more than five percent;
f) For freeway segments, exacerbate LOS F operations by increasing peak hour traffic volume by more than five percent; or
g) Causes off-ramp queues to spill onto the freeway.

VMT

In the absence of an adopted citywide VMT threshold, for the purposes of this analysis, the project is considered to result in a significant impact to the roadway system (via its VMT contribution) if the project-generated VMT per service population exceeds any of the following thresholds relative to existing local or regional VMT per service population averages:

a) VMT Threshold #1: Project-generated VMT per service population would be less than or equal to the local or regional VMT per service population averages, as analyzed for recent City of Davis CEQA documents;
b) VMT Threshold #2: Project-generated VMT per service population would be less than or equal to 15 percent lower than the local or regional VMT per service population averages, as recommended by OPR in the Technical Advisory on Evaluating Transportation Impacts in CEQA; and
c) VMT Threshold #3: Project-generated VMT per service population would be less than or equal to 14.3 percent lower than the local or regional VMT per service population averages, the threshold needing to be met in order to be consistent with the 2017 Scoping Plan Update and to achieve State climate goals as defined by the California Air Resources Board (CARB) in the Technical Advisory on Evaluating Transportation Impacts in CEQA.

Other Standards

The proposed project is considered to result in a significant impact if any of the following conditions occur:

a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;
b) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
c) Result in inadequate emergency access.

3-70 Conflict with a program, plan ordinance, or policy addressing the circulation system under Existing Plus Project conditions (reference Impacts 4.14-1 and 4.14-2).

Intersections and Off-Ramp Queuing

The MRIC Project was determined to have a significant impact at the intersections of East Covell Boulevard/Monarch Lane, Mace Boulevard/Alhambra Drive, 2nd Street/CR 32A, and the I-80 WB ramps. However, with implementation of feasible mitigation, the Certified Final EIR determined that only the impact to the East Covell Boulevard/Monarch Lane intersection could be reduced to a less-than-significant level.

In order to develop the Existing Plus Project conditions for the ARC Project, vehicle trips generated by the ARC Project were assigned to the study intersections and driveways in

accordance with the expected trip generation from Table 3-29, and the geographic distribution of project trips, which was determined based on existing travel patterns, relative travel times between competing routes, and complementary land uses (i.e., likely residence locations for project employees).

Table 3-31 displays intersection LOS and delay under Existing Plus ARC Project conditions. Table 3-31 indicates that the intersections along Mace Boulevard at Alhambra Drive and 2nd Street would degrade from LOS C or better under Existing No Project conditions to LOS F with the addition of ARC Project traffic during the AM and PM peak hours. During the AM peak hour, vehicle queues on the I-80 EB off-ramp approach to Chiles Road would spill back onto the freeway mainline.

All project accesses along Mace Boulevard and CR 32A would operate at LOS F during one or both peak hours. Initial micro-simulation model runs showed that motorists traveling eastbound on East Covell Boulevard toward southbound Mace Boulevard would experience considerable queuing due to this congestion along the ARC Site. Accordingly, it is expected that some background trips as well as project trips would divert to Alhambra Boulevard (a two-lane collector street) to bypass the congestion. Such traffic reassignment was incorporated into the Existing Plus Project analysis.

Table 3-32 displays the 95th percentile freeway off-ramp queue at the I-80/Mace Boulevard/Chiles Road and I-80/CR 32A interchanges under Existing Plus Project conditions. Table 3-32 indicates that the 95th percentile vehicle queues at the Mace Boulevard and Chiles Road off-ramps would spill back onto the freeway mainline during the AM peak hour.

Freeway Mainline

Regional and corridor analysis by SACOG, MTC, and Caltrans have already evaluated I-80 within the vicinity of the project site. These analyses include the following documents:

- 2016 SACOG MTP/SCS (SACOG 2016). This document is the RTP for the six-county Sacramento region, which includes Yolo County.
- District System Management and Development Plan, Caltrans District 3 (Caltrans 2013).
- I-80 and Capital City Freeway Corridor System Management Plan (Caltrans 2009).
- Transportation Concept Report I-80, District 3 (Caltrans 2017).
- Transportation Concept Report SR 113, District 3 (Caltrans 2014).
- Interstate 80/United States 50 Davis to Downtown Sacramento Preliminary Investigation (Caltrans 2014).
- I-80/Richards Blvd Interchange Project Study Report – Project Development Support (PSR-PDS) (Caltrans 2017).
- Plan Bay Area 2040 (MTP and ABAG 2017). This document is the RTP/SCS for the nine-county Bay Area region, which includes Solano County.
- Caltrans District 4 Transportation System Development Plan (Caltrans 2011).
- I-80 East Corridor System Management Plan District 4 (Caltrans 2017).

Table 3-31
Intersection LOS – Existing Plus Project Conditions

Intersection	Control	Jurisdiction	Existing Conditions				Existing Plus Project Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1) E. Covell Boulevard/Pole Line Road	Signal	City of Davis	24	C	32	C	30	C	39	D
2) E. Covell Boulevard/Birch Lane	Signal	City of Davis	12	B	14	B	14	B	14	B
3) E. Covell Boulevard/Baywood Lane	TWSC	City of Davis	2 (34)	A (D)	1 (44)	A (E)	2 (89)	A (F)	2 (102)	A (F)
4) E. Covell Boulevard/Manzanita Lane	TWSC	City of Davis	1 (26)	A (D)	1 (35)	A (D)	2 (58)	A (F)	2 (74)	A (F)
5) E. Covell Boulevard/Wright Boulevard	Signal	City of Davis	9	A	8	A	9	A	9	A
6) E. Covell Boulevard/Monarch Lane	TWSC	City of Davis	2 (23)	A (C)	1 (34)	A (D)	3 (61)	A (F)	2 (83)	A (F)
7) E. Covell Boulevard/Alhambra Drive	Signal	City of Davis	10	A	9	A	8	A	14	B
8) E. Covell Boulevard/Harper JR HS Access	Signal	City of Davis	11	A	5	A	45	D	14	B
9) Mace Boulevard/Alhambra Drive/South ARC Driveway	Signal	City of Davis	17	B	21	C	**159**	**F**	**166**	**F**
10) 2nd Street/Fermi Place/Target Driveway	Signal	City of Davis	7	A	15	B	7	A	41	D
11) Mace Boulevard/2nd Street/CR 32A	Signal	City of Davis	34	C	27	C	**155**	**F**	**145**	**F**
12) CR 32A/Park-and-Ride Lot/West ARC Driveway	TWSC	Yolo County/City of Davis[2]	1 (4)	A (A)	2 (6)	A (A)	6 (18)	A (C)	**107 (605)**	**F (F)**
13) Mace Boulevard/I-80 WB Ramps	Signal	Caltrans	20	C	48	D	78	E	70	E
14) Mace Boulevard/Chiles Road	Signal	City of Davis	33	C	69	E	59	E	77	E
15) Chiles Road/I-80 EB Off-Ramp	Signal	Caltrans	11	B	41	D	**383**	**F**	**131**	**F**
16) Mace Boulevard/Cowell Boulevard	Signal	City of Davis	21	C	68	E	22	C	65	E
17) Mace Boulevard/El Macero Drive	AWSC	City of Davis	8	A	28	D	8	A	34	D
18) CR 32A/CR 105	AWSC	Yolo County	5 (9)	A (A)	7 (10)	A (B)	8 (11)	A (B)	22 (28)	C (D)
19) CR 32A/I-80 WB Ramps	TWSC	Caltrans	6 (10)	A (A)	4 (12)	A (B)	9 (14)	A (B)	**12 (59)**	**B (F)**
20) CR 32B/Chiles Road/I-80 EB Ramps [1]	TWSC	Caltrans	4 (12)	A (B)	5 (9)	A (A)	3 (12)	A (B)	**4 (14)**	**A (B)**
21) Mace Boulevard/Central ARC Driveway	TWSC	City of Davis	-	-	-	-	59 (101)	E (F)	**32 (69)**	**D (F)**
22) Mace Boulevard/CR 30B/North ARC Driveway	TWSC	City of Davis	-	-	-	-	**143 (230)**	**F (F)**	**55 (325)**	**F (F)**
23) CR 32A/East ARC Driveway	TWSC	Yolo County/City of Davis[2]	-	-	-	-	3 (11)	A (B)	**56 (177)**	**F (F)**

Table 3-31
Intersection LOS – Existing Plus Project Conditions

Intersection	Control	Jurisdiction	Existing Conditions				Existing Plus Project Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS

Notes: For signalized intersections, average intersection delay is reported in seconds per vehicle for all approaches. For two-way stop-controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches with the delay and LOS for the worst-case movement reported in parentheses.
Shaded cells indicate locations with unacceptable peak hour LOS.
Shaded and bold cells indicate locations where the project would cause a significant impact to peak hour intersection operations in accordance with the significance criteria.
TWSC = Two-Way Stop Control. AWSC = All-Way Stop Control. "-" = Does not exist.
[1] P.M. peak hour LOS does not match observed conditions due to the freeway ramp meter and on-ramp vehicle demand (Synchro traffic operations analysis software cannot capture the operational effects of ramp metering). Field observations indicate that the eastbound left-turn and westbound right-turn operate at LOS F during the PM peak hour under existing conditions. The addition of the project would exacerbate these conditions.
[2] The segment of CR 32A along the ARC Site southern frontage would be annexed into the City of Davis along with the project site. Thus, City of Davis significance thresholds related to roadway performance would apply to study intersections #12 and #23 under Existing Plus Project conditions.

Source: Fehr & Peers, 2020.

Table 3-32
Freeway Off-Ramp Queuing – Existing Plus Project Conditions

Off-Ramp	Off-Ramp Distance[2]	95th Percentile Queue Length[1]			
		Existing Conditions		Existing Plus Project Conditions [3]	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Mace Boulevard/I-80 WB Off-Ramp	1,200 feet	175 feet	175 feet	1,900 feet	700 feet
Chiles Road/I-80 EB Off-Ramp	1,100 feet	100 feet	100 feet	3,300 feet	225 feet
CR 32A/I-80 WB Off-Ramp	1,200 feet	25 feet	25 feet	75 feet	175 feet
Chiles Road/CR 32B/I-80 EB Off-Ramp	1,000 feet	25 feet	75 feet	25 feet	75 feet

[1] Results at the Mace Boulevard/Chiles Road interchange are based on results from SimTraffic micro-simulation model. Results at the CR 32A interchange are based on results from Synchro traffic operations analysis software. Queues are maximum per lane, rounded to the nearest 25 feet.
[2] Measured from the intersection stop bar to the gore point of the freeway off-ramp. Does not include auxiliary lane on freeway mainline.
[3] Shaded cells represent conditions in which the queue would spill onto the freeway mainline.

Source: Fehr & Peers, 2020.

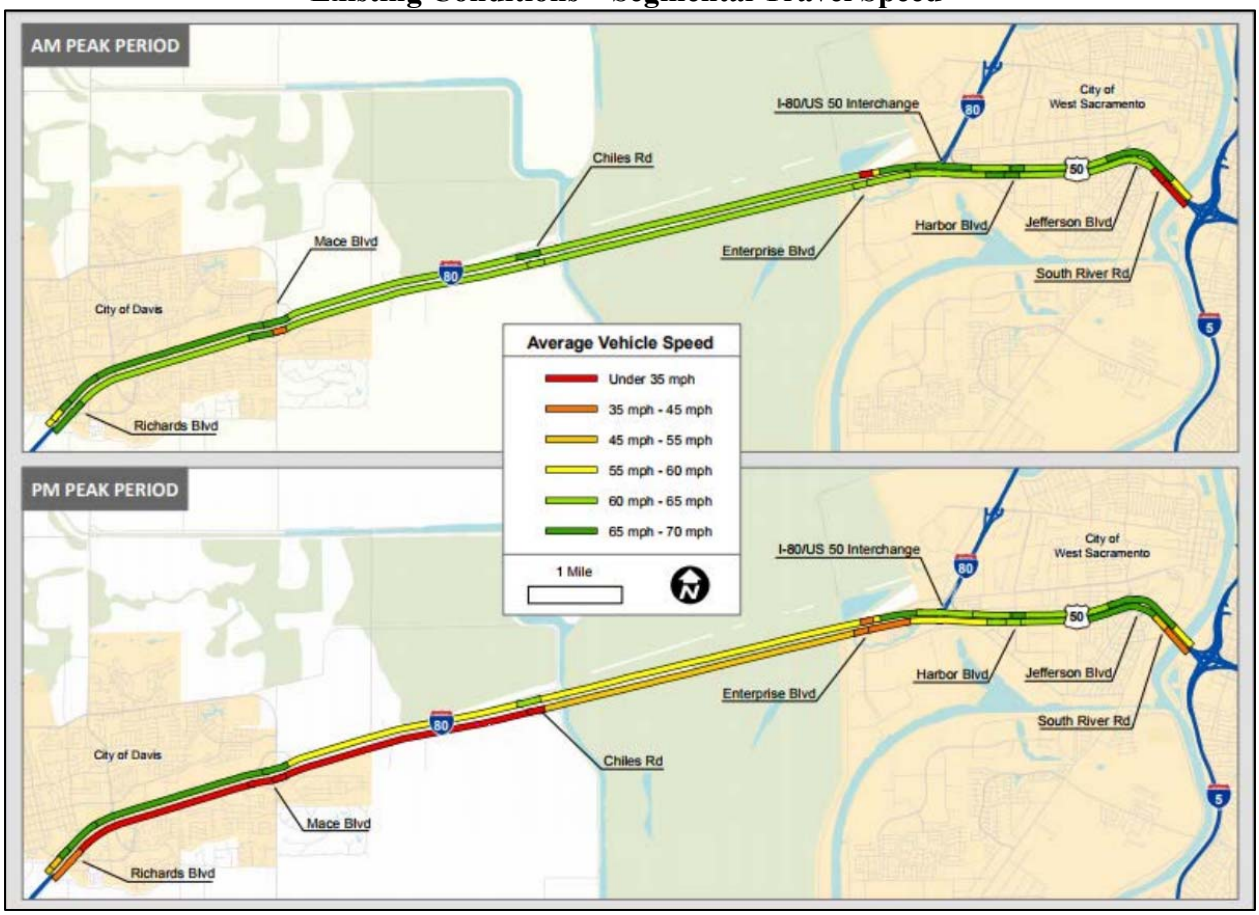
Of the various studies, Caltrans analysis tends to be the most detailed with regards to roadway operations performance. According to the I-80/US 50 Davis to Downtown Sacramento Preliminary Investigation, District 3 (Caltrans 2014), much of the I-80 corridor in the study area has low travel speeds during the PM peak period while the AM peak period has a few isolated areas of low travel speeds (see graphic below). As shown in Figure 3-17 below, I-80 travelers experience slow speeds (i.e., LOS F conditions) for select westbound locations during the morning peak period and more severe and extended areas of slow speeds in the eastbound direction during the evening peak period. More recent observed conditions reveal that AM and PM traffic speeds have continued to degrade such that more segments of I-80 perform poorly over extended periods of time.

The *Caltrans District 3 Interstate 80 Transportation Concept Report* (Caltrans 2017) describes existing and anticipated future operating conditions on I-80 throughout the greater Sacramento area. As documented in the I-80 TCR, the segment of I-80 between Mace Boulevard and West Sacramento (Post Mile 2.68 to 9.55) operates at LOS F (see Table 3-33 below).

Table 3-33
System Characteristics, Concept Facility, and Corridor Performance

SYSTEM CHARACTERISTICS AND CONCEPT FACILITY														BASIC SYSTEM OPERATIONS						
				Existing Facility Base Year					Concept Facility Horizon Year									Average Daily Traffic (ADT)		
				Base Year (BY)					Build Facility-Horizon Year (HY)					Ultimate Facility (HY)	Level of Service (LOS)						
Segment	County	Post Miles (Begin/End)		Facility Type	General Purpose Lanes	Centerline Miles	Lane Miles	Designated Lane	Facility Type	General Purpose Lanes	Centerline Miles	Lane Miles	Designated Lane	General Purpose Lane/ Facility Type (project to achieve LOS - Ultimate concept)	Base Year (BY) 2014	No Build Horizon Year (HY) 2035	Build (HY)	Ultimate Concept	(BY) 2014	No Build (HY) 2035	Build (HY)
1	YOL	0.000	2.680	6	F	2.68	16.08	-	6	F	2.68	16.08	-	6F	E	F	F	D	122,000	145,000	150,000
2	YOL	2.68	9.55	6	F	6.870	41.22	-	6	F	6.870	41.22	-	6F	F	F	F	E	149,000	177,000	189,000
3	YOL	9.55	R11.718	6	F	2.168	11.72	-	6	F	2.170	11.72	-	6F	C	D	D	E	86,000	108,000	109,000

Figure 3-17
Existing Conditions – Segmental Travel Speed



A review of similar information for I-80 in Solano County (e.g., (*I-80 East Corridor System Management Plan District 4*, [Caltrans 2017]) revealed evidence that slow freeway speeds (i.e., LOS F conditions) occur near the Yolo/Solano County line in the eastbound direction during the evening peak period.

The combination of SACOG and MTC region growth, including that associated with the proposed ARC Project, would exacerbate the current I-80 performance problems related to slow speeds and unreliable travel times described above. In response, Caltrans, in cooperation with SACOG, developed the carpool lane project on I-80 between Davis and Downtown Sacramento, which is included in the SACOG MTP/SCS as shown in Table 3-34 below (SACOG 2016). This project would extend between Richards Boulevard in Davis to the I-5/US 50 interchange in Sacramento.

Table 3-34
I-80 Carpool Lane Project Summary

Project ID	Included in DPS	COUNTY	LEAD AGENC	TITLE	PROJECT DESCRIPTION	Completion Timing	TOTAL COST (2015 Dollars)	Status
CAL18812	Yes	Multiple Counties	Caltrans D3	I-80 / U.S. 50 Bus/Carpool Lanes in both directions	Bus/Carpool Lanes in both directions from Richards Blvd. (in Davis) to the I-5/US 50 Interchange. Inc. new bike bridge across the Yolo Causeway.	2021-2036	$300,000,000	Planned

In addition, the SACOG MTP/SCS includes expansion of the Capitol Corridor service from two round trips to ten round trips between Sacramento and Roseville. This expansion would improve the viability of using transit for longer distance trips to/from Davis that would otherwise be using I-80. The Capitol Corridor projects are already programmed according to the SACOG MTP/SCS and the carpool lane project is projected to have sufficient funding for implementation by 2036. These projects are not expected to eliminate the LOS F conditions on I-80 in the study area but will reduce the severity of congestion and provide more reliable travel options for those opting to carpool or use Capitol Corridor service.

A review of similar information for I-80 in Solano County (e.g., (*I-80 East Corridor System Management Plan District 4* [Caltrans 2017]) revealed evidence that slow freeway speeds (i.e., LOS F conditions) near the Yolo/Solano County line in the eastbound direction during the evening peak period will continue to occur under 2030 conditions.

Caltrans analysis of this location contained in the *I-80 East Corridor System Management Plan District 4*, Caltrans, June 2017, does not include specific improvements to address this problem location. The plan does include the planned expansion of I-80 between Dixon and Davis, as shown in the highlighted text in Table 3-35 below, which is a location that could experience an increase in traffic from the proposed ARC Project.

Table 3-35
I-80 East Corridor System Management Plan Improvements

CO	RTE	Beg PM	End PM	Project Description/Location	Improv. Type	Project Cost (millions)*	T-2040 Status	RTP #	Facility Type	IRRS Status	Delivery Status	Compl. By (year)	Comments
SOL	080	25.30	28.40	Extend the EB HOV-2 lane from Alamo Dr. to I-505.	HWY	$19.2	na	na	F	HE	Planned	na	I-80 East CSMP
SOL	080	25.30	28.40	Extend the WB HOV-2 lane from Alamo Dr. to I-505.	HWY	$32.8	na	na	F	HE	Planned	na	I-80 East CSMP
SOL	080	26.50	27.00	Provide an EB auxiliary lane between Cliffside Dr. and Allison Dr. with a 2-lane off-ramp at Allison Dr.	HWY	$3.5	na	na	F	HE	Planned	na	I-80 East CSMP
SOL	080	28.40	28.40	I-80/I-505 I/C redesign to accommodate express lane and eliminate lane drop from WB I-80 at I505.	HWY	na	na	na	F	HE	Planned	na	Solano 2040 Additional
SOL	080	30.00	40.00	Provide a 4th EB general purpose lane extending from E. of Leisure Town Rd. to W. of Kidwell Rd. Potentially HOV/HOT lane.	HWY	$78.0	na	na	F	HE	Planned	na	I-80 East CSMP
SOL	080	30.00	40.00	Provide a 4th WB general purpose lane between W. of Kidwell Rd. and E. of Leisure Town Rd. Potentially HOV/HOT lane.	HWY	$132.3	na	na	F	HE	Planned	na	I-80 East CSMP
SOL	080	30.90	40.70	Widen I-80 from 6 to 8 lanes, from West of Meridian Rd. to West of Kidwell Road	HWY	$83.0	na	na	F	HE	Planned	na	
SOL	080	35.35	35.68	I-80/West A Street Interchange Improvements - Ramp and eventually bridge improvements to increase capacity.	HWY	$25.0	New Com	240248	F	HE		2022	MIS/ Corridor Study
SOL	080	39.74	39.98	I-80/Pedrick Road Interchange Improvements - Ramp and eventually bridge improvements to increase capacity. Roadway provides access to northeast area business park of Dixon.	HWY	$25.0	New Com	240178	F	HE	Planned	2022	
SOL	080	R11.40	19.17	Install ITS gap between Red Top Road and Air Base Parkway. This will consist of CCTV cameras, Highway Advisory Radio and communications infrastructure.	HWY	$6.0	na	na	F	HE	Planned	na	I-80 East CSMP
SOL	080	R11.98	12.85	Provide WB braided ramp configurations as necessary between SR-12 West and I-680 to improve weave and merge maneuvers	HWY	$4.2	na	na	F	HE	Planned	na	I-80 East CSMP
SOL	080	R25.30	R28.34	Extend ITS in EB direction between Alamo Drive and I-505	HWY	$2.3	na	na	F	HE	Planned	na	I-80 East CSMP
SOL	080	R25.30	R28.34	Extend ITS in the WB direction between I-505 and Alamo Drive	HWY	$2.0	na	na	F	HE	Planned	na	I-80 East CSMP

Despite this information, MTC did not include any capacity expansion projects for the I-80 corridor in eastern Solano County as part Plan Bay Area 2040. As such, regional growth (including

the ARC Project) would likely exacerbate the congested conditions previously identified by Caltrans.

Additional employee and residential growth with the ARC Project would generate new peak period vehicle trips that would contribute to existing and future LOS F conditions on the I-80 mainline. For example, approximately one-third of peak hours trips generated by the ARC Project are estimated to travel to/from the Sacramento vicinity on I-80 on the Yolo Causeway (east of Davis), equal to approximately 820 and 870 additional vehicle trips during the AM and PM peak hours, respectively, under Existing Plus Project conditions. According to the I-80 TCR, this segment of I-80 served 12,200 peak hour trips during the base year (2014). Therefore, the project would increase I-80 mainline volumes on the Yolo Causeway by more than five percent.

Additional Considerations

The proposed project would add several hundred new peak hour vehicle trips between the project site and the I-80/CR 32A interchange located to the east of the project site. These trips would be generated by project employees and residents traveling between the project site and Sacramento (and surrounding communities) via the I-80 causeway. These trips are expected to utilize the I-80/CR 32A interchange instead of the I-80/Mace Boulevard interchange due to delays on Mace Boulevard within the interchange vicinity that would make use of the I-80/CR 32A interchange more attractive from a travel time standpoint.

These additional project vehicle trips would primarily use CR 32A to travel between the project site and the I-80/CR 32A/CR 32B/Chiles Road interchange. This would have the following adverse effects on roadway operations:

- Adverse effects to the UPRR at-grade rail crossing: UPRR operates an at-grade rail crossing of CR 32A immediately south of the CR 32A/CR 105 stop-controlled intersection. Trespassing events (i.e., vehicles on the tracks) and vehicle-train collisions have occurred at this location due to the current physical configuration of the crossing. Yolo County, together with Union Pacific and the City of Davis, is currently evaluating potential modifications to this at-grade crossing to reduce the potential for conflicts with rail operations. The addition of several hundred peak hour project vehicle trips could increase the potential for conflicts with rail operations at this location. This relates to the CEQA threshold concerning "*Substantially increasing hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)*".
- Adverse effects to the I-80/CR 32A interchange: The I-80/CR 32A interchange experiences high volumes of vehicle trips during the PM peak hour, particularly on days when regional cut-through activity is prevalent. The combination of high travel demand and the ramp meter at the Chiles Road/I-80 EB on-ramp causes substantial peak hour delay and queuing (i.e., LOS F conditions) on roadways within the interchange vicinity, particularly on eastbound and westbound Chiles Road near the I-80 EB ramps (near the Yolo Fruit Stand) and eastbound CR 32A (due to queue spillback from the I-80 EB on-ramp). The addition of several hundred peak hour project trips would exacerbate these LOS F conditions and exceed applicable Caltrans LOS thresholds.

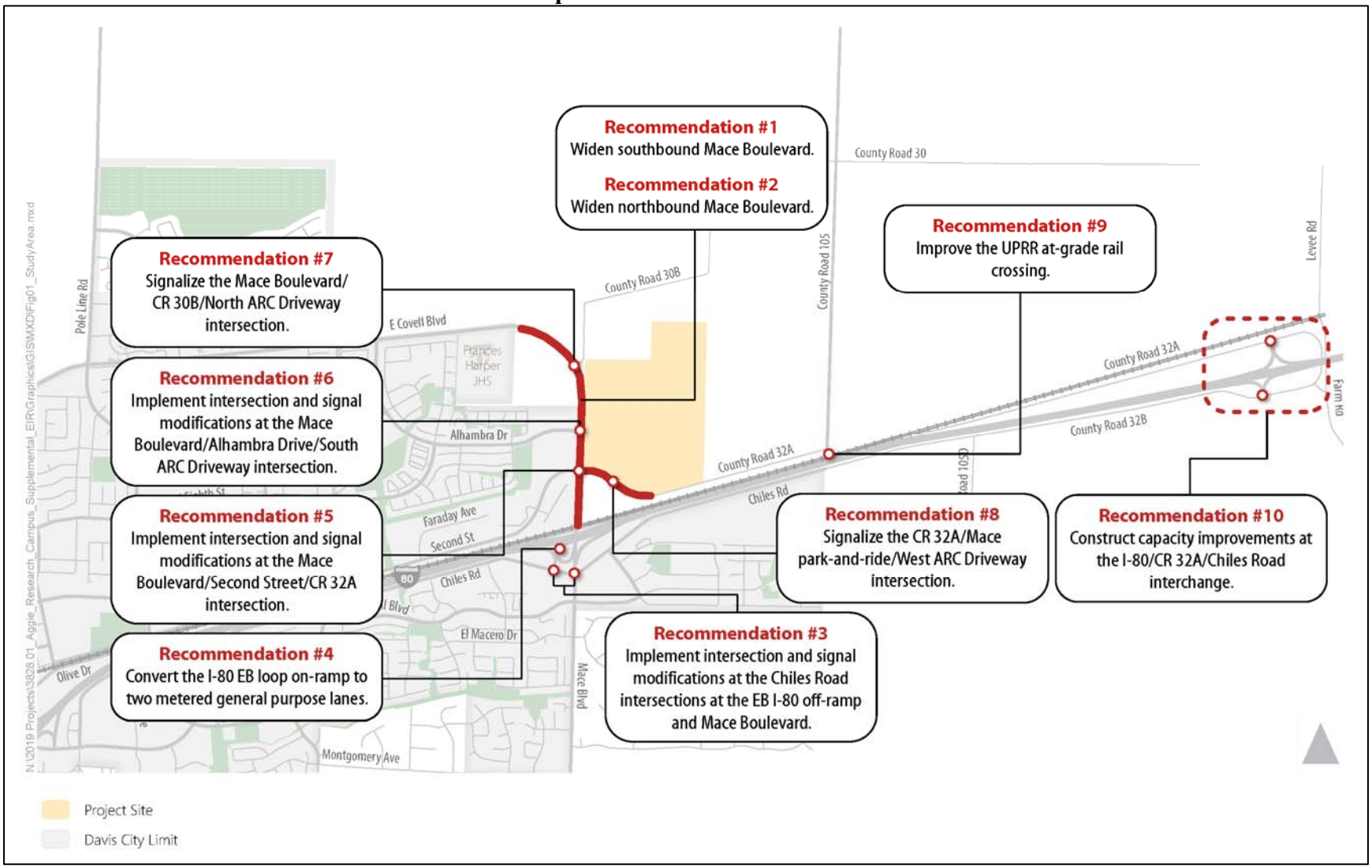
Based on the above, a ***significant*** impact would occur to the circulation system under Existing Plus Project Conditions.

Mitigation Measure(s)

Through an iterative process using the SimTraffic micro-simulation model, the following physical improvements and signal timing changes were identified to enhance operations on the Mace Boulevard corridor under Existing Plus Project Conditions. See Mitigation Measure 3-70(a) where the following described improvements are required. Such improvements are illustrated on Figure 3-18:

1. Southbound Mace Boulevard: Extend the second eastbound/southbound lane from Harper Junior High School to Alhambra Drive. Add a third southbound lane from 2nd Street to connect with the dedicated right-turn lane onto the I-80 WB on-ramps.
2. Northbound Mace Boulevard: Extend the third northbound lane from the I-80 WB off-ramps to connect with a new northbound "trap" right-turn lane at the Mace Boulevard/2nd/CR 32A intersection. Add a second northbound/westbound lane from 2nd Street to the Harper Junior High School signalized intersection.
3. Mace Boulevard/Chiles Road and Chiles Road/I-80 EB Off-Ramp Intersections: This pair of tightly spaced intersections (situated 450 feet apart) requires signal coordination/timing adjustments and a lane reassignment on the eastbound Chiles Road approach to Mace Boulevard due to the heavy project-related off-ramp volume during the AM peak hour. Modifying the eastbound through lane to a shared left/through lane would require the east and west approaches to operate with split phasing. Signal coordination (particularly critical during the AM peak hour) would synchronize the green interval for the I-80 off-ramp movement with the eastbound approach on Chiles Road at Mace Boulevard to facilitate the flow of motorists off of I-80. The signal would be modified to operate the southbound left-turn and westbound right-turn during a shared overlap phase. This modification would also require the prohibition of southbound U-turns.
4. I-80 Eastbound Loop On-Ramp: This on-ramp consists of a single entry lane from southbound Mace Boulevard, which widens to a metered general purpose lane and an unmetered HOV bypass lane. During the PM peak hour, the addition of project trips would cause queue spillback from the ramp meter onto the overpass, thereby causing queue spillback to extend further upstream. The recommended modification from an unmetered HOV bypass lane to a metered general purpose lane was found to provide more ramp metering storage, and reduced effects on the surface street. Similar modifications have been considered by Caltrans elsewhere in the Sacramento region.
5. Mace Boulevard/2nd Street/CR 32A Intersection: Modify the northbound approach to add a "trap" right-turn lane. Modify the westbound approach to two left-turn lanes and a shared through-right lane. Modify westbound CR 32A between this intersection and the adjacent CR 32A/Mace Park-and-Ride/West ARC Driveway intersection to have two through lanes.
6. Mace Boulevard/Alhambra Drive/South ARC Driveway Intersection: Modify the westbound approach to two left-turn lanes and a shared through-right lane. Provide a southbound left-turn lane, two through lanes, and a right-turn lane.

Figure 3-18
Operational Enhancements



7. Mace Boulevard/CR 30B/North ARC Driveway Intersection: Install a traffic signal. Provide a southbound left-turn lane and two through lanes. Provide a northbound through lane and shared through-right lane.
8. CR 32A/Mace Park-and-Ride/West ARC Driveway Intersection: Install a traffic signal. Provide a southbound left-turn lane and a shared through-right lane. Provide an eastbound left-turn lane.
9. CR 32A between CR 105 and the Causeway Bicycle Path Access: Widen CR 32A to meet Yolo County standards for a two-lane arterial (14-foot travel lanes and six-foot shoulder/on-street bike lanes).

Table 3-36 displays the resulting intersection LOS and delay under Existing Plus Project conditions with these operational enhancements in place. Table 3-36 indicates that the total number of intersections located near the project, at the I-80/Mace Boulevard interchange, and at the I-80/CR 32A interchange, operating with an average intersection LOS of LOS F during one or both peak hours, would be decreased from seven to zero.

Table 3-37 summarizes how the percentage of peak hour travel demand is able to be served within the portion of the study area covered by the micro-simulation model (i.e., along Mace Boulevard from east of Harper Junior High School southerly to El Macero Drive and including the connections to I-80, Chiles Road, and CR 32A). When the percent demand served drops well below 100 percent, the demand for travel cannot be served within a single hour due to either upstream or downstream bottlenecks. This can lead to 'peak hour spreading', which is generally defined as more than one hour of congested, stop-and-go conditions. As shown in the table, the project causes the system-wide percent demand served to decrease from nearly 100 percent under existing conditions to 82 percent during the AM peak hour and 85 percent during the PM peak hour. With the potential operational enhancements, these percentages increase to 99 percent during the AM peak hour and 97 percent during the PM peak hour, a substantial improvement. This table also shows the substantial benefit these improvements would offer at individual intersections. Lastly, Table 3-38 illustrates how the operational enhancements would benefit freeway off-ramp queuing at the I-80/Mace Boulevard interchange. As shown, vehicle queues would no longer spill back onto the I-80 mainline with implementation of these enhancements.

Freeway Mainline Mitigation

Potential improvements that would reduce the project's effect on unacceptable I-80 mainline operations include the following:

1. I-80 corridor improvements: As described above, several planned improvements have been identified by Caltrans and SACOG to address operational deficiencies on the I-80 mainline. These include the construction of HOV lanes between Richards Boulevard in Davis and Sacramento, as well as improvements to Capitol Corridor rail service between Sacramento and Roseville.

Table 3-36
Intersection LOS – Existing Plus Project Conditions With Potential Operational Enhancements

Intersection	Control	Existing Conditions				Existing Plus Project Conditions				Existing Plus Project With Potential Operational Enhancements			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. E. Covell Boulevard/Pole Line Road	Signal	24	C	32	C	30	C	39	D	30	C	39	D
2. E. Covell Boulevard/Birch Lane	Signal	12	B	14	B	14	B	14	B	14	B	14	B
3. E. Covell Boulevard/Baywood Lane	TWSC	2 (34)	A (D)	1 (44)	A (E)	2 (89)	A (F)	2 (102)	A (F)	2 (89)	A (F)	2 (102)	A (F)
4. E. Covell Boulevard/Manzanita Lane	TWSC	1 (26)	A (D)	1 (35)	A (D)	2 (58)	A (F)	2 (74)	A (F)	2 (58)	A (F)	2 (74)	A (F)
5. E. Covell Boulevard/Wright Boulevard	Signal	9	A	8	A	9	A	9	A	9	A	9	A
6. E. Covell Boulevard/Monarch Lane	TWSC	2 (23)	A (C)	1 (34)	A (D)	3 (61)	A (F)	2 (83)	A (F)	3 (61)	A (F)	2 (83)	A (F)
7. E. Covell Boulevard/Alhambra Drive	Signal	10	A	9	A	8	A	14	B	10	A	20	B
8. E. Covell Boulevard/Harper JR HS Access	Signal	11	A	5	A	45	D	14	B	17	B	17	B
9. Mace Boulevard/Alhambra Drive/South ARC Driveway	Signal	17	B	21	C	**159**	**F**	**166**	**F**	26	C	49	D
10. 2nd Street/Fermi Place/Target Driveway	Signal	7	A	15	B	7	A	41	D	7	A	18	B
11. Mace Boulevard/2nd Street/CR 32A	Signal	34	C	27	C	**155**	**F**	**145**	**F**	60	E	67	E
12. CR 32A/Park-and-Ride Lot/West ARC Driveway	TWSC/ Signal	1 (4)	A (A)	2 (6)	A (A)	6 (18)	A (C)	**107 (605)**	**F (F)**	17	B	21	C
13. Mace Boulevard/I-80 WB Ramps	Signal	20	C	48	D	78	E	70	E	51	D	38	D
14. Mace Boulevard/Chiles Road	Signal	33	C	69	E	59	E	77	E	50	D	59	E
15. Chiles Road/I-80 EB Off-Ramp	Signal	11	B	41	D	**383**	**F**	**131**	**F**	23	C	71	E
16. Mace Boulevard/Cowell Boulevard	Signal	21	C	68	E	22	C	65	E	38	D	33	C
17. Mace Boulevard/El Macero Drive	AWSC	8	A	28	D	8	A	34	D	10	A	9	A
18. CR 32A/CR 105	AWSC	5 (9)	A (A)	7 (10)	A (B)	8 (11)	A (B)	22 (28)	C (D)	8 (11)	A (B)	22 (28)	C (D)
19. CR 32A/ I-80 WB Ramps	TWSC	6 (10)	A (A)	4 (12)	A (B)	9 (14)	A (B)	**12 (59)**	**B (F)**	6.6	A	11.0	B

Table 3-36
Intersection LOS – Existing Plus Project Conditions With Potential Operational Enhancements

Intersection	Control	Existing Conditions				Existing Plus Project Conditions				Existing Plus Project With Potential Operational Enhancements			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
20. CR 32B/Chiles Road/I-80 EB Ramps	TWSC	4 (12)	A (B)	5 (9)	A (A)	3 (12)	A (B)	**4 (14)**	**A (B)**	5.9	A	14.1	B
21. Mace Boulevard/Central ARC Driveway	TWSC	-	-	-	-	59 (101)	E (F)	**32 (69)**	**D (F)**	3 (4)	A (A)	3 (7)	A (A)
22. Mace Boulevard/CR 30B/North ARC Driveway	TWSC	-	-	-	-	**143 (230)**	**F (F)**	**55 (325)**	**F (F)**	21	C	4	A
23. CR 32A/East ARC Driveway[1]	TWSC	-	-	-	-	3 (11)	A (B)	**56 (177)**	**F (F)**	4 (12)	A (B)	16 (42)	C (E)

Notes: For signalized intersections, average intersection delay is reported in seconds per vehicle for all approaches. For two-way stop-controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches with the delay and LOS for the worst-case movement reported in parentheses.
Shaded cells indicate locations with unacceptable peak hour LOS.
Shaded and bold cells indicate locations where the project would cause a significant impact to peak hour intersection operations in accordance with the significance criteria.
TWSC = Two-Way Stop Control. AWSC = All-Way Stop Control. "-" = Does not exist.
[1] The segment of CR 32A along the ARC Site southern frontage would be annexed into the City of Davis along with the project site. Thus, City of Davis significance thresholds related to roadway performance would apply to study intersections #12 and #23 under Existing Plus Project conditions.

Source: Fehr & Peers, 2020.

Table 3-37
Percent of Peak Hour Travel Demand Served – Existing Plus Project Conditions with Improvements

Metric	Existing Conditions[1]				Existing Plus Project Conditions[1]				Existing Plus Project Conditions + Operational Enhancements[1,2]			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Hourly Demand	Vehicles Served (%)	Hourly Demand	Vehicles Served (%)	Hourly Demand	Vehicles Served (%)	Hourly Demand	Vehicles Served (%)	Hourly Demand	Vehicles Served (%)	Hourly Demand	Vehicles Served (%)
Overall System[3]	14,246	14,231 (100%)	15,332	14,844 (97%)	20,185	16,526 (82%)	20,538	17,555 (85%)	20,192	19,923 (99%)	20,551	20,014 (97%)
Mace Blvd/ Alhambra Blvd.	1767	1750 (99%)	1,746	1,725 (99%)	2,959	2,383 (81%)	2,928	2,513 (86%)	2,959	2,925 (99%)	2,928	2,869 (98%)
Mace Blvd/2nd Street	2655	2652 (100%)	2,917	2,899 (99%)	4,040	3,288 (81%)	4,207	3,534 (84%)	4,040	3,989 (99%)	4,207	4,081 (97%)
Mace Blvd/I-80 WB Ramps	3172	3169 (100%)	3,066	2,983 (97%)	4,409	3,669 (83%)	4,066	3,503 (86%)	4,409	4,322 (98%)	4,066	3,933 (97%)
Mace Blvd/Chiles Road	2529	2535 (100%)	2,746	2,558 (93%)	3,138	2,496 (80%)	3,078	2,681 (87%)	3,145	3,072 (98%)	3,091	3,011 (97%)

[1] Based on results from SimTraffic micro-simulation model.
[2] Refer to Figure 3-18 for illustration of operational enhancements.
[3] Includes study intersections 9 through 17.

Source: Fehr & Peers, 2020.

Table 3-38
Freeway Off-Ramp Queuing – Existing Plus Project Conditions with Improvements

Off-Ramp	Off-Ramp Distance[2]	95th Percentile Queue Length[1]					
		Existing Conditions		Existing Plus Project Conditions[3]		Existing Plus Project Conditions + Operational Enhancements[3]	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
I-80 WB Off-Ramp/Mace Boulevard	1,200 feet	175 feet	175 feet	1,900 feet	700 feet	825 feet	175 feet
I-80 EB Off-Ramp/Mace Boulevard	1,100 feet	100 feet	100 feet	3,300 feet	225 feet	250 feet	175 feet

[1] Based on results from SimTraffic micro-simulation model.
[2] Measured from the intersection stop bar to the gore point of the freeway off-ramp. Does not include auxiliary lane on freeway mainline.
[3] Shaded cells represent conditions in which the queue would spill onto the freeway mainline.

Source: Fehr & Peers, 2020.

2. Implementation of TDM strategies: The implementation of TDM strategies would reduce ARC-related peak hour vehicle trips on I-80. Refer to Mitigation Measure 3-72(a) for a description of potential TDM strategies for the ARC Project.

These actions would provide benefits to I-80 mainline operations.

Addition Mitigation Considerations

The following additional mitigation considerations are identified to address the above-discussed effects to the UPRR at-grade rail crossing and the I-80/CR 32A/CR 32B/Chiles Road interchange:

1. UPRR at-grade rail crossing improvements: The UPRR track/CR 32A crossing could be converted from an at-grade crossing to a grade-separated crossing. A near-term improvement prior to provision of the grade separation could consist of relocating the CR 32A/CR 105 intersection about 200 feet to the north and installing double gates on the south approach to the grade crossing in order to improve safety and traffic functionality at the grade crossing.
2. I-80/CR 32A/CR 32B/Chiles Road interchange improvements: Construct capacity improvements at the CR 32 interchange and along CR 32A to allow this interchange to serve more project traffic, including:
    - Reconstruction, widening, and potential relocation to the west, of the eastbound and westbound on- and off-ramps to provide more storage capacity, and to provide traffic signals or roundabouts at the ramp terminal intersections. Provision of an auxiliary lane between the relocated eastbound on-ramp merge and the causeway structure.
    - Re-configuration of the CR 32A/CR 105 intersection to provide uninterrupted CR 32A flow with CR 105 under stop control.

The implementation of these improvements would provide acceptable operations at the UPRR at-grade rail crossing and the I-80/CR 32A/CR 32B/Chiles Road interchange (see Table 3-36).

Indirect Effects of Traffic Mitigation Measures

The certainty of the above-recommended traffic improvements is unknown due to the reasons articulated below, such as the improvement area not being within the sole jurisdiction of the City of Davis, or being within an area subject to a City Corridor Plan process. However, Mitigation Measure 3-70(a) requires the applicant to make a good faith effort to work with Caltrans and/or Yolo County and the City for the purpose of identifying and implementing physical improvements to the network which have a nexus to the project's impact; and Mitigation Measure 3-75(c) requires the applicant to fund a Mace Boulevard Corridor Plan to identify improvements along the corridor that meet multiple objectives, including mitigating the ARC Project's traffic effects. As a result, the following programmatic discussion is included regarding the-above noted improvements that could result in secondary effects to the environment. It is important to note that CEQA Guidelines Section 15126.4(1)(D) allows the analysis to be less detailed than the project's direct effects, as follows:

> If a mitigation measure would cause one or more significant effects in addition to those that would be caused by the project as proposed, the effects of the mitigation measure shall be discussed but in less detail than the significant effects of the project as proposed. (*Stevens v. City of Glendale* (1981) 125 Cal.App.3d 986.)

First, regarding potential interchange improvements to I-80/CR 32A/CR 32B/Chiles Road, such improvements would be subject to separate environmental review, with Caltrans as the lead agency. Second, regarding the potential UPRR at-grade rail crossing improvements, such improvements, whose scope is uncertain, would be subject to their own separate environmental review, under a separate lead agency. Furthermore, improvements to the UPRR crossing at CR 32A are already being considered by UPRR, Yolo County, and the City of Davis; and thus, are being planned independently of the project and are not solely driven by the ARC Project.[50] As a result, analysis of the secondary effects of these potential improvements is not required in this SEIR.

The recommended widening to CR 32A, between CR 105 and the Causeway Bicycle Path Access, could have potential impacts related to biological resources. For example, depending upon the future design, the widening could impact burrowing owl habitat and GGS upland habitat, due to the northern edge of the roadway being close to within 200 feet of aquatic habitat (i.e., Railroad Channel), north of the railroad berm. As a result, the mitigation measures in the biological resources impacts of this SEIR have been written in such a way as to ensure that each phase of the ARC Project, including all on-site and off-site work associated with that phase, shall obtain coverage under the Yolo HCP/NCCP, and implement avoidance and minimization measures.

The recommended improvements to southbound and northbound Mace Boulevard in the vicinity of the ARC Project, would in some instances require widening to accommodate additional lanes (e.g., along the Mace Curve). Such improvements could impact burrowing owl habitat along the roadway edges. Thus, Mitigation Measure 3-18 of this SEIR requires coverage under the Yolo HCP/NCCP for all off-site work associated with each phase of ARC, which would include improvements along the Mace Corridor, to the extent any such improvements are ultimately selected for implementation as part of the Corridor Plan process, required in Mitigation Measure 3-75(c).

There is also a limited potential for unknown cultural resources to be impacted as a result of CR 32A widening and improvements along the Mace Boulevard corridor. As such, the cultural resources mitigation measures have been written to require implementation of protective measures should unknown resources be found within off-site work areas associated with each phase of ARC. In addition, Mitigation Measure 3-28(a) requires additional investigation of areas determined by the cultural resources consultant to have "high" sensitivity for buried resources, which includes a portion of the Mace Curve.

With respect to agricultural resources, the widening of Mace Boulevard along the curve could impact limited adjacent areas under agricultural production; however, the extent of this cannot be

[50] See Stephen L. Kostka and Michael H. Zischke. *Practice Under the California Environmental Quality Act, Second Edition*. March 2019 Update, Section 12.8.

known until plans for widening have been designed. Nevertheless, Mitigation Measure 3-5(a) requires mitigation for agricultural land conversion, consistent with the City's Municipal Code, for on-site, as well as off-site work areas associated with each ARC phase.

With respect to water quality, the overall disturbance area for the off-site improvement areas would, in most cases, be anticipated to exceed one acre. Thus, the activities would be subject to NPDES Construction General Permit requirements, including implementation of BMPs and preparation of a site-specific SWPPP. The General Permit also requires that construction sites be inspected before and after storm events and every 24 hours during extended storm events. The purpose of the inspections is to identify maintenance requirements for the BMPs and to determine the effectiveness of the BMPs that are being implemented. The SWPPP is considered a "living document" that could be modified as construction activities progress. A Qualified SWPPP Practitioner (QSP) would ensure compliance with the SWPPP through regular monitoring and visual inspections during construction activities. The SWPPP would be amended and BMPs revised, as determined necessary through field inspections, to protect against substantial erosion or siltation on- or off-site.

With respect to construction air quality and greenhouse gas emissions, any construction emissions modeling prepared for potential widening of CR 32A and improvements along the Mace Boulevard Corridor would be speculative, and would not allow for a meaningful analysis. The evidence for this is based on the long buildout of the ARC Project and involvement of other agencies and processes (i.e., Mace Boulevard Corridor Plan), rendering the timing and feasibility of these potential improvements uncertain. Given the unknown timing of future traffic improvements required as a result of this project, it cannot be known at this time whether the construction of any off-site traffic improvements, subject to other agency approval, or the City's corridor plan process, will overlap with a particular phase of on-site construction. Although speculative, it is reasonable to assume construction of one or more off-site traffic improvements could overlap with on-site construction, but which improvement(s), and during which phase(s), is speculative. Furthermore, this SEIR concludes that construction-related air quality (criteria pollutant) and greenhouse gas emissions attributable to the project are significant, for which mitigation has been incorporated to the extent feasible. For example, Mitigation Measure 3-10 requires the contractor(s) to ensure that the heavy-duty off-road vehicles (50 horsepower or more) to be used in all construction projects, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet average 20 percent NO_X reduction compared to the year 2023 California Air Resources Board (CARB) fleet average.

With respect to construction noise, given the requirement for the ARC Project, including all off-site improvements associated with each phase, to comply with existing law (e.g., Davis Noise Ordinance), the standards of which are included in Impact 3-56, the potential construction noise impacts associated with off-site traffic improvements would be less-than-significant.

With respect to temporary disruption of traffic on off-site improvement areas, the activities would be subject to the Construction Traffic Management Plan (CTMP) required per Mitigation Measure 3-74 of this SEIR.

The above programmatic analysis regarding potential secondary effects of ARC traffic mitigation measures meets CEQA's less detailed requirement for such effects, and demonstrates, that such potential effects, though uncertain, are adequately addressed.

Conclusion

Based on the above, the aforementioned enhancements identified in the TIA would serve to improve operations at all of the impacted intersections and CR 32 interchange. However, widening of Mace Boulevard north of Alhambra Drive (#1 and #2 above), and other identified improvements to Mace Boulevard at intersections under the sole jurisdiction of the City of Davis (#5 and #6), would require additional study as part of a Mace Boulevard Corridor Plan, which is required pursuant to General Plan Policy TRANS 2.8, Action a. (see Map 5, Corridor Plans, Davis General Plan Transportation Element). The preferred improvements to Mace Boulevard cannot be determined at this time, as they will be determined through the City's Corridor Plan process. In addition, improvements #1,7,9 would require Yolo County approval. Improvements #3 and #4 above would require Caltrans approval.

The I-80 corridor improvements described above would provide benefits to I-80 mainline operations. Caltrans has identified the need for carpool lanes on I-80 between Richards Boulevard in Davis and West Sacramento to accommodate regional traffic growth. The carpool lane project has already been incorporated into the 2016 SACOG MTP/SCS and is a fully funded project expected to be implemented by 2036. Roadway capacity expansion will lead to induced vehicle travel that will likely offset the short-term congestion relief benefits of the I-80 carpool lanes. Furthermore, LOS F conditions would continue to occur during peak periods on portions of I-80 in Yolo and Solano counties.

The implementation of TDM strategies would reduce vehicle travel to and from the ARC Site on I-80 and lessen the project's contribution to unacceptable LOS F conditions on I-80. However, the level of delay reduction associated with TDM strategies is uncertain. Existing evidence indicates that the effectiveness of TDM strategies with regards to vehicle trip reduction can vary based on a variety of factors, including the context of the surrounding built environment and the aggregate effect of multiple TDM strategies deployed together. Moreover, many TDM strategies are not just site specific, but also rely on implementation and/or adoption by private entities (e.g., elective use of carpool program by office building tenants).

Furthermore, the recommended improvements to the UPRR crossing, County approaches to the CR 32 interchange, and the interchange itself, would require CPUC, Yolo County and/or Caltrans approval. Given that the required improvements are outside of the City's jurisdiction, the City, as lead agency, cannot legally impose the recommended improvements, but Mitigation Measure 3-70(a) requires the applicant to make a good faith effort to work with these jurisdictions to implement the identified improvements.

Consistent with *Tracy First v. City of Tracy* (2009) 177 Cal.App.4th 912, contribution of mitigation funds is not required for impacts where the City does not have full jurisdiction nor a

plan in place to ensure implementation of mitigation measures. Nevertheless, the applicant has agreed to contribute mitigation funds, as described in Mitigation Measures 3-70(a) and (c).[51]

If the below listed mitigation measures were implemented, the significant impacts would be reduced to a less-than-significant level for the local intersections, but not the freeway mainline. Due to uncertainties regarding the ability for the aforementioned mitigation measures to reduce impacts, the impact would remain *significant and unavoidable* with development of the ARC Project.

ARC Project and Mace Triangle

3-70(a) *In conjunction with submittal of a final planned development, or tentative map, whichever occurs first, for each phase of development, the Master Owners' Association (MOA) for the Project, or applicant (i.e., Mace Triangle project), shall submit a focused traffic impact study to determine if any of the below-listed intersection and roadway improvements are required based on the additional traffic generated by the development phase. The focused traffic study shall address the impact of adding the individual phase of development to existing plus other approved/pending development projects. The traffic study shall use the current version of the City travel demand forecasting model available at the time of the study, and the traffic operations analysis methods utilized in this SEIR. If operations are found to have declined to unacceptable levels based on the relevant criteria under Standards of Significance, the project applicant shall construct physical improvements or pay its fair share as described prior to the issuance of the first certificate of occupancy for the first building in that phase.*

Intersection improvements
If any of the identified improvements require Caltrans or Yolo County approval, the applicant shall make a good faith effort to work with Caltrans and/or Yolo County and the City for the purpose of identifying and implementing physical improvements to the network which have a nexus to the project's impact.

1. *Southbound Mace Boulevard: Extend the second eastbound/southbound lane from Harper Junior High School to Alhambra Drive. Add a third southbound lane from 2nd Street to connect with the dedicated right-turn lane onto the I-80 WB on-ramps.*

[51] It should be noted that while the improvements listed here provide benefits to peak hour roadway operations for vehicles, they could diminish the bicycle and pedestrian environment by increasing crossing distances and bicycle and pedestrian exposure times at intersections. Moreover, the additional roadway capacity resulting from these improvements could induce additional vehicle miles traveled (VMT) on study area roadways. Existing evidence indicates that Covell Boulevard, Mace Boulevard, and connecting roadways such as 2nd Street and Chiles Road are utilized as regional cut-through routes when I-80 experiences significant speed reductions and delays during PM peak periods. Therefore, improving operations and reducing delays along these local roadways could increase the attractiveness of these routes as alternatives to I-80 and induce additional regional cut-through activity on local roadways. Parallel local routes require longer trip distances than remaining on I-80, therefore, regional travel demand use of local routes would yield more VMT than use of I-80.

2. *Northbound Mace Boulevard: Extend the third northbound lane from the I-80 WB off-ramps to connect with a new northbound "trap" right-turn lane at the Mace Boulevard/2nd Street/CR 32A intersection. Add a second northbound/westbound lane from 2nd Street to the Harper Junior High School signalized intersection.*
3. *Mace Boulevard/Chiles Road and Chiles Road/I-80 EB Off-Ramp Intersections: This pair of tightly spaced intersections (situated 450 feet apart) requires signal coordination/timing adjustments and a lane reassignment on the eastbound Chiles Road approach to Mace Boulevard due to the heavy project-related off-ramp volume during the AM peak hour. Modifying the eastbound through lane to a shared left/through lane would require the east and west approaches to operate with split phasing. Signal coordination (particularly critical during the AM peak hour) would synchronize the green interval for the I-80 off-ramp movement with the eastbound approach on Chiles Road at Mace Boulevard to facilitate the flow of motorists off of I-80. The signal would be modified to operate the southbound left-turn and westbound right-turn during a shared overlap phase. This modification would also require the prohibition of southbound U-turns.*
4. *I-80 Eastbound Loop On-Ramp: This on-ramp consists of a single entry lane from southbound Mace Boulevard, which widens to a metered general purpose lane and an unmetered HOV bypass lane. During the PM peak hour, the addition of project trips would cause queue spillback from the ramp meter onto the overpass, thereby causing queue spillback to extend further upstream. The recommended modification from an unmetered HOV bypass lane to a metered general purpose lane was found to provide more ramp metering storage, and reduced effects on the surface street. Similar modifications have been considered by Caltrans elsewhere in the Sacramento region.*
5. *Mace Boulevard/2nd Street/CR 32A Intersection: Modify the northbound approach to add a "trap" right-turn lane. Modify the westbound approach to two left-turn lanes and a shared through-right lane. Modify westbound CR 32A between this intersection and the adjacent CR 32A/Mace Park-and-Ride/West ARC Driveway intersection to two through lanes.*
6. *Mace Boulevard/Alhambra Drive/South ARC Driveway Intersection: Modify the westbound approach to two left-turn lanes and a shared through-right lane. Provide a southbound left-turn lane, two through lanes, and a right-turn lane.*
7. *Mace Boulevard/CR 30B/North ARC Driveway Intersection: Install a traffic signal. Provide a southbound left-turn lane and two through lanes. Provide a northbound through lane and shared through-right lane.*
8. *CR 32A/Mace Park-and-Ride/West ARC Driveway Intersection: Install a traffic signal. Provide a southbound left-turn lane and a shared through-right lane. Provide an eastbound left-turn lane.*
9. *UPRR at-grade rail crossing improvements: The UPRR track/CR 32A crossing could be converted from an at-grade crossing to a grade-separated*

crossing. A near-term improvement prior to provision of the grade separation could consist of relocating the CR 32A/CR 105 intersection about 200 feet to the north and installing double gates on the south approach to the grade crossing in order to improve safety and traffic functionality at the grade crossing.

10. *<u>I-80/CR 32A interchange improvements:</u> Construct capacity improvements at the CR 32 interchange and along CR 32A to allow this interchange to serve more project traffic.*

3-70(b) *At the time of the issuance of the first certificate of occupancy and as a component of the ARC TDM program (refer to Mitigation Measure 3-72(a)), the Master Owners' Association (MOA) for the Project shall establish the baseline peak hour I-80 mainline vehicle trips by which to determine the project's change to peak hour I-80 vehicle trips. Baseline AM and PM peak hour vehicle trips on I-80 shall be calculated on the following segments:*

1. *Between Pedrick Road and Kidwell Road*
2. *Between Richards Boulevard and Mace Boulevard*
3. *East of Chiles Road (i.e., the Yolo Causeway)*

During the annual TDM reporting, the MOA shall determine the number of AM and PM peak hour project vehicle trips that utilize I-80 on the segments listed above. In instances where these figures exceed baseline levels by five percent or more, the MOA shall institute TDM strategies to reduce project-related peak hour vehicle trips on I-80. The implementation of TDM strategies shall reduce peak hour project vehicle trips on I-80 to an amount less than five percent of baseline levels, to the extent feasible.

TDM strategies that would reduce peak hour vehicle trips on I-80 include strategies to reduce commute and business vehicle trips to and from ARC using I-80. If these TDM strategies are not sufficient to reduce peak hour trips to baseline levels, additional TDM measures or adjustments to existing measures shall be implemented, as needed to reduce peak hour trips to an amount less than five percent of baseline levels.

3-70(c) *The applicant shall contribute a proportional share to the local contribution portion of freeway improvement projects to construct carpool lanes on I-80 between Richards Boulevard and West Sacramento. Responsibility for implementation of this mitigation measure shall be assigned to the ARC and Mace Triangle on a fair share basis.*

3-71 Impacts to Local Neighborhood Street Traffic (reference Impact 4.14-5).

ARC Project

The MRIC Project was determined to have significant and unavoidable impact to local neighborhood street traffic (Impact 4.14-5 in Section 4.14, Transportation and Circulation, of the Certified Final EIR).

The Davis General Plan includes policy direction (Policy TRANS 2.7) to minimize impacts of vehicle traffic on local streets to maintain or enhance livability of the neighborhoods. The ARC Project would add peak hour trips to Alhambra Drive, although the actual choice of drivers to choose Alhambra Drive instead of the Covell/Mace Curve to approach and depart the site is somewhat difficult to predict. Korematsu Elementary School is located at the junction of Alhambra Drive and Loyola Drive.

In order to address increased traffic in residential neighborhoods, the General Plan recommends that traffic calming measures be considered along collector and minor arterial streets, where appropriate and feasible, to slow speeds. While the following mitigation measure would require the applicant to prepare a neighborhood traffic calming plan, and implement traffic calming measures within the residential areas, west of the project site, successful implementation of such a plan cannot be guaranteed. The analysis and findings for the MRIC Project apply to the ARC Project. Therefore, this is considered a ***significant*** impact.

Mace Triangle

The development potential for the Mace Triangle will generate a relatively small number of external peak hour trips as compared to the ARC Project. In addition, the Mace Triangle Site has its sole access onto CR 32A; and project trips are most likely to travel to/from the I-80 freeway, to the west along 2nd Street, or to the north via Mace Boulevard. This is in contrast to the ARC Project, whose main access is at the Mace Boulevard/Alhambra Drive intersection, where ARC Project traffic can more easily travel westbound onto Alhambra Drive through the neighborhood. As a result of these factors, the Mace Triangle would have a ***less-than-significant*** impact related to local neighborhood street traffic.

Mitigation Measure(s)

ARC Project

3-71 *Prior to final map approval, the project applicant shall fund the development of a neighborhood traffic calming plan, the City shall consider adoption of the plan, and the applicant shall fund implementation of the plan. The traffic calming plan will address the potential for the ARC Project to increase peak hour traffic volumes on local streets, including Monarch Lane, Temple Drive, Tulip Lane, Baywood Lane, Whittier Drive, Manzanita Lane, Alegre Way, and Arroyo Avenue. The traffic calming plan will also address the potential for the ARC Project to increase vehicle speeds on collector and minor arterial streets, including Alhambra Drive, Loyola*

Drive, 2nd Street, 5th Street, East 8th Street, Chiles Road, and Cowell Boulevard. The purpose of the plan will be to minimize, to the extent feasible, the potential for the ARC Project to increase peak hour traffic volumes on local streets and 85th percentile speeds on collector and minor arterial streets, through the use of measures proven in other neighborhoods and jurisdictions to achieve these goals, such as narrow points, neighborhood traffic circles, speed humps, stop signs (where warranted), narrow lane striping, and others. Implementation of a comprehensive traffic calming plan will incentivize traffic to use major routes such as I-80, East Covell Boulevard, Mace Boulevard, and 2nd Street, and avoiding using residential streets as cut-through routes.

With implementation of Mitigation Measure 3-71, the impact would be reduced. However, successful implementation of the neighborhood traffic calming plan (as described in Mitigation Measure 3-71) cannot be assured due to uncertainties regarding what measures will ultimately be included in the plan, whether the plan will be approved, and whether the plan will be effective at completely eliminating the use of the affected roadways by project traffic. Therefore, similar to the MRIC Project, this impact is considered ***significant and unavoidable***.

Mace Triangle

None required.

3-72 Increase in Vehicle Miles Traveled (reference Impact 4.14-6).

The Certified Final EIR evaluated VMT for the MRIC Project in Impact 4.14-6 in Section 4.14, Transportation and Circulation. Impacts related to increase in VMT were determined to be less-than-significant with mitigation for the MRIC Project. This conclusion was based upon the following significance threshold: The project does not minimize vehicle miles travelled growth in accordance with City goals (EIR, pg. 4.14-15).

Since the certification of the Final MRIC EIR, however, new recommended thresholds related to VMT analysis have become available. For purposes of this SEIR, the ARC Project is considered to result in a significant impact if the project-generated VMT per service population exceeds any of the following thresholds relative to the existing local or regional VMT per service population averages:

- VMT Threshold #1: Project-generated VMT per service population would be less than or equal to the existing local or regional VMT per service population averages, as analyzed for recent City of Davis CEQA documents;
- VMT Threshold #2: Project-generated VMT per service population would be less than or equal to 15 percent lower than the local or regional VMT per service population averages, as recommended by OPR in the Technical Advisory on Evaluating Transportation Impacts in CEQA; and
- VMT Threshold #3: Project-generated VMT per service population would be less than or equal to 14.3 percent lower than the local or regional VMT per service population averages,

the threshold needing to be met in order to be consistent with the 2017 Scoping Plan Update and to achieve State climate goals as defined by the California Air Resources Board (CARB) in the Technical Advisory on Evaluating Transportation Impacts in CEQA.

The potential impact to VMT associated with the ARC Project was evaluated by comparing the estimated project-generated VMT per service population to the existing local and regional VMT per service population[52]. Project-generated, local, and regional VMT per service population estimates were derived from the process previously described in the Method of Analysis section.

The proposed ARC Project and future buildout of the Mace Triangle are estimated to generate 309,000 VMT and 10,800 VMT, respectively, under Existing Plus Project conditions on a typical weekday. As shown in Table 3-39, the ARC Project would generate an estimated 39.2 VMT per service population, which is comprised of its expected number of residents and employees, under Existing Plus Project conditions. The total VMT that would be generated by the ARC is equal to nine percent of the total VMT generated by the City of Davis under existing conditions.

The 2020 SACOG MTP/SCS analyzed existing (2016) and future (2040) VMT per capita for geographic areas throughout the SACOG region.

Figure 3-19 below illustrates the VMT per capita of the ARC Site vicinity relative to the regional VMT per capita average. According to the SACOG analysis, the ARC Site is located within a high VMT generating area, where VMT per capita levels measure between 115 and 150 percent of the regional average.

Analyses were performed using US Census OnTheMap database for 2017 conditions, which is the most recent year of available data. The analysis determined that there is a sizeable number of persons residing in the Sacramento metropolitan area that commute long distances to work destinations west of Davis, including many in the Bay Area. If the employment component of the ARC Project could induce some of these employers to relocate their operations or operate satellite work centers at the project site, many of these trips could be 'intercepted', resulting in considerably shortened trip distances. This would reduce the project-generated VMT and VMT per service population below the estimates presented in this analysis.

Data currently does not exist to enable quantification of the expected number of 'regional commute' employees that would shift their work destination to the ARC Project. Thus, the VMT estimates presented herein are accurate, if not somewhat conservative, so as to ensure impacts are not understated. Potential information that would provide supporting evidence on this topic would include, but is not limited to, surveys of prospective ARC employers, employees, and residents and a detailed economic analysis of existing and anticipated future local and regional housing and employment trends (specifically those related to the City of Davis and UC Davis).

[52] Use of service population defined in this manner allows for a like-to-like comparison with local and regional VMT.

Table 3-39
Weekday VMT per Service Population: Existing Plus Project Conditions

Metric	ARC Site[1]	City of Davis[2]	City of Davis and UC Davis[3]	SACOG Region[4]
Total VMT	319,800	3,411,358	4,268,554	123,034,634
Residents	2,119	71,755	80,794	2,374,910
Employees	6,040	13,987	26,365	940,683
Service Population	8,159	85,742	106,159	3,315,593
Total VMT per Service Population	**39.2**	**39.79**	**40.21**	**37.11**
VMT Significance Criteria Comparison				
% Difference between ARC project-generated VMT per service population and local/regional VMT per service population	-1.48%	-2.51%	+5.63%	
Exceed VMT Threshold #1 (+0%)?	No	No	Yes	
Exceed VMT Threshold #2 (-15%)?	Yes	Yes	Yes	
Exceed VMT Threshold #3 (-16.8%)?	Yes	Yes	Yes	

[1] Includes both the ARC Project and the Mace Triangle. ARC Project and Mace Triangle employee estimates derived from City of Davis Economic Evaluation of Innovation Park Proposals (BAE, July 2015) as follows: 5,882 ARC Project employees + 158 Mace Triangle employees = 6,040 total project employees. ARC Project resident estimates derived from American Community Survey unit occupancy estimates for the City of Davis as follows: (570 multi-family units x 2.44 occupants per unit) + (280 single-family units x 2.6 occupants per unit) = 2,119 total project residents.

[2] Resident and employee totals derived from the UC Davis/City of Davis Travel Demand Model land use inputs. Includes UC Davis residential uses located off-campus in the City of Davis (e.g., 8th and Wake Apartments).

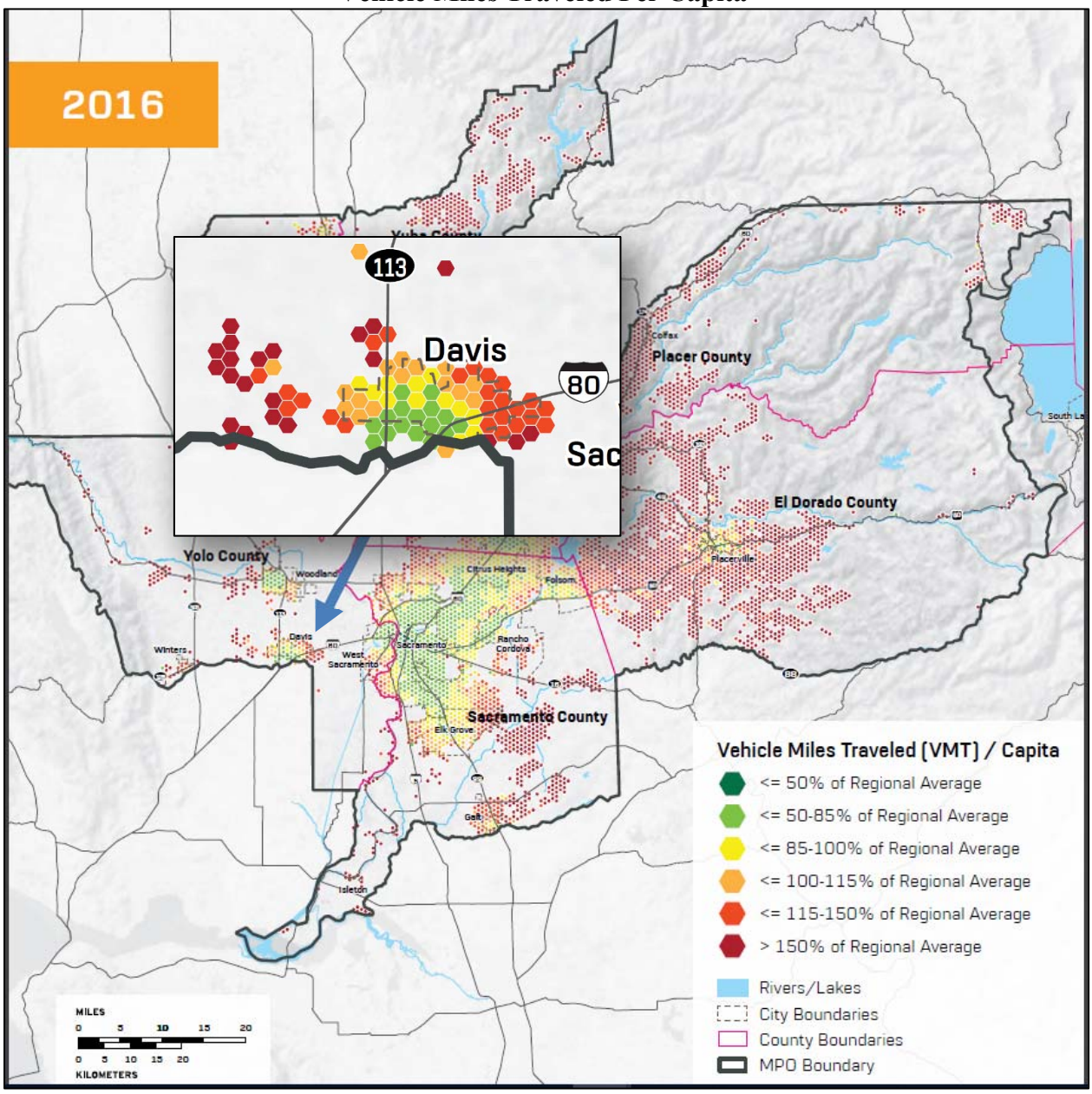
[3] Resident and employee totals derived from the UC Davis/City of Davis Travel Demand Model land use inputs. Includes both City of Davis residents and employees and UC Davis on-campus residents and employees.

[4] Resident and employee totals derived from the UC Davis/City of Davis Travel Demand Model and SACSIM travel demand model land use inputs.

City of Davis, City of Davis with UC Davis, and SACOG region VMT per service population represent existing conditions.

Source: Fehr & Peers, 2020.

Figure 3-19
Vehicle Miles Traveled Per Capita



As shown in the below table, using conservative methodology, project-generated VMT per service population would measure below VMT per service population generated by the City of Davis and by the City of Davis with UC Davis but above VMT per service population generated by the SACOG region.

Therefore, the ARC Project would exceed thresholds #1 (excluding local VMT), #2, and #3 listed above, and a ***significant*** impact would occur.

Mitigation Measure(s)

Implementation of Mitigation Measures 3-72(a) and (b) would reduce project-generated VMT per service population by instituting a TDM program to reduce external vehicle trips generated by the ARC Project, as well as future development of the Mace Triangle Site. However, the effectiveness of the TDM strategies is not known and subsequent vehicle trip reduction effects cannot be guaranteed. Existing evidence indicates that the effectiveness of TDM strategies with regards to vehicle trip reduction can vary based on a variety of factors, including the context of the surrounding built environment (e.g., urban versus suburban) and the aggregate effect of multiple TDM strategies deployed together. Moreover, many TDM strategies are not just site-specific, but also rely on implementation and/or adoption by private entities (e.g., elective use of carpool program by office building tenants). Furthermore, a portion of the TDM strategies may prove to be economically infeasible. CEQA Guidelines Section 15021(b) states the following regarding the selection of feasible mitigation measures: "In deciding whether changes in a project are feasible, an agency may consider specific economic, environmental, legal, social, and technological factors." Due to uncertainties regarding the ability for the mitigation measures to reduce VMT impacts to less-than-significant levels, VMT impacts would be considered *significant and unavoidable.*

The significant and unavoidable impact represents a new unmitigable significant impact when compared to the Certified Final EIR, which found impacts to VMT to be less-than-significant with mitigation (see Impact 4.14-6 from the Certified Final EIR). The change in significance can be explained by the following changes from the Certified Final EIR:

- Changes to the VMT significance criteria;
- Changes to baseline local and regional land uses;
- Changes to VMT analysis methods (e.g., use of new travel demand models); and
- Changes to current understanding of efficacy of TDM strategies.

ARC Project

3-72(a) *Prior to issuance of the first building permit in the first phase of development, the applicant shall develop a TDM program for the entire ARC Project, including any anticipated phasing, and shall submit the TDM program to the City Department of Public Works for review and approval. The TDM program must be designed to achieve the following.*

1. *Reduce trips to achieve one and five-tenths (1.5) Average Vehicle Ridership (AVR) in accordance with Davis Municipal Code Section 22.15.060; and*
2. *Reduce project-generated VMT such that the project achieves all three VMT significance criteria.*

The Master Owner's Association (MOA) shall be responsible for implementing the TDM Program.

(a) The MOA shall be responsible for funding and overseeing the delivery of trip reduction/TDM proposed programs and strategies to achieve the project-generated VMT and AVR objectives, which may include, but are not limited to, the following:

(1) Establishment of carpool, buspool, or vanpool programs;
(2) Vanpool purchase incentives;
(3) Cash allowances, passes or other public transit subsidies and purchase incentives;
(4) Low emission vehicle purchase incentives/subsidies;
(5) Parking management strategies including limiting parking supply, as may be determined appropriate through subsequent traffic studies for each phase; charging parking fees; unbundling parking costs; and providing parking cash-out programs;
(6) Full or partial parking subsidies for ridesharing vehicles;
(7) Preferential parking locations for ridesharing vehicles;
(8) Computerized commuter rideshare matching service;
(9) Guaranteed ride-home program for ridesharing;
(10) Alternative workweek and flex-time schedules;
(11) Telecommuting or work-at-home programs;
(12) On-site lunch rooms/cafeterias;
(13) On-site commercial services such as banks, restaurants, groceries, and small retail;
(14) On-site day care facilities;
(15) Bicycle programs including bike purchase incentives, storage, maintenance programs, and on-site education program;
(16) Car share and bike share services;
(17) Enhancements to Unitrans, Yolobus, or other regional bus service;
(18) Enhancements to Capitol Corridor or other regional rail service;
(19) Enhancements to the citywide bicycle network;
(20) Dedicated employee housing located either on-site or elsewhere in the City of Davis;
(21) Designation of an on-site transportation coordinator for the project;
(22) Implement a fair value commuting program where fees charged to single-occupancy vehicle (SOV) commuters (e.g., through

parking pricing) are tied to project vehicle trip reduction targets and fee revenue is rebated to non-SOV commuters, or other pricing of vehicle travel and parking;

(23) Support management strategies (e.g., pricing, vehicle occupancy requirements) on roadways or roadway lanes, particularly I-80 over the causeway;

(24) Contribute to a VMT mitigation bank or exchange to support VMT reductions elsewhere in the City or region; and

(25) Change the project to increase project trip internalization (e.g., decrease employment uses and/or increase residential uses).

(b) Single-phase development projects shall achieve project-generated VMT and AVR targets within five (5) years of issuance of any certificate of occupancy. Multi-phased projects shall achieve the project-generated VMT and AVR targets for each phase within three (3) years of the issuance of any certificate of occupancy.

(c) In conjunction with final map approval, recorded codes, covenants and restrictions (CC&Rs) shall include provisions to guarantee adherence to the TDM objectives and perpetual operation of the TDM program regardless of property ownership, inform all subsequent property owners of the requirements imposed herein, and identify potential consequences of nonperformance.

Each space use agreement (i.e., lease document) shall also include TDM provisions for the site as a means to inform and commit tenants to, and participate in, helping specific applicable developments meet TDM performance requirements.

(d) Ongoing reporting:

*(1) **Annual TDM Report.** The MOA for the Project shall submit an annual status report on the TDM program to the City Department of Public Works beginning a year after the issuance of any certificate of occupancy and continuing until full project buildout. Data shall be collected in October of each year and the Annual Report submitted by December 31st of each year. The report shall be prepared in the form and format designated by the City, which must either approve or disapprove the program.*

i. The TDM performance reports shall focus on the trip reduction incentives offered by the project, their effectiveness, the estimated greenhouse gas (GHG) emissions generated by the project, and the methods by which a continued trajectory towards carbon neutrality in

2040 can be achieved consistent with Mitigation Measure 3-38(a). The report shall:

- *Report the project-generated VMT levels attained;*
- *Report the AVR levels attained;*
- *Verify the TDM plan incentives that have been offered;*
- *Describe the use of those incentives offered by employers;*
- *Evaluate why the plan did or did not work to achieve the AVR targets and explain why the revised plan is more likely to achieve the AVR target levels;*
- *List additional incentives which can be reasonably expected to correct deficiencies;*
- *Evaluate the feasibility and effectiveness of trip reduction/TDM program and strategies, as implemented;*
- *Estimate the GHG emissions generated by project transportation operations; and*
- *Identify off-setting GHG credits to be secured by the project to achieve carbon neutrality.*

ii. *The MOA shall develop and implement an annual monitoring program to determine if project-generated VMT and AVR targets are being met. The monitoring program could include employee travel surveys, traffic counts at project site ingress/egress points, and other relevant information.*

iii. *If the project-generated VMT and/or AVR targets are not met for any two consecutive years, the applicant or current owner(s) of the site will contribute funding to be determined in a separate study toward the provision of additional or more intensive travel demand management programs, such as enhanced regional transit service to the site, employee shuttles, and other potential measures.*

iv. *In the event that other TDM objectives are not met as documented in the Annual Monitoring Report submitted by December 31st of each year, the MOA shall:*

- *Submit to the City within thirty (30) days of submittal of the annual report, a list of TDM measures that will be implemented to meet the TDM objectives within one hundred eighty (180) days of submittal of annual report. At the end of the one-hundred-eighty-day period, the MOA shall submit a revised performance report to determine compliance with TDM objectives. No further*

measures will be necessary if the TDM objectives are met.

Should the TDM objectives not be satisfied by the end of the one-hundred-eighty-day period, the MOA shall pay a TDM penalty fee to the City in an amount determined by resolution of the City Council. Said penalty fee may be used to provide new transit service and/or subsidize existing transit service, construct bicycle facilities, and/or improve street capacity through construction of physical improvements to be selected by the City of Davis from the list of area-wide improvements identified in the City's CIP.

Mace Triangle

3-72(b) Prior to issuance of a building permit for development within the Mace Triangle Site, each applicant shall develop a TDM program coordinated with, and compliant with, the requirements of the ARC TDM program and any pre-existing TDM programs on the Mace Triangle Site. The program shall be submitted to the City Department of Public Works for review and approval. This includes achievement of the same trip reduction requirements, GHG-reducing transportation strategies, and monitoring and reporting requirements as the ARC, as set forth in Mitigation Measure 3-72(a). This may be satisfied by joining the ARC TDM program as a participating member.

3-73 Impacts to Emergency Vehicle Access (reference Impact 4.14-7).

The MRIC Project was determined to have a less-than-significant impact related to emergency vehicle access. The ARC Project would provide multiple emergency vehicle access (EVA) points, three along Mace Boulevard (one of which connects directly to CR 30B) and two along CR 32A. As such, emergency vehicles can access the ARC Site from multiple directions. Fire access from the South Davis fire station (located one-half mile south of the project site on Mace Boulevard) would be available by way of northbound Mace Boulevard. Fire access from the Downtown Davis fire station (located nearly three miles west of the ARC Site) would be available by way of eastbound 5th Street and Alhambra Drive. Medical emergency service access to/from Sutter Davis Hospital (located over four miles west of the ARC Site) would be available by way of Covell Boulevard. Each of the aforementioned corridors have traffic signals equipped with emergency vehicle pre-emption, providing signal priority to emergency vehicles in the event of an emergency.

Furthermore, the design of the on-site roadways and intersections will be subject to City of Davis code and Public Works Department staff review and approval. Therefore, similar to the MRIC Project, adequate emergency vehicle access is proposed and this is considered a ***less-than-significant*** impact.

Mitigation Measure(s)
None required.

3-74 Impacts associated with Construction Vehicle Traffic (reference Impact 4.14-8).

Impacts related to construction vehicle traffic were determined to be less-than-significant with mitigation for the MRIC Project.

Construction of the ARC Project, including site preparation and construction, and delivery activities, would generate employee trips and a variety of construction-related vehicles. Construction activities would include disruptions to the transportation network near the project site, including the possibility of temporary lane closures, street closures, sidewalk closures, and bikeway closures. Bicycle and transit access may also be disrupted. The most concentrated period of heavy truck traffic is anticipated to occur when excavated soil from the off-site storage pond is transported over to the ARC Site, should this approach be selected over the pump station alternative. It is forecast that a total of approximately 10,833 trucks would be required to transport the excavated soil approximately two miles to the ARC Site for stockpiling. The hauling would occur over 30 work days, resulting in an average of approximately 720 truck trips per day (i.e., 360 truckloads per day, with two trips – one loaded trip to the site, one return empty trip – for each load). Trucks are projected to travel to and from the east end of the Howatt Ranch property near the levee adjacent to the Yolo Bypass. Trucks would access the southern portion of the ARC Site by way of CR 32A, with trucks traveling to the Howatt Ranch site by way of CR 32A and CR 105. Use of CR 32A by construction trucks could cause a short-term adverse impact to bicyclists using existing bike lanes.

The aforementioned activities could result in degraded roadway conditions. Thus, similar to the MRIC Project, construction activities associated with the ARC Project could result in a ***less-than-significant*** temporary traffic impact with implementation of mitigation.

Mitigation Measure(s)

ARC Project and Mace Triangle

3-74 *Prior to any construction activities for the ARC and Mace Triangle Sites, the project applicant shall prepare a detailed Construction Traffic Control Plan and submit it for review and approval by the City Department of Public Works. The applicant and the City shall consult with Yolo County, Caltrans, Unitrans, Yolobus, and local emergency service providers for their input prior to approving the Plan. The Plan shall ensure that acceptable operating conditions on local roadways and freeway facilities are maintained during construction. At a minimum, the Plan shall include:*

- *The number of truck trips, time, and day of street closures;*
- *Time of day of arrival and departure of trucks;*
- *Limitations on the size and type of trucks*
- *Provision of a staging area with a limitation on the number of trucks that can be waiting;*

- *Provision of a truck circulation pattern that minimizes impacts to existing vehicle traffic during peak traffic flows and maintains safe bicycle circulation;*
- *Minimize use of CR 32A by construction truck traffic;*
- *Prior to certificate of occupancy or acceptance of any public improvement by the city, the developer shall resurface and/or repair any damage to roadways that occurs as a result of construction traffic;*
- *Provision of driveway access plan so that safe vehicular, pedestrian, and bicycle movements are maintained (e.g., steel plates, minimum distances of open trenches, and private vehicle pick up and drop off areas);*
- *Maintain safe and efficient access routes for emergency vehicles;*
- *Manual traffic control when necessary;*
- *Proper advance warning and posted signage concerning street closures; and*
- *Provisions for bicycle, pedestrian, and transit access and safety.*

A copy of the Construction Traffic Control Plan shall be submitted to local emergency response agencies and these agencies shall be notified at least 14 days before the commencement of construction that would partially or fully obstruct roadways.

3-75 Impacts to Pedestrian and Bicycle Facilities (reference Impact 4.14-9).

Impacts related to pedestrian and bicycle facilities were determined to be less-than-significant with mitigation for the MRIC Project.

Existing facilities that are adjacent to the ARC Site include on-street bike lanes on Mace Boulevard, 2nd Street, and Alhambra Drive, and a shared use path on Alhambra Drive. Existing intersections near the ARC Site are typical of suburban roadway systems, in that the intersections were designed and constructed to prioritize the movement of vehicles over other modes of travel. Defining features of these intersections include channelized right-turn lanes, multiple travel lanes for each approach, long crossing distances for bicyclists and pedestrians, and uncontrolled mixing areas between bicyclists, pedestrians, and high-speed vehicular traffic. Altogether, the intersection characteristics can diminish the safety and comfort of bicycle and pedestrian facilities and discourage walking and biking as a mode of travel.

The ARC Project would provide a bike path within the 50-foot transition zone of the agricultural buffer, which would connect to the existing Class II bike lane on CR 32A, at the project's southeastern corner. The ARC Project would provide bicycle parking near entrances to buildings, showers, and a bike storage and repair area near the transit center to allow for safe storage of bikes and to facilitate any bike repairs that may be needed.

The ARC Project would construct a grade-separated bicycle and pedestrian crossing of Mace Boulevard north of Alhambra Drive. In addition, the ARC Project includes a proposed off-site bike path on the west side of Mace Boulevard, just north of Alhambra Drive, to the existing path along

the frontage of Harper Junior High School. This bicycle/pedestrian path improvement, along the inside of the Mace "curve", would provide an important link in the trail network in the project vicinity. Not only would this link facilitate safe bicycle and pedestrian travel to/from the ARC Site, but school children biking/walking to/from Harper Junior High School would also be able to travel more safely along this stretch of Mace Boulevard. The Offices @ Mace Ranch project located at the northwest corner of the Mace Boulevard/Alhambra Drive intersection will also provide a path connection to the proposed grade-separated crossing along its Mace Boulevard and Alhambra Drive frontages. The Offices @ Mace Ranch project is currently under construction and scheduled for completion in 2020.

The increase in vehicle trips on CR 32A could adversely affect bicycle flow along CR 32A between CR 105 and the access to the causeway bicycle path. The combination of the existing lane width (11 feet in each direction), high travel speeds, and soft shoulders plus the addition of project vehicle trips could disrupt bicycle flows on CR 32A. Bicycle flows could also be disrupted for westbound bicycle traffic on CR 32A that continues onto the path west of CR 105. These cyclists must cross vehicle traffic on CR 32A just southeast of the at-grade rail crossing where CR 32A has a sharp curve. Similarly, eastbound bicyclists accessing the causeway shared-use path must cross oncoming vehicle traffic on CR 32A just east of the I-80 off-ramp where CR 32A has a curve. The addition of project peak hour vehicle trips to CR 32A has the potential to negatively affect bicyclists making these uncontrolled movements.

As Covell Boulevard is the only continuous roadway that traverses the entire City of Davis, and is primarily a four-lane facility, the City of Davis has required the construction of bicycle/pedestrian grade separations – by new developments located on the north side of the street – to facilitate safe crossings of this high speed, high volume facility. The General Plan Open Space element shows four existing or planned grade separations of Covell Boulevard. Along Covell Boulevard, this includes an existing overpass west of F Street and an existing underpass west of Alhambra Drive. The Cannery Project has recently completed a bicycle/pedestrian grade separation of East Covell Boulevard and a future facility is planned on West Covell east of Denali Drive.

Most of the ARC Project employees and residents who would commute via bicycle would primarily utilize the following facilities for travel to and from the ARC Site:

- Proposed grade-separated bicycle and pedestrian crossing of Mace Boulevard and path connection to Harper Junior High School (ARC Project component).
- Existing Class I shared-use path on the south side of Covell Boulevard to/from Wildhorse, Oak Tree Plaza, and North Davis.
- Existing Class I shared-use paths throughout Mace Ranch and Class II bike lanes on Alhambra Drive to/from Mace Ranch, East Davis, Central Davis, Downtown Davis, and UC Davis.
- Existing Class II bike lanes on 2nd Street to/from Target Shopping Center, 2nd Street employment centers, Downtown Davis, and UC Davis.
- Existing Class II bike lanes on Mace Boulevard to/from the El Macero Shopping Center and South Davis.
- Existing Class II bike lanes on CR 32A to/from Sacramento.

- Existing sidewalks, paths, bike lanes, marked crosswalks, and/or crossings at the following intersections:
    - Mace Boulevard/Alhambra Drive
    - Mace Boulevard/2nd Street/CR 32A
    - Mace Boulevard/I-80 WB Ramps
    - Mace Boulevard/I-80 EB Ramps
    - Mace Boulevard/Chiles Road

The substantial amount of project-generated vehicle trips would largely utilize the same roadway facilities for travel to and from the ARC Site. Therefore, due to increases in bicycle, pedestrian, and vehicle trips generated by the ARC Project within the vicinity of the ARC Site, transportation facilities that require mixing of vehicles, bicyclists, and pedestrians would experience increases in the competition for physical space between the modes and, in turn, an increase in the potential for conflicts involving bicyclists and pedestrians. Such conditions could diminish the safety and performance of bicycle and pedestrian facilities, particularly at locations where bicyclists and pedestrians experience long crossing distances, long exposure times, uncontrolled conflicts with high-speed vehicular traffic, or blockages due to queued vehicles. The ARC Project's contributions to such conditions would be substantial at the following locations:

- Mace Boulevard/Alhambra Drive
    - Existing southbound channelized right-turn lane due to project increases to bicycle and pedestrian crossings (bicycle-vehicle and pedestrian-vehicle conflicts).
    - Existing eastbound channelized right-turn lane due to project increases to diverted traffic from eastbound Covell Boulevard to Alhambra Drive and increases in bicycle and pedestrian crossings. Moreover, the inability for eastbound vehicles to turn right onto Mace Boulevard (due to worsened traffic congestion on southbound Mace Boulevard caused by the ARC Project) could cause queue spillbacks that block the crosswalk (bicycle-vehicle and pedestrian-vehicle conflicts).
    - Proposed northbound and westbound channelized right-turn lanes due to ARC Project increases to vehicle traffic and bicycle and pedestrian crossings. Moreover, the inability for westbound vehicles to turn right onto Mace Boulevard (due to worsened traffic congestion on northbound Mace Boulevard caused by the ARC Project) could cause queue spillbacks that block the crosswalk in the westbound channelized right-turn lane (bicycle-vehicle and pedestrian-vehicle conflicts).
- Mace Boulevard/2nd Street/CR 32A
    - Existing southbound channelized right-turn lane due to ARC Project increases to vehicle traffic and bicycle and pedestrian crossings (bicycle-vehicle and pedestrian-vehicle conflicts).
    - Existing eastbound channelized right-turn lane due to ARC Project increases to bicycle and pedestrian crossings. Moreover, the inability for eastbound vehicles to turn right onto Mace Boulevard (due to worsened traffic congestion on southbound Mace Boulevard caused by the ARC Project) could cause queue spillbacks that block the crosswalk (bicycle-vehicle and pedestrian-vehicle conflicts).

- Mace Boulevard/I-80 WB Ramps
    - Existing westbound channelized right-turn lane due to ARC Project increases to vehicle traffic and bicycle and pedestrian crossings. Moreover, the inability for westbound vehicles to turn right onto Mace Boulevard (due to worsened traffic congestion on northbound Mace Boulevard caused by the ARC Project) could cause queue spillbacks that block the crosswalk (bicycle-vehicle and pedestrian-vehicle conflicts).
    - Existing southbound approach bike lane and upstream unmarked bicycle-vehicle mixing zone due ARC Project increases to vehicle queue spillbacks into mixing zone (bicycle-vehicle conflict).
- Mace Boulevard/I-80 EB Ramps
    - Existing southbound slip ramp due to lengthy unmarked bicycle-vehicle mixing zones and ARC Project increases to vehicle traffic and bicycle crossings (bicycle-vehicle conflict).
    - Existing northbound slip ramp due to lengthy unmarked bicycle-vehicle mixing zones, unmarked pedestrian crosswalks, and ARC Project increases to vehicle traffic and bicycle and pedestrian crossings (bicycle-vehicle and pedestrian-vehicle conflicts)
- Mace Boulevard/Chiles Road
    - Existing southbound channelized right-turn lane due to ARC Project increases to vehicle traffic and bicycle crossings (bicycle-vehicle conflict).
    - Existing eastbound channelized right-turn lane due to ARC Project increases to bicycle and pedestrian crossings (bicycle-vehicle and pedestrian-vehicle conflicts).
    - Existing northbound channelized right-turn lane due to ARC Project increases to vehicle traffic and bicycle and pedestrian crossings (bicycle-vehicle and pedestrian-vehicle conflicts).
- CR 32A
    - The increase in vehicle trips on CR 32A could adversely affect bicycle flow along CR 32A between CR 105 and the access to the causeway bicycle path. The combination of the existing lane width (11 feet in each direction), high travel speeds, and soft shoulders plus the addition of project vehicle trips could disrupt bicycle flows on CR 32A. Bicycle flows could also be disrupted for westbound bicycle traffic on CR 32A that continues onto the path west of CR 105. These cyclists must cross vehicle traffic on CR 32A just southeast of the at-grade rail crossing where CR 32A has a sharp curve. Similarly, eastbound bicyclists accessing the causeway shared-use path must cross oncoming vehicle traffic on CR 32A just east of the I-80 off-ramp where CR 32A has a curve. The addition of project peak hour vehicle trips to CR 32A has the potential to negatively affect bicyclists making these uncontrolled movements.

Note that except for the proposed westbound and northbound channelized right-turn lanes at the Mace Boulevard/Alhambra Drive intersection, all of the locations described above are existing features of the transportation system. Therefore, while the ARC Project would exacerbate the detrimental effects of the features, portions or all of the facilities may be considered existing deficiencies with respect to the bicycle and pedestrian environment.

As described previously, the ARC Project would be built-out in four phases over a 20 to 25-year time period. Because this analysis examines the hypothetical scenario where the ARC Project at buildout would be added to the existing transportation setting, the analysis cannot reasonably identify the associated bicycle and pedestrian impacts of each phase of development based on the timing of the development phase and the surrounding transportation circumstances at that time and any attempt to do so would require speculation which is not required by CEQA.

The ARC Project would not interfere with the implementation of planned bicycle facilities identified in the *City of Davis General Plan* or the *Beyond Platinum Bicycle Action Plan*. Proposed bicycle enhancements in the *City of Davis Beyond Platinum Bicycle Action Plan* include buffered bike lanes along 2nd Street between Mace Boulevard and L Street, as well as bike lane conflict markings and bike intersection crossing markings on Mace Boulevard at the I-80 interchange ramps. Several of the roadways near the ARC Site, including Mace Boulevard, Covell Boulevard, 2nd Street, and Chiles Road are designated as Greenstreets in the *City of Davis General Plan*. Action TRANS 2.1(k) calls for the City to review standards for these roadways to reflect other bicycle and pedestrian friendly policies in the Circulation Element, including the elimination of intersection standards that allow high speed right turns for motor vehicles. The project also would not interfere with planned regional bicycle projects identified in the SACOG MTP/SCS.

Based on the above, the ARC Project could result in a ***significant*** impact related to bicycle facilities.

Mitigation Measure(s)

Elements of Mitigation Measure 3-75, particularly the potential for roadway operations and capacity improvements along the Mace Boulevard corridor, have the potential to exacerbate impacts to VMT described in Impact 3-72. Existing evidence indicates that Covell Boulevard, Mace Boulevard, and connecting roadways such as 2nd Street and Chiles Road are utilized as regional cut-through routes when I-80 experiences significant speed reductions and delays during PM peak periods. Therefore, improving operations and reducing delays along such local roadways could increase the attractiveness of the routes as alternatives to I-80 and induce additional regional cut-through activity on local roadways. Parallel local routes require longer trip distances than remaining on I-80; therefore, regional travel demand use of local routes would yield more VMT than use of I-80.

Implementation of Mitigation Measures 3-75(a), (b), and (c) would reduce potentially significant impacts associated with bicycle facilities to a less-than-significant level by supporting bicycling to and from the ARC Site and reducing conflicts between bicycles and other travel modes. However, elements of each mitigation measure would occur within Caltrans, Yolo County, and/or UPRR rights-of-way and would be subject to final approval and actions by others. Moreover, because the remaining fair share contributions needed for the construction of those mitigation measure elements requiring the ARC Project's fair share contribution have not been identified by the relevant lead agency, fair share payment by the project applicant would not ensure construction. Finally, the ultimate improvements resulting from Mitigation Measure 3-75(c) are subject to change pending the outcome of the Mace Boulevard Corridor Plan. Therefore, the implementation and effectiveness of the mitigation measures cannot be guaranteed. Due to uncertainties regarding

the ability for the aforementioned mitigation measures to reduce impacts to bicycle and pedestrian facilities, bicycle and pedestrian facility impacts would remain *significant and unavoidable*.

The significant and unavoidable impact represents a new unmitigable significant impact when compared to the Certified Final EIR, which found impacts to bicycle and pedestrian facilities to be less-than-significant with mitigation (see Impact 4.14-9 from the Certified Final EIR). Generally, the change in significance can be explained by the following changes from the Certified Final EIR:

- Changes to the bicycle and pedestrian significance criteria, particularly a new focus on safety and performance of bicycle and pedestrian facilities.
- Changes to the feasibility of mitigation measures, particularly those requiring approval and actions by other entities.

ARC Project and Mace Triangle

3-75(a) *Prior to issuance of the first certificate of occupancy of the ARC Project, the applicant shall construct the following proposed off-site bicycle and pedestrian facilities to the satisfaction of the Public Works Department, as described in the ARC Project description and shown on the ARC Site plan:*

1) *Grade-separated bicycle and pedestrian crossing of Mace Boulevard north of Alhambra Drive*
2) *Class I shared-use path on the west side of Mace Boulevard between proposed grade-separated crossing and Harper Junior High School*
3) *Pedestrian and landscaping improvements on the access road between the Mace Park-and-Ride and CR 32A*

Responsibility for implementation of this mitigation measure shall be assigned to the ARC Project and Mace Triangle on a fair share basis.

3-75(b) *Prior to issuance of the first certificate of occupancy of the ARC Project, the applicant shall contribute fair share funding to cover their proportionate cost of the following improvements:*

1) *Widen CR 32A between CR 105 and the Causeway Bicycle Path Access to meet Yolo County standards for a two-lane arterial (14-foot travel lanes and 6-foot shoulder/on-street bike lanes).*
2) *Westbound bicycle crossing improvements at the existing at-grade railroad crossing at CR 32A and CR 105. Potential improvements include a marked bicycle crossing for westbound bicyclists with advanced warning devices for vehicle traffic. These improvements would facilitate westbound bicyclists continuing west onto the shared-use path located between the UPRR mainline and I-80 (e.g., to the west of CR 105). As noted earlier, Yolo County, together with Union Pacific and the City of Davis, are currently evaluating potential modifications to this at-grade crossing to reduce the*

potential for conflicts with rail operations. Therefore, the ultimate improvements constructed at this crossing should be consistent with the preferred modifications identified in this County-led study.

3) *Eastbound bicycle crossing improvements for bicyclists turning left from CR 32A onto the causeway shared-use path. Potential improvements include the installation of a marked crossing on the east leg of the CR 32A/I-80 WB off-ramp intersection and construction of a two-way path on the north side of CR 32A between the CR 32A/I-80 WB off-ramp intersection and the entrance to the causeway path.*

Implementation of these improvements, or a set of improvements of equal effectiveness, would improve bicycle facilities on CR 32A by reducing the potential for bicycle-vehicle conflicts.

3-75(c) *The project applicant shall identify and construct complete streets improvements on the Mace Boulevard corridor, including the following actions:*

1) *Prior to approval of the first tentative subdivision map for the ARC Project, the applicant shall fund and complete (in conjunction with City staff) a corridor plan for the Mace Boulevard corridor between Harper Junior High School and Cowell Boulevard.[53] At a minimum, the corridor plan shall identify complete streets improvements that achieve the following goals:*
    a. *Provide safe and comfortable access for pedestrian and bicyclists*
    b. *Minimize the potential for bicycle-vehicle and pedestrian-vehicle conflicts*
    c. *Provide fast and efficient transit operations*
    d. *Minimize cut-through traffic on residential roadways*
    e. *Avoid operating conditions that degrade roadway safety (e.g., off-ramp queue spillback to freeway mainline)*

    The corridor plan shall be prepared to the satisfaction of the City of Davis Public Works Department and be approved by the City of Davis City Council. The corridor plan should include a thorough public engagement process to understand the transportation priorities of the surrounding community. This should include an initial hearing before the Planning Commission and the Bicycling, Transportation, and Street Safety Commission (BTSSC) to solicit initial input and a second hearing for review of the draft plan.

[53] Policy TRANS 2.8 of the *City of Davis General Plan* calls for the preparation of corridor plans for selected corridors throughout the City. The segment of Mace Boulevard referenced in this mitigation measure includes all of corridor #15 (Mace Boulevard – Harper Junior High School to Interstate 80) and portions of corridors #2 (Chiles Road – Drummond Avenue to East City Limit) and #16 (Mace Boulevard – Interstate 80 to South City Limit) as shown in Map 5 of the *General Plan* Circulation Element. Corridors #2 and #15 do not currently have corridor plans. Corridor #16 south of Cowell Boulevard was recently modified based on prior corridor planning efforts. The segment of Corridor #16 between Cowell Boulevard and Interstate 80 was excluded from those efforts and does not currently have a corridor plan.

2) *In conjunction with submittal of a final planned development or tentative map, whichever occurs first, for each ARC Project phase, the MOA for the ARC Project shall submit a focused transportation impact study for the phase under review. This could be the same study as required under Mitigation Measure 3-70(a), but must also include the information set forth in this measure. The study shall document current conditions at the time and identify the anticipated transportation system effects associated with the development proposed for the phase under review and the necessary transportation system improvements to ameliorate these effects in accordance with the methods and significance thresholds used in this transportation impact analysis. Improvements should be consistent with the complete streets goals and improvements identified in the Mace Boulevard Corridor Plan to be funded and completed by the applicant as described above. The study shall also address the degree to which improvements would address any significant impacts caused by the ARC Project at buildout as identified in the Transportation Impact Analysis prepared for the ARC Project by Fehr & Peers (2020). Potential improvements include, but are not limited to, the following:*
    a. *Improvements to on- and off-street bicycle facilities on Mace Boulevard and connecting roadways, including Covell Boulevard, Alhambra Drive, 2nd Street, CR 32A, and Chiles Road.*
    b. *Improvements to bicycle and pedestrian crossings at the following intersections:*

        i. *Mace Boulevard/Alhambra Drive;*
        ii. *Mace Boulevard/2nd Street/CR 32A;*
        iii. *Mace Boulevard/I-80 WB Ramps;*
        iv. *Mace Boulevard/I-80 EB Ramps; and*
        v. *Mace Boulevard/Chiles Road.*

    Crossing improvements shall reduce the potential for bicycle-vehicle and pedestrian-vehicle conflicts and provide for safe and comfortable access for pedestrians and bicyclists. Potential crossing improvements include, but are not limited to bike lane conflict markings, intersection crossing markings, reductions to crossing distances, and physically separating bicyclists from vehicles (e.g., conversion to a protected intersection). Additionally, crossing improvements shall include the modification of existing channelized right-turn lanes to either a) remove and replace the lanes with standard right-turn lanes, or b) retrofit the lanes to reduce vehicles speeds and increase yield compliance rates.

    Improvements identified in the focused transportation impact study should achieve the following performance measures:

a. Reduce the number and/or severity of bicycle-vehicle and pedestrian-vehicle conflict points at intersections and intersection approaches.
b. Eliminate otherwise anticipated increases in transit travel times and/or adverse changes to transit on-time performance that would be caused by the ARC Project in accordance with standards established by Unitrans, Yolobus, and other potential future transit operators.
c. Eliminate otherwise anticipated adverse effects to emergency vehicle response times that would be caused by the ARC Project in accordance with standards established by the City of Davis Fire and Police Departments.
d. Eliminate otherwise anticipated increases in cut-through traffic on residential roadways that would be caused by the ARC Project.
e. Eliminate otherwise anticipated vehicle queuing that would be caused by the ARC Project that would adversely affect roadway safety, including off-ramp queue spillbacks to the freeway mainline, queue spillbacks that block bicycle and/or pedestrian facilities, and queue spillbacks that exceed available turn pocket storage and block adjacent through travel lanes.

The focused transportation impact study should also identify the funding and implementing responsibilities for each improvement, including whether the improvement should be constructed by the applicant or if the applicant should contribute fair share funding to cover their proportionate cost for the improvements. The applicant shall construct the improvement and/or contribute fair share funding prior to the issuance of the first certificate of occupancy for each project phase under review.

3-76 Impacts to Transit Services (reference Impact 4.14-10).

ARC Project

Impacts related to transit services were determined to be less-than-significant with mitigation for the MRIC Project.

The ARC Project would introduce new residential, office, manufacturing, and retail land uses that are situated in close proximity to the current transit stops (at Mace Boulevard/2nd Street) for the A, O, P, Q, and Z bus routes operated by Unitrans. These routes serve a variety of retail, employment, medical, institutional, and recreational destinations throughout the City, and operate with 30-minute headways, and long service hours. The most recent Unitrans customer survey, conducted in Fall 2017, indicated that 86 percent of all riders are UC Davis undergraduate students and four percent of riders are UC Davis graduate students. The 2017 on-board survey indicated that ten

percent of riders are non-UC Davis patrons (i.e., junior high/high school students, Davis residents, and other non-categorized riders).[54]

The Unitrans General Manager Report for Fiscal Year 2018-19 indicates that Unitrans experiences high levels of crowding (i.e., more than 60 passengers on standard bus or more than 100 passengers on a double-decker bus) on 3.5 percent of all buses.[55] Table 3-40 summarizes route-level ridership, productivity (passengers per revenue hour), and on-time performance for Unitrans routes serving the project site. Unitrans' policy is to increase daily headways from 30 minutes to 15 minutes on routes with more than 60 passengers per hour. The five routes that serve the ARC Site have ridership levels that are well under the 60 passenger per hour threshold and the ARC Project would not result in an increase above that threshold. While the project is expected to increase transit ridership on Unitrans, given the expected number of project transit riders and existing transit patronage, the project would not cause a demand above that which is provided or planned.

Table 3-40
Unitrans Route Performance Summary – ARC Site Vicinity

Route	Annual Ridership	Passengers per Revenue Hour	On-Time Performance
A – Silo/Amtrak/5th/Alhambra	231,493	41.1	85%
O – MU/Amtrak/5th/Alhambra/Target	30,541	37.8	Not Reported
P – MU/Davis Perimeter Counter Clockwise	252,649	30.9	80%
Q – MU/Davis Perimeter Clockwise	259,039	32.6	68%
Z – MU/Amtrak/Cantrill/5th	105,990	26.2	90%

Source: Fehr & Peers, 2020.

On-time performance is defined by Unitrans as a bus arriving at the terminal before the scheduled time or within five minutes of the scheduled time. Arriving more than five minutes late is defined as "late". Unitrans has a systemwide on-time performance target of 90 percent. Systemwide, Unitrans on-time performance was 88 percent during the 2018-19 fiscal year, and thus failed to meet their on-time performance target. This constitutes a five percent drop in systemwide on-time performance from four years prior. Unitrans indicates that they may consider significant route changes on the A, P, Q, and Z lines in FY 2020 to help reduce travel time and improve on-time performance in East Davis. As described in Impact 3-70, the ARC Project would cause substantial increases to vehicle travel demand and peak hour delay on roadways within the ARC Site vicinity. Affected roadways include Mace Boulevard, Alhambra Drive, and 2nd Street, all of which are utilized by Unitrans routes serving the study area. Since Unitrans service would experience increases to peak hour delays at a level commensurate with general vehicle traffic, the project would cause adverse effects to Unitrans travel times and on-time performance. Reductions to route-level and systemwide on-time performance caused by the project would require Unitrans to restructure service or increase operating costs in order to maintain acceptable on-time performance thresholds.

[54] Unitrans Planning. *ASUCD Unitrans Customer Survey Summary.* July 2019.
[55] Unitrans. *Unitrans General Manager's Report, Fiscal Year 2018-19.* 2019.

Yolobus currently operates both intercity and express bus service in the City of Davis. Routes 42A and 42B are intercity routes that provide hourly service between downtown Sacramento, West Sacramento, Davis, Woodland and the Sacramento International Airport. The routes have a scheduled bus stop at the intersection of Mace Boulevard and 2nd Street. The express bus routes operated by Yolobus in Davis are currently programmed to serve inbound commute trips to Sacramento in the morning peak period and the return trip to Davis in the evening commute peak period. Because the ARC Project is an employment center expected to serve trips in the reverse direction, ARC Project employees are not expected to use the existing express bus routes. The Route 42 Intercity loop routes are the most significant trunk lines for Yolobus. While the ARC Project is expected to result in a small increase in transit ridership on Yolobus, given the expected number of project transit riders and existing transit patronage, the ARC Project would not cause demand to exceed provided or planned Yolobus capacity.

The ARC Project includes provision of a transit plaza within the site, to be accessed from the Mace Boulevard/Alhambra Drive intersection. The transit plaza is anticipated to provide Unitrans bus stops, terminus for a dedicated Aggie Research Campus shuttle that would run between the ARC Site, the Davis Amtrak station, and the UC Davis main campus, and space for other rideshare drop-off/pick-ups. The transit plaza would also accommodate dedicated space for bikeshare and scooter services. Unitrans and Yolobus buses would need to divert from Mace Boulevard into the ARC Site to reach the transit plaza. This could result in additional travel time that would impact scheduling for the individual routes.

Because the ARC Project would adversely affect transit operations, particularly along the Mace Boulevard corridor, a ***significant*** impact to transit services could occur as a result of the ARC Project.

Mace Triangle

The Mace Triangle development would have minor transit impacts, given the proximate location of the Park-and-Ride facility within the site and existing nearby bus stops on Mace Boulevard. The Mace Triangle properties would be responsible for their fair share proportion of transit improvements set forth in the below mitigation measure. This would ensure a ***less-than-significant*** impact to transit services could occur as a result of future buildout of the Mace Triangle Site.

Conclusion

Unitrans service would experience increases to peak hour delays at a level commensurate with general vehicle traffic; thus, the project would cause adverse effects to Unitrans travel times and on-time performance. Reductions to route-level and systemwide on-time performance caused by the project would require Unitrans to restructure service or increase operating costs in order to maintain acceptable on-time performance thresholds. This is considered a ***significant*** impact.

Mitigation Measure(s)

Implementation of Mitigation Measures 3-76(a) and (b) would reduce potential significant impacts associated with transit service and facilities by supporting transit use to and from the project site and minimizing adverse effects to transit operations that would be caused by the ARC Project.

However, elements of Mitigation Measure 3-75(c), as implemented by Mitigation Measure 3-76(b), would occur within Caltrans rights-of-way and would be subject to final approval and actions by others. In addition, the ultimate improvements resulting from Mitigation Measure 3-75(c) are subject to change pending the outcome of the Mace Boulevard Corridor Plan process described in Mitigation Measure 3-75(c). Therefore, the implementation of the mitigation measures and their effectiveness cannot be guaranteed.

The Certified Final EIR concluded that impacts to transit services associated with the MRIC Project would be less than significant with mitigation. For the ARC Project, due to uncertainties regarding the ability for the aforementioned mitigation measures to reduce impacts to transit service and facilities, transit service and facility impacts would be considered *significant and unavoidable*.

ARC Project and Mace Triangle

3-76(a) *Prior to the issuance of the first certificate of occupancy of the first ARC Project phase, the project applicant shall fund and construct new bus stops with turnouts on both sides of Mace Boulevard at the new primary project access point at Alhambra Drive. The project applicant shall prepare design plans, to be reviewed and approved by the City Public Works Department, and construct bus stops with shelters, paved pedestrian waiting areas, lighting, real time transit information signage, and pedestrian connections between the new bus stops and all buildings on the ARC Site. Responsibility for implementation of this mitigation measure shall be assigned to the ARC Project and Mace Triangle on a fair share basis. Upon completion of the ARC Project transit plaza, in consultation with Unitrans and Yolobus, the bus stops shall be moved to the ARC transit plaza at the expense of the ARC Project applicant.*

3-76(b) *Implement Mitigation Measure 3-75(c).*

3-77 Conflict, or create an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to transportation/traffic (reference Impact 4.14-9).

Impacts related to conflicts with plans, policies, or regulations related to transportation/traffic, as they pertain to the non-residential innovation center uses, were evaluated for the MRIC Project in Section 4.14 and determined to be ***less than significant***. For the ARC Project, there are additional City of Davis housing policies and regulations that are applicable to the ARC residential component. These additional housing policies and regulations are evaluated in the appropriate sections of this analysis, namely, the Land Use and Urban Decay section (Impact 3-55), and the Population and Housing section (Impact 3-63). The consistency discussion provided in Table 4.14-14 of the Certified Final EIR with respect to City transportation policies remains generally applicable to the the ARC Project, with a few exceptions. The discussion related to Policy TRANS 2.7, concerning neighborhood traffic calming to minimize impacts of vehicle traffic on local streets, reflects the requirements of Mitigation Measure 8-74 of the Certified Final EIR. This mitigation measure has been revised in this SEIR (now Mitigation Measure 3-71). The Mitigation

Measure has been revised in recognition of the fact that Alhambra Drive and 5th Street are collector streets and are meant to carry traffic. The revisions to the mitigation measure do not change the objective, which is to minimize traffic impacts on local streets. Rather, the revisions improve the wording of the mitigation measure so that it appropriately focuses on minimizing increases in traffic volumes on local streets and not also collectors.

In addition, the discussion for Policy TRANS 2.8 states that corridor plans are not necessary as a result of the project because the select roadway segments that would require widening beyond 4 lanes, as mitigation, are transitional segments that, if widened, would facilitate movements between the ramps and the City's arterial roadway system, thereby enhancing safety. While this remains true, the City has determined that because corridor plans, as identified in Policy TRANS 2.8, are intended to comprehensively address function, safety, and appearance of the corridor, it is appropriate to require a corridor plan to address the ARC Project and the various recommended improvements in this SEIR, as has been required in Mitigation Measure 3-75(c). With these changes, the ARC Project would not create an inconsistency with any applicable plan, policy, or regulation adopted for purpose of avoiding or mitigating transportation effects.

Mitigation Measure(s)
None required.

Utilities (reference Section 4.15 of the Certified Final EIR)

The impacts related to utilities as a result of buildout of the site per the ARC Project in comparison to that of the MRIC Project are presented below.

Changes in Circumstances

At the time the Certified Final EIR was prepared, water supplies in the City of Davis were provided solely by groundwater. However, in June 2016, the City began using treated wholesale surface water from the Woodland – Davis Clean Water Agency's (WDCWA) Regional Water Treatment Facility. The project participants consist of the City of Davis, City of Woodland, and UC Davis. The Regional Water Treatment Facility began operation in June 2016. Per the WDCWA, the Regional Water Treatment Facility is capable of supplying up to 30 million gallons per day (mgd) of water, with an option for future expansion to 34 mgd. Of the 34 mgd of water supplied, the City of Davis is allocated approximately 10.2 mgd.[56]

With the availability of the wholesale surface water, the City has a maximum day supply capacity of 23.4 mgd, which consists of 13.2 mgd of well capacity and 10.2 mgd wholesale supply. The City would have additional groundwater supply capacity from some of the intermediate depth wells that would be kept for emergency standby purposes. The other wells are assumed not to be normally operational.

The City plans to maximize surface water use by routinely using the surface water supply as a base load and using the deep aquifer wells as a supplemental supply during the summer when demands would exceed the surface water supply capacity. The total supply that would be available from both wholesale surface water and groundwater is shown in Table 3-41.

Table 3-41
Water Supply Capacity

Water Supply	Reasonably Available Volume (afy)
Surface Water	11,246
Groundwater	14,834
Total Supply	**26,080**

Note: Reasonably Available Volume is based on years 2020, 2025, 2030, 2035, and 2040.

Source: City of Davis, Final 2015 Urban Water Management Plan, 2016.

With regard to wastewater, the City of Davis Wastewater Treatment Plant (WWTP) has recently been upgraded to ensure compliance with all existing and anticipated wastewater discharge standards. The City's WWTP upgrade project included design and construction of improvements to the City's WWTP in order to meet State and federal regulatory discharge requirements contained in the City's 2013 NPDES permit. With completion of the upgrade, the WWTP has been sized to accommodate 6.0 mgd of average dry weather flow (ADWF), though it is permitted to treat 7.5

[56] Woodland-Davis Clean Water Agency. *Project Overview*. Available at: https://www.wdcwa.com/project-overview/. Accessed January 2018.

mgd. On December 7, 2018, the Central Valley Regional Water Quality Control Board (CVRWQCB) adopted renewed waste discharge requirements for the WWTP under Order R5-2018-0086.[57]

With regard to electricity, on October 25, 2016, subsequent to the release of the Certified Final EIR. the Davis City Council adopted Resolution Number 16-153, Series 2016, which approved the Joint Exercise of Powers Agreement with Yolo County to form the Valley Clean Energy Alliance, which is now referred to as simply Valley Clean Energy (VCE). The resolution adopted by the City, along with similar resolutions adopted by the City of Woodland and Yolo County led to the formation of the VCE Joint Powers Authority. Beginning in June 2018, the VCE began serving the electricity needs of the cities of Woodland, Davis, and unincorporated areas of Yolo County. Customers within the participating areas have the opportunity to continue receiving service from PG&E or receive energy from VCE. While VCE supplies the energy for customers enrolled in the VCE program, VCE electricity is transmitted through PG&E-owned and operated distribution and power lines.

Substantial changes in circumstances related to natural gas, telecommunications, stormwater, and solid waste have not occurred.

Changes in the Project

Relative to the MRIC Project, the ARC Project would include an additional 850 residential units and, thus, would result in greater utility demands. However, the ARC Project would include a similar amount of residential development as was previously anticipated for the Mixed-Use Alternative and evaluated in the EIR. Thus, substantial changes in the project that would affect the analysis in the EIR related to utilities and service systems have not occurred.

3-78 Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board (reference Impact 4.15-1).

Impacts related to wastewater treatment requirements were determined to be less-than-significant for the MRIC Project. Pursuant to federal regulations, 40 CFR 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard. The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. Per the City of Davis' current WWTP Order and NPDES Permit from the State Water Resources Control Board (Order R5-2018-0086; NPDES No. CA0079049), specific effluent limitations have been set for the two WWTP discharge points.

[57] Central Valley Regional Water Quality Control Board. *Order R5-2018-0086, NPDES No. CA0079049, Waste Discharge Requirements for the City of Davis Wastewater Treatment Plant, Yolo County.* Adopted December 2018.

The federal CWA section 307(b), and federal regulations, 40 CFR Part 403, require publicly owned treatment works to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants, which will interfere with treatment plant operations or sludge disposal, and prevent pass through of pollutants that exceed water quality objectives, standards or permit limitations.

The City of Davis Pretreatment Program requires businesses to provide necessary wastewater treatment as required to comply with this article, and shall achieve compliance with all national pretreatment standards. Detailed plans showing the pretreatment facilities and operating procedures shall be submitted to the general manager for review, and shall be acceptable to the general manager before construction of the facility. It should be noted that the City's Pretreatment Program does not apply to residential uses. The City is responsible for ensuring that wastewater resulting from residential uses which connect to the City's sewer system would not result in exceedance of the applicable wastewater treatment requirements of the Regional Water Quality Control Board.

As a result of the City's Pretreatment Program, prior to operation of each non-residential building within the ARC Project, the City will review each proposed business' wastewater system to ensure that it will not impede the City's ability to meet its wastewater treatment requirements approved by the Regional Water Quality Control Board in Order R5-2018-0086. Therefore, similar to the MRIC Project, the ARC Project would have a ***less-than-significant*** impact related to exceeding wastewater treatment requirements of the applicable Regional Water Quality Control Board.

Mitigation Measure(s)
None required.

3-79 Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed (reference Impact 4.15-2).

Impacts related to water supply were determined to be less-than-significant for the MRIC Project. Similar to the MRIC Project, buildout of the ARC Project would consist of 2,654,000 sf of R&D, manufacturing, ancillary retail, and hotel/conference uses, but in addition, the ARC Project would introduce 850 residential units. As such, the inclusion of residential land uses with the ARC Project would result in greater demands for domestic water supply and delivery as compared to the MRIC Project.

The projected annual and maximum day demands of the City's current service area and of the ARC Project, in comparison to the MRIC Project, are summarized in Table 3-42. A comparison of the demands to the City's supply capacity is also presented in Table 3-42. Table 3-43 compares the projected average-year water demands to the supplies in five-year intervals to 2035. The water demands represent the City's total water demands and consist of the projected demands within the City's existing service area and the demands of the ARC Project and other developments that were proposed at the time the MRIC Draft EIR was released, including the Nishi Project and the Davis Innovation Center Project.

Table 3-42
Summary of Normal-Year Buildout Demands and Supplies

	ARC Project		MRIC Project	
	Annual (ac-ft/yr)	Maximum Day (mgd)	Annual (ac-ft/yr)	Maximum Day (mgd)
Demand				
Existing City Service Area[1]	13,258	21.3	13,258	21.3
Proposed Developments[2]	1,203	1.5	1,066	1.3
Total[3]	**14,461**	**22.8**	**14,324**	**22.6**
Supply	15,253	23.4	15,253	23.4
Supply Minus Demand	792	0.6	929	0.8

Notes:
mgd = million gallons per day
ac-ft/yr = acre pet per year
[1] Buildout demand for the City's existing service area, which is projected to occur with the assumed growth rate in 2023. Buildout demand projected to decline to 12,356 ac-ft/yr and 19.9 mgd by 2030.
[2] Buildout demand for the proposed developments (Davis Innovation Center, Nishi 1.0, and MRIC Mixed-Use Alternative) assumed to occur in 2025. Proposed developments are located outside of the City's current service area.
[3] This total would occur if the buildout of the City's existing service area and the proposed developments occur in the same year.

Source: Brown and Caldwell. Water Supply Assessment. June 2015.

Table 3-43
Average-Year Water Demand and Supply Comparison (ac-ft/yr)

	2020	2025	2030	2035
Demand within Current Services Area	12,889	12,767	12,356	12,356
Demand of Proposed Developments (including Mixed-Use Alternative)	602	1,203	1,203	1,203
Total Demand	**13,491**	**13,970**	**13,559**	**13,559**
Supply	15,253	15,253	15,253	15,253
Supply Minus Demand	1,762	1,283	1,694	1,694

Source: Brown and Caldwell. Water Supply Assessment. June 2015.

As shown in the tables and as anticipated, the ARC Project would result in slightly greater demands for water supply than the MRIC Project; however, the capacities of the City's water supply facilities are sufficient to supply the City's buildout demand of the existing service area and the demands of the ARC Project and other development outside of the city limits during normal-year or average-year conditions over the 15-year planning horizon.

It should be noted that since the certification of the Final MRIC EIR, new General Plan Amendments (GPA) have been approved by the City for recent development projects, the larger projects of which include Sterling Apartments, Lincoln40, 3820 Chiles Road, Davis Live, and West Davis Active Adult. The increased water demands associated with these GPA projects, which were not accounted for in the 2015 WSA prepared by Brown and Caldwell, are offset by the fact that the Davis Innovation Center project is no longer an active project (i.e., the Davis Innovation

Center Project became the site of the approved West Davis Active Adult Community Project). Importantly, the projected water demand for the Davis Innovation Center project was estimated by Brown and Caldwell (2015 WSA) to be 619 acre-feet per year (average annual demand). The projected annual water demand for the West Davis Active Adult project is 234 acre-feet per year.[58] The 2015 WSA also included water demand from "Nishi 1.0", which was larger than the ultimately approved "Nishi 2.0" (e.g., Nishi 2.0 eliminated 325,000 sf of R&D).

If we just more narrowly focus on net change in water demand between the Davis Innovation Center project and the West Davis Active Adult project, it can be seen that the 2015 WSA overestimates total buildout water demand by 385 acre-feet per year. Thus, the water demand figures presented in the tables above are conservative. The 385 acre-feet per year is more than sufficient to account for the increased water demands resulting from larger GPA projects approved since preparation of the Certified Final EIR. For example, the University Commons project would result in a net increase of approximately 62.9 gpd; Lincoln40 = 45.2 ac-ft/yr; Davis Live = 28.09 ac-ft/yr; and Sterling Apartments = 25.9 ac-ft/yr. This increased water demand associated with GPA projects totals 162.09 ac-ft/yr, which is well under the 385 ac-ft/yr unaccounted for water in the 2015 WSA due to the elimination of the Davis Innovation Center project. Furthermore, as shown in the below tables, even with the conservative assumptions inherent in the 2015 WSA, the City has supplies to meet buildout demand in normal, single- and multiple-dry years.

Table 3-44 provides a water supply and demand comparison for single- and multiple-dry years through the year 2035. As illustrated in Table 3-44, the City has the supplies to be able to meet dry-year demands of the existing service area and the ARC Project and other proposed developments over the 20-year planning horizon.

Overall, according to the WSA prepared for the MRIC Project, sufficient water supplies are available to serve the ARC Project and other proposed projects, as well as the buildout demands of the City's current service area over the next 15-years during normal-year, single-year, and multiple-dry year scenarios.

The ARC Project would involve the same connections to the City's domestic water supplies as included for the MRIC Project, which would be an extension of the existing 12-inch diameter City water main located along Mace Boulevard and potential connection to the existing 20-inch diameter main that connects to the booster pumping station at the four-million-gallon City water tank. The 0.2 mgd increase in water demand from that of the MRIC Project, which would result from the ARC Project, would not change the ability of the City's existing water delivery infrastructure system to accommodate the domestic and fire flow demands.

Based on the above, sufficient water supplies would be available to serve the ARC Project from existing entitlements and resources, and, similar to the MRIC Project, impacts would be considered ***less than significant***.

[58] Tully & Young. *West Davis Active Adult Community Project. SB 610 Water Supply Assessment*. August 2017, p. 2-10.

Table 3-44
Single- and Multiple-Dry Year Water Demand and Supply Comparison (ac-ft/yr)

	2020	2025	2030	2035
Single-Dry Year				
Demand	14,227	14,663	14,226	14,226
Supply	15,253	15,253	15,253	15,253
Supply Minus Demand	1,026	590	1,026	1,026
Multiple-Dry Years				
Year 1				
Demand	13,757	14,179	13,757	13,757
Supply	15,253	15,253	15,253	15,253
Supply Minus Demand	1,496	1,074	1,496	1,496
Year 2				
Demand	14,227	14,663	14,227	14,227
Supply	15,253	15,253	15,253	15,253
Supply Minus Demand	1,026	590	1,026	1,026
Year 3				
Demand	13,824	14,248	13,824	13,824
Supply	15,253	15,253	15,253	15,253
Supply Minus Demand	1,428	1,005	1,429	1,429

Source: Brown and Caldwell. Water Supply Assessment. June 2015.

Mitigation Measure(s)
None required.

3-80 Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments (reference Impact 4.15-3).

Impacts related to wastewater treatment capacity were determined to be less-than-significant with mitigation for the MRIC Project. A technical memorandum was prepared for the Mixed-Use Alternative by West Yost Associates for the analysis of impacts on wastewater treatment plant (WWTP) and sewer collection capacity.[59] The results of the technical memorandum, as they relate to the ARC Project, are discussed below.

WWTP Capacity

As discussed in Section 4.15 of the Certified Final EIR, the MRIC Project, in combination with the adjacent Mace Triangle development, was determined to produce 0.111 mgd of average dry weather flow (ADWF). Subtracting out the Mace Triangle development, those numbers are reduced to 0.107 mgd and 0.197 mgd, respectively.

[59] West Yost Associates. *Impacts of the Mace Ranch Innovation Center Proposed Mixed-Use Alternative on Wastewater Treatment Plant and Sewer Capacity*. July 15, 2015.

According to the analysis within the technical memorandum, the ADWF value from the residential portion of the ARC Project would be 0.196 mgd, assuming 230 gpd/unit. When added to the estimated ADWF for the MRIC non-residential uses, the result is 0.303 mgd (sewer flow factor basis of calculation) and 0.393 mgd (water use basis).

Wastewater treatment for the proposed project would continue to be provided by the City's WWTP. Given an existing ADWF of 4.34 mgd and a WWTP capacity of 6.0 mgd, West Yost has estimated that the available ADWF capacity of the City's WWTP is 1.66 mgd, or 28 percent of design capacity.[60] The ARC Project's estimated ADWF of 0.303 mgd (sewer flow factor basis) and 0.393 mgd (water use basis) would both be within the remaining WWTP capacity. Even if the previously proposed non-General Plan development projects are included (i.e., Davis IC with 0.19 mgd ADWF and Nishi 1.0 (Gateway) with 0.18 mgd ADWF), adequate WWTP capacity would be available to accommodate the increase in wastewater generation.

Impacts of future development of the WWTP were also assessed in Section 4.15 of the EIR by considering future biochemical oxygen demand (BOD) loadings entering the WWTP. The technical memorandum prepared for the Mixed-Use Alternative, included such an assessment for the Alternative. Per Table 4.15-25 of the EIR, the WWTP has a total average dry weather BOD load capacity of 10,100 lbs/day. At the time the EIR was prepared, the existing BOD load was approximately 8,300 lbs/day, leaving a capacity of 1,800 lbs/day. Based on projections for the Mixed-Use Alternative, the ARC Project would be anticipated to generate a BOD load of 700 lbs/day, reducing the available BOD load capacity to 1,100 lbs/day. It is anticipated that such a remaining amount would be sufficient to accommodate the BOD load from GPA projects that have been approved since preparation of the 2015 sewer technical memorandum. However, this SEIR takes a conservative approach and retains Mitigation Measure 3-83(a), requiring that prior to approval of improvement plans for Phase 2 of development, and all subsequent phases, the applicant shall provide funding for the City to perform a WWTP analysis to identify the then-current City of Davis WWTP BOD loading capacity, and if necessary, fund WWTP improvements.

Wastewater Collection Capacity

The peak wet weather flow (PWWF) is the key statistic of interest with regard to sewer line capacity. According to the conversion rates noted in the technical memorandum, the ARC Project would result in PWWF estimates of approximately 0.84 mgd (sewer flow factor basis) and 1.04 mgd (water use basis), as compared to the proposed project's values of 0.41 mgd (sewer flow factor basis) and 0.61 mgd (water use basis).

According to the technical memorandum, the 42-inch diameter trunk sewer north of the ARC Site is predicted to flow at 88 percent of capacity at General Plan buildout PWWF conditions, while the 21-inch diameter trunk sewer east of the ARC Site is predicted to flow at 84 percent of capacity

[60] West Yost Associates. *Impacts of Innovation Center/Nishi Property Development on Wastewater Treatment Plant Capacity [pg. 4]*. Technical Memorandum (Final). April 2, 2015. That this estimate still remains applicable has been confirmed by Stan Gryczko, Public Works – Utilities and Operations Director, February 25, 2020 [email correspondence with Nick Pappani, Vice President, Raney Planning and Management, Inc.].

at buildout PWWF conditions. In addition, gravity sewers are required to maintain a depth less than 75 percent of the pipe diameter, which roughly equates to a PWWF that should not exceed 90 percent of the calculated full-pipe capacity of the given sewer line. Based on the aforementioned requirement, the remaining available capacity in the adjacent sewer lines are estimated to be 0.31 mgd and 0.28 mgd, respectively, which indicated inadequate capacity to accommodate either the MRIC Project or the ARC Project. However, as discussed in Section 4.15 of the MRIC Draft EIR, use of the City's current flow factors significantly overestimate the actual ADWF. According to West Yost Associates, a 40 percent reduction in the City's collection system ADWF brings the results in line with the current ADWF values measured at the WWTP; as such, a 40 percent reduction in the estimates is justified.

Applying the 40 percent reduction, the resultant available PWWF flow capacity in the trunk sewer lines in question increases to approximately 5.0 mgd of allowable capacity remaining in the 42-inch diameter trunk sewer at General Plan buildout PWWF conditions, and approximately 1.4 mgd of allowable capacity remaining in the 21-inch diameter sewer at General Plan buildout PWWF conditions. Therefore, the ARC Project's increase of approximately 0.84 mgd (sewer flow factor basis) or 1.04 mgd (water use basis) would be within the allowable capacity remaining in the sewer lines, and adequate buildout PWWF capacity exists to handle the additional flow generated by the ARC Project.

Phase 1 Improvements

While the existing 8-inch sewer line in Mace Boulevard does not have capacity to convey wastewater flows generated by the ARC Project at buildout, it is possible that this existing line may be able to service Phase I of the project in an interim condition. This is based on the factor that several contributing neighboring land uses have not been developed at the densities originally intended in the City's sewer master plan.

A sewer study would be required to determine what, if any, capacity remains in the existing Mace Boulevard line. Assuming there is surplus capacity in the Mace Boulevard line, the Phase I flows may be pumped via a lift station and force-main in the interim condition to Mace Boulevard. At buildout, upon completion of the off-site sewer connection, this flow may be redirected with the remainder of the on-site sewer flows to the planned sewer line improvements.

Mace Triangle

The nearest existing City sewer main to the Mace Triangle is an 8-inch line, located in Mace Boulevard. If the Mace Triangle develops ahead of the ARC Project, then the future developer could possibly connect to the existing 8-inch line within Mace Boulevard. Based upon the Phase 1 discussion above, this 8-inch line would have sufficient capacity to collect the wastewater generated by the maximum development potential of the Mace Triangle, which is 71,056 sf of non-residential uses. If the ARC Project develops its sewer infrastructure ahead of the Mace Triangle, then the Mace Triangle development can connect to the ARC Project's sewer system.

Conclusion

Based on the above, adequate ADWF capacity exists at the WWTP to accommodate the ARC Project at General Plan buildout conditions, either alone or in combination with the other non-General Plan development projects. Although the BOD loading capacity at the WWTP is anticipated to be sufficient with the BOD load from ARC, Mitigation Measure 3-83(a) is required to ensure such is the case prior to approval of improvement plans for Phases 2 through 4 of the ARC Project. In addition, if the City sewer flow factors are taken at face value, inadequate PWWF capacity exists in adjacent trunk sewers to accommodate the flows from the ARC Project. However, if the City sewer flow factors are reduced to be consistent with observed flow conditions at the WWTP, then adequate capacity exists in both trunk sewers to accommodate flows from the ARC Project.

Similar to the MRIC Project, implementation of the following mitigation measures would be required for the ARC Project in order to ensure impacts related to wastewater collection and treatment are reduced to a ***less-than-significant*** level.

Mitigation Measure(s)

ARC Project

3-80(a) *Prior to approval of improvement plans for Phase 2 of development, and all subsequent phases, the applicant shall provide funding for the City to perform a WWTP analysis to identify the then-current City of Davis WWTP BOD loading capacity. If the WWTP analysis determines that adequate BOD loading capacity exists at the WWTP to serve the ARC Project phase under review, further action is not required for the phase under review. If the analysis finds that the WWTP BOD loading capacity is not sufficient to serve the particular development phase under review, that phase of development shall not be approved until a plan for financing and constructing additional BOD loading capacity improvements has been prepared and approved, the additional BOD loading capacity improvements have been constructed, and the City Engineer has verified that sufficient capacity exists to serve said phase.*

3-80(b) *The applicant shall provide for annual wet-weather monitoring of the existing off-site 42-inch or 21-inch sanitary sewer line, depending upon which off-site sewer alignment is chosen for the project, over the course of project buildout to confirm that there is capacity within the line to serve the ARC Project, in combination with existing and future projected General Plan buildout. If the wet weather monitoring fails to confirm capacity within the chosen existing sanitary sewer line, the applicant shall either upsize the existing sewer line, subject to reimbursement, or install a parallel line, subject to review and approval by the City Engineer.*

3-80(c) *If the applicant pursues a connection to the existing 8-inch sewer line in Mace Boulevard to serve Phase 1 of the ARC Project, then prior to approval of Improvement Plans for Phase 1, the applicant shall prepare and submit to the Davis*

Public Works Department, a sewer study, which shall determine the available capacity in the 8-inch sewer pipe in Mace Boulevard. If the 8-inch line has adequate capacity for Phase 1 of the ARC Project, then no further mitigation is needed. If the sewer study determines that the 8-inch line does not have adequate capacity to serve Phase 1, then the applicant shall upsize the sewer pipe within Mace Boulevard, or pursue construction of the northerly or easterly off-site sewer pipe connection alternative. The design of the sewer pipe improvements shall be reviewed and approved by the City Engineer prior to approval of Phase 1 Improvement Plans.

Mace Triangle

None required.

3-81 Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs or fail to comply with federal, State, and local statutes and regulations related to solid waste (reference Impact 4.15-4).

Impacts related to solid waste were determined to be less-than-significant for the MRIC Project. Specifically, the EIR concluded that the remaining capacity at the Yolo County Central Landfill would be adequate to accommodate solid waste generated by construction and operation of the non-residential uses included in the MRIC Project. According to the City of Davis Integrated Waste Management Plan, the landfill is not operating at capacity and has a current anticipated closure date of 2124.[61]

Similar to the MRIC Project, the ARC Project would use the City's solid waste services, and solid waste would be transferred to the Yolo County Central Landfill for disposal. Because the ARC Project would involve the same development as the MRIC Project, but would add 850 residential units, the ARC Project would generate more solid waste than the MRIC Project. As noted in the EIR, the MRIC Project could generate approximately 3,775.9 tons of waste per year. The addition of 850 residential units as part of the ARC Project would increase the amount of waste by 1,500 tons of waste per year, for a total of 5,275.9 tons of waste per year. An additional 5,275.9 tons (24,201 cubic yards) of waste per year would constitute only 0.07 percent of the remaining capacity at the Yolo County Central Landfill of approximately 35,171,142 cubic yards.[62] In addition, the ARC Project would be required to comply with applicable state and local requirements including those pertaining to solid waste, construction waste diversion, and recycling. Specifically, Chapter 32 of the City's Municipal Code regulates the management of garbage, recyclables, and other wastes. Chapter 32 sets forth solid waste collection and disposal requirements for residential and commercial customers, and addresses yard waste, hazardous materials, recyclables, and other forms of solid waste. Therefore, similar to the MRIC Project, impacts related to solid waste disposal services and landfill capacity would be ***less than significant***.

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61 CalRecycle. *Solid Waste Facility Permit; Facility Number: 57-AA-001*. May 31, 2018.

62 [(5275.9 tons/yr) / (0.218 tons/cubic yard)] = 24,201 cubic yards. Conversion rates from https://www.recyclesmart.org/filebrowser/download/16477; accessed February 2020. CalRecycle. *SWIS Facility Detail, Yolo County Central Landfill (57-AA-0001)*. Available at: https://www2.calrecycle.ca.gov/SWFacilities/Directory/57-AA-0001/Detail/. Accessed February 2020.

Mitigation Measure(s)
None required.

3-82 Gas and electric facilities (reference Impact 4.15-5).

Impacts related to gas and electric facilities were determined to be less-than-significant for the MRIC Project. The amount of non-residential uses included in the ARC Project would be equal to the buildout of the MRIC Project (2,654,000 sf), but the ARC Project would introduce up to 850 residential units. Due to the inclusion of residential uses, the amount of operational energy use associated with the ARC Project would be expected to be greater than the MRIC Project. Energy-efficiency measures and compliance with building design regulations would still be included in the ARC Project design. Based on the CalEEMod results for the ARC Project, the ARC Project would be expected to result in consumption of electricity of a maximum of 13.64 gigawatt-hours (GWh) per year and consumption of natural gas of approximately 34,607,340 kBTU/yr.

According to PG&E, the load demand created by the previously analyzed MRIC Project, would be able to be accommodated by existing substations in the area.[63] Although the ARC Project may result in slightly increased on-site energy consumption as compared to the MRIC, any potential overall increase would not be anticipated to be sufficient to require infrastructure that has not previously been anticipated to meet the growth in demand in the project area. In addition, according to utility maps provided by PG&E, existing gas and electric infrastructure is located within the roadways surrounding the ARC Site. The applicant for the ARC Project, and any future applicants associated with buildout at the Mace Triangle Site, would be responsible for funding the construction of the on-site gas and electric infrastructure needed to connect to existing, adjacent infrastructure. The design-level details for each phase of development would be worked out in consultation with PG&E, or VCE as appropriate, prior to confirmation of service. Because the ARC Project would not be anticipated to result in large increases in the amount of energy consumption anticipated for the site, as compared to the MRIC Project, similar to the MRIC Project, impacts related to gas and electric facilities would be ***less-than-significant*** under the ARC Project.

Mitigation Measure(s)
None required.

3-83 Adequate telecommunication facilities (reference Impact 4.15-6).

Impacts related to telecommunication facilities were determined to be less-than-significant with mitigation for the MRIC Project. The provision of telecommunications services is a collaborative effort between the end-users and the service providers. Similar to the MRIC Project, prior to constructing each phase of the ARC Project, the applicant would coordinate with the service providers to identify points of connection to existing telecommunications lines and any needed upgrades to the existing system, which would be designed to occur within existing development

[63] Personal email communication between Nick Pappani, Vice President, Raney Planning & Management, Inc. and Seth Perez, Land Agent, PG&E. March 23, 2015.

areas. It should be noted that broadband would still be necessary for the ARC Project. As a result, the ARC Project would have a ***less-than-significant*** impact to telecommunications facilities.

Mitigation Measure(s)
None required.

3-84 Conflict, or create an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigation environmental effects related to utilities (reference Impact 4.15-7).

Impacts related to conflicts with plans, policies, or regulations related to utilities, as they pertain to the non-residential innovation center uses, were evaluated for the MRIC Project in Section 4.15 and determined to be ***less than significant***. For the ARC Project, there are additional City of Davis housing policies and regulations that are applicable to the ARC residential component. These additional housing policies and regulations are evaluated in the appropriate sections of this equal-level analysis, namely, the Land Use and Urban Decay section (Impact 3-55), and the Population and Housing section (Impact 3-63). The consistency discussion provided in Table 4.15-28 of the Certified Final EIR with respect to City utility policies remains applicable to the the ARC Project, as it generally pertains to City policies regarding ensuring adequate water supply and wastewater treatment capacity, which, as demonstrated above, would be accomplished with the ARC Project, as mitigated.

Mitigation Measure(s)
None required.

Cumulative Impacts (reference Chapter 5)

The cumulative impacts as a result of buildout of the site per the ARC Project, compared to the MRIC Project, are presented below.

Changes in Circumstances

As noted in Chapter 5 of the Certified Final EIR, with the exception of the traffic analysis, the geographic scope, or area of inquiry, for each cumulative impact category evaluated consists of the 102,575-acre Davis General Plan Planning Area. The cumulative traffic analysis for the ARC Project accounts for projects approved by the City since the certification of the EIR (e.g., Nishi Student Apartments Project, Sterling Apartments, Lincoln40, 3820 Chiles Road, Davis Live), as well as those active projects currently being processed by the City (e.g., University Commons project).

The Certified Final EIR included two cumulative scenarios. The "CEQA Cumulative Scenario" consisted buildout of the City of Davis city limits, pursuant to the General Plan, and those properties outside the city limits for which development applications have been submitted to the City of Davis, namely Davis Innovation Center and Nishi Gateway. The "Modified Cumulative Scenario" consisted of buildout of the City of Davis city limits and the Nishi Gateway project, but excluded the Davis Innovation Center project. Since certification of the Final MRIC EIR, the Nishi project has been approved in a reduced form ("Nishi 2.0"), and the Davis Innovation Center (DIC) Project is no longer proposed within Davis; a portion of the DIC site was approved for the West Davis Active Adult Community Project. Given the current greater level of certainty in the City of Davis with respect to reasonably foreseeable projects, this SEIR includes one cumulative scenario, as is typical industry practice.

Changes in the Project

Changes to the ARC Project relative to the MRIC Project and the Mixed-Use Alternative, as such changes relate to each issue area evaluated herein, are described in the sections above.

3-85 Cumulative impacts related to long-term changes in visual character of the region (reference Impact 5-1).

Cumulative impacts related to long-term visual changes in the visual character of the region were determined to be cumulatively considerable and significant and unavoidable for the MRIC Project. Impacts to changes in visual character resulting from development of the ARC Project and the undeveloped Mace Triangle properties would combine with related impacts resulting from development of the buildout of vacant lands within the City limits per their Davis General Plan land use designations, as well as other pending development. It should be noted that additional urban development on vacant land within the city limits may not represent the same magnitude of visual change as the ARC Project, because such development would occur within in-fill areas, generally surrounded by urban uses that limit views through the sites.

The undeveloped portion of the Mace Triangle parcels is proposed for development but not as a part of the ARC Project. As a part of the ARC Project, the City will prepare a PD Ordinance that would apply only to the three Mace Triangle parcels. It is anticipated that the Ikeda's parcel and other agricultural parcel would be designated General Commercial to allow for the continuation or expansion of the existing agricultural retail (Ikeda's Market) and/or for the development of up to 71,056 sf of new commercial uses.[64] The combined effects of cumulative development would lead to a significant cumulative impact with respect to changes in visual character within the cumulative geographic setting. The ARC Project's and Mace Triangle's incremental contribution toward this significant cumulative impact would be approximately 204 acres, which would be ***cumulatively considerable***.

Mitigation Measure(s)
None available.

Buildout of the ARC Project and the undeveloped portions of the Mace Triangle would combine with other development to represent a significant change in the visual character of the cumulative geographic context. Although compliance with the City's General Plan policies and the future Design Guidelines for the ARC Project would help to minimize impacts, feasible mitigation measures are not available to reduce this project's incremental contribution toward the cumulative change in the existing visual character or quality of the Davis area to a less-than-significant level. Therefore, similar to the MRIC Project, the impact would remain *cumulatively considerable* and *significant and unavoidable*.

3-86 Cumulative impacts related to the creation of new sources of light or glare associated with development of the proposed project in combination with future buildout in the City of Davis (reference Impact 5-2).

ARC Project

With implementation of mitigation, cumulative impacts related to creation of new sources of light or glare were determined to be less than cumulatively considerable for the MRIC Project. Cumulative effects of lighting are visible over a wide area, due to the potential for lighting from a number of projects to create sky glow. The ARC Site and undeveloped portions of the Mace Triangle do not have night time lighting under existing conditions, and do not presently contribute to skyglow in the area. The ARC Project would introduce new lighting sources at the ARC Site; however, these fixtures would comply with City lighting design requirements, which would ensure that the ARC Project would not create an adverse sky glow condition.

Specifically, the City's Outdoor Lighting Control standards have been designed to "…minimize light pollution, glare, and light trespass caused by inappropriate or misaligned light fixtures, while improving nighttime public safety, utility, and security, and *preserving the night sky as a natural*

[64] The City property (i.e., Park-and-Ride lot) would be designated Public-Semi-Public to allow for the continuation of existing uses. No new uses are proposed.

resource and thus people's enjoyment of looking at the stars (emphasis added).[65] To this end, the City requires all outdoor light fixtures, maintained upon private property used for commercial, industrial, or multifamily purposes, to be fully shielded. In addition, light trespass and glare shall be limited to a reasonable level through the use of shielding, and directional lighting methods, including, but not limited to, fixture location and height. Consistency with the City's Municipal Code would be ensured during the design permit and architectural review process, and implementation of Mitigation Measure 3-3, which requires the applicant to submit a lighting plan to the Department of Community Development and Sustainability for review and approval, showing compliance of all residential and non-residential uses with shielding and directional lighting standards included in the City's Outdoor Lighting Control ordinance.

The Design Guidelines for the ARC Project would be consistent with the City's Outdoor Lighting Control standards, in that they require exterior lighting throughout the project site to be designed and selected to provide appropriate light levels to reduce long-range visibility of night lighting with full cut off fixture designs. Therefore, the ARC Project would not have a considerable contribution to sky glow such that a new significant cumulative sky glow impact would occur.

Mace Triangle Site

The Mace Triangle properties currently contain a City-owned water tank, Ikeda's Market, and a Park-and-Ride lot. Entitlements for the Mace Triangle Site include Annexation and Prezoning, General Plan Amendment, and a PD. The intent of the PD would be to allow the continuation of existing uses, while recognizing the potential for additional urban development on the Ikeda's parcel and adjacent agricultural parcel. As such, implementation of development on the undeveloped portions of the Mace Triangle Site, in combination with other reasonably foreseeable projects in the City of Davis, could introduce new sources of light and glare to the project area in the future. However, should an applicant propose development of the Mace Triangle Site in the future, any lighting would be subject to Article 8.17, Outdoor Lighting Control, of the Davis Municipal Code.

Other Cumulative Development

Other development on vacant lands within the Davis city limits would be required to comply with the City's Outdoor Lighting Control standards, which would ensure that each project's individual contribution to the sky glow effect would be minimized to a level that is not considered cumulatively considerable.

Conclusion

Cumulative impacts related to light or glare were determined to be less-than-cumulatively-considerable for the MRIC Project. While the ARC Project's effects related to new sources of light and glare, in combination with related effects of other cumulative development, could be significant, the ARC Project's incremental contribution to this significant cumulative impact will

[65] Davis Municipal Code, Chapter 8, Buildings, Article 8.17, Outdoor Lighting Control. Accessible at: http://qcode.us/codes/davis/.

be rendered ***less than cumulatively considerable*** through its compliance with City Code requirements and the mitigation measures set forth in this SEIR.

Mitigation Measure(s)

ARC Project and Mace Triangle

3-86 Implement Mitigation Measure 3-3.

Implementation of the above mitigation measure would ensure that the ARC Project's incremental contribution to cumulative impacts related to new sources of light and glare is reduced to *less than cumulatively considerable*.

3-87 Impacts related to cumulative loss of agricultural land (reference Impact 5-3).

Cumulative impacts related to loss of agricultural land were determined to be cumulatively considerable and significant and unavoidable for the MRIC Project.

Annexation of the ARC Site and Mace Triangle and redesignation of the properties for urban development would result in the conversion of agricultural land, requiring mitigation per City of Davis Municipal Code requirements. At a 2:1 mitigation ratio, on- and off-site impacts associated with development of the ARC Project and Mace Triangle Site would require agricultural land mitigation for on- and off-site improvements, depending upon the final sewer alignment selected.

Development of other cumulative projects, such as the West Davis Active Adult Community Project and the Nishi Student Apartments Project, the sites of which are primarily active agricultural sites, would result in related impacts associated with conversion of farmland. The combined effects of this cumulative development scenario would lead to a significant cumulative impact on agricultural resources within the cumulative geographic setting. This conclusion is consistent with the Davis General Plan EIR, which concluded that conversion of farmland associated with potential development of a new junior high school on several prospective sites would be significant and unavoidable. Among the sites evaluated in the General Plan EIR for the new junior high school were the Covell site; Nishi Student Apartments Site; Oeste Campus, which includes a portion of the West Davis Active Adult Community site; and the Signature Site (below Mace Curve).[66]

Buildout of the remaining vacant parcels within the City limits would not be expected to result in additive effects related to conversion of agricultural land. Vacant parcels in agricultural use are limited to the horse ranch property; and this property is designated as Agriculture in the City's General Plan. Therefore, conversion of the horse ranch site to urban uses could not occur without a General Plan Amendment and Measure R approval.

Cumulative impacts related to loss of agricultural land were determined to be cumulatively considerable and significant and unavoidable for the MRIC Project. Although the ARC Project, in

[66] See Davis General Plan EIR, p. 5A-32.

combination with other cumulative development on sites in agricultural use, would be required to set aside agricultural mitigation acreage at a 2:1 ratio (2 acres of agricultural land for every acre impacted), thereby minimizing the effects of agricultural land conversion, the cumulative impact, as well as the ARC Project's incremental contribution, would be ***cumulatively considerable***.

Mitigation Measure(s)

ARC Project and Mace Triangle

3-87 Implement Mitigation Measures 3-5(a) and (b), and 3-7(b).

While Mitigation Measures 3-5(a) and (b) and 3-7(b) require the ARC Project to set aside two acres of agricultural land for every acre of agricultural land impacted, the result is nevertheless a net loss of agricultural land. Consistent with the Davis General Plan EIR and the Certified Final EIR, feasible mitigation measures do not exist to reduce the above impact to a less-than-significant level. Therefore, the impact would remain *cumulatively considerable* and *significant and unavoidable.*

3-88 A cumulatively considerable net increase of any criteria pollutant (reference Impact 5-4).

Cumulative impacts related to criteria pollutants were determined to be cumulatively considerable and significant and unavoidable for the MRIC Project. Air pollution is largely a cumulative impact. The SVAB's nonattainment status of ozone and PM is a result of past and present development. Cumulative future development would result in increases in the amount of criteria air pollutants in the ambient air, which would contribute towards the current nonattainment status of the ozone and PM AAQS. Thus, impacts related to cumulative development within the SVAB could be considered cumulatively significant.

The YSAQMD has established mass emissions thresholds of significance for criteria pollutants, which are intended to be the level at which the YSAQMD considers an individual project to have the potential to impede attainment of the AAQS and, thus, the level necessary to reduce regional emissions associated with anticipated future growth to AAQS. As the YSAQMD's mass emissions thresholds of significance for criteria pollutants represent the level at which an individual project has the potential to impede attainment of AAQS, as well as the level necessary to reduce regional emissions associated with anticipated future growth to AAQS, the YSAQMD's approach to determining cumulative air quality impacts from development projects is based on whether a project's individual emissions would exceed the YSAQMD thresholds of significance. If a project's estimated emissions would be below the YSAQMD thresholds of significance, the project would not be expected to result in a cumulatively considerable contribution to a significant cumulative impact.

As discussed above, even with implementation of mitigation measures, the ARC Project both alone and in combination with Mace Triangle, would generate criteria air pollutant emissions of ROG, NO_X, and PM_{10} in excess of the applicable thresholds of significance (see Table 3-9). Additional measures for the reduction of emissions sufficient to reduce emissions of ROG, NO_X, and PM_{10} to

below the applicable threshold of significance, are not available or feasible for the ARC Project or Mace Triangle at this time.

Overall, buildout of the ARC Project and the Mace Triangle Site in conjunction with cumulative buildout would result in a substantial increase in regional emissions from what has been anticipated for the area.

Health Effects Due to Criteria Pollutants

As noted above, based on recent California Supreme Court rulings, potential health impacts resulting from the emission of criteria pollutants during operations of the proposed ARC Project are considered herein. Although analysis of project-level health risks related to the emission of CO and TACs has long been practiced under CEQA, the analysis of health impacts due to individual projects resulting from emissions of criteria pollutants is a relatively new field. In fact, the analysis of potential health impacts resulting from criteria pollutant emissions has long been focused on a regional or air basin wide level. The reason for a wide geographic focus on health impacts from criteria pollutants is that criteria pollutants act on a regional scale, whereas TACs and CO act on a localized level. For instance, according the CARB's *Air Quality and Land Use Handbook: A Community Health Perspective*, health impacts related to many common sources of TACs are experienced within the first 500 to 1,000 feet from a source of emissions. In some cases, such as typical gasoline dispensing facilities health effects are anticipated to be limited to within 50 feet of facilities.[67] The localized nature of impacts from TACs allows for dispersion modeling of TACs to be undertaken with a reasonable scope of focus and high degree of confidence. In contrast, health risks from criteria pollutants occur over entire air basins, such as the Sacramento Federal Nonattainment Area (SFNA) for ground-level ozone, which encompasses all of Sacramento and Yolo counties, and portions of Placer, El Dorado, Solano, and Sutter counties.

In addition to the more localized area of focus for TACs, TACs are directly emitted to the atmosphere and typically have direct, scientifically measured health risks related to identified dosage levels of each specific TAC. The direct emissions of TACs and the straightforward relationship between the exposure of receptors to TACs and the resulting health risk allows for analysis of potential impacts from TACs with a high degree of confidence on a project-level. In contrast to the analysis of health risks resulting directly from exposure of receptors to specific TACs, in many cases the concern regarding health risks from criteria pollutants is not related to the specific pollutant itself, such as ROG or NO_X, but the potential for the pollutant to undergo reactions within the atmosphere and form secondary pollutants, such as ozone. In such cases, the secondarily formed ozone is the pollutant of concern related to health risks, rather than the criteria pollutant itself. The formation of ozone is dependent upon various regional factors, including the presence or absence of chemicals and elements in the atmosphere, geography of the given area, the presence of solar energy, as well as meteorological and climatological conditions. In addition, while PM can be emitted directly to the atmosphere by projects, PM can also be formed secondarily by precursor emissions, in much the same way as ozone. Thus, the formation of PM can similarly be dependent on regional atmospheric chemistry, geography, weather, and climate. The complex

[67] California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.

reactions and conditions that lead to the formation of ozone and PM in the atmosphere can also result in the transport of pollutants over wide areas. For instance, transport of emissions from development within the San Francisco Bay Area are often cited as a leading cause of poor air quality in the SFNA. Similarly, emissions from the SFNA are transported into the San Joaquin Valley Air Basin as well as mountain counties. The potential for criteria pollutant emissions to be transported over wide areas means that the emissions of ozone precursor pollutants, such as ROG and NO_X, from a single project does not necessarily translate directly into a specific concentration of ozone in that area. As a result, attributing health risks at any specific geographic location to a single proposed project is not feasible.

Considering the wide-range of factors required to analyze health risks from criteria pollutants, analysis of impacts related to criteria pollutants has typically been approached on a regional level through the preparation of air basin-wide State Implementation Plans (SIPs). Historically, SIPs have integrated emissions inventories, air monitoring data, control measures, emissions modeling, estimating future pollutant-level estimates, and analyzing general health information to determine regional approaches for the control of criteria pollutants. The inputs for all of the foregoing components of SIPs are based on regional data, such as a Metropolitan Transportation Plan or a compilation of all relevant City and County General Plans, not project-specific data. Although individual projects often include cumulative impact analyses, the cumulative growth scenarios are typically based on a list of known projects within a relatively small area or buildout of a single city's General Plan. Amassing the data necessary to produce regional projections of growth for the environmental analysis of an individual project is typically outside the scope of analysis that is feasible for even large development projects. The technical limitation of amassing large amounts of regional growth data contrasts with the fundamental need for health risk analyses of criteria pollutant emissions to be based on regional emissions trends. Consequently, the analysis of health risks from criteria pollutants in a SIP, as opposed to an individual project's environmental document, has typically been considered the most accurate and reasonable method of analysis.

Despite the technical limitations and complex nature of analyzing health risks related to the emission of criteria pollutants on a project-level, SMAQMD has recently released draft guidance for the analysis of criteria emissions in areas within the District's jurisdiction.[68] The draft guidance has not been adopted by SMAQMD's Board, nor has any guidance been adopted by YSAQMD's Board, and SMAQMD has requested comments from the public on the draft guidance so that the guidance may be updated.

The estimation of emissions from development projects has been consistently analyzed under widely available methodologies and models, such as the industry standard CalEEMod. One of the advantages of CalEEMod is that the software has been heavily vetted by air district and industry experts, and, as a result of feedback from these experts, CalEEMod has been updated several times to improve the accuracy of the emissions estimations that the model produces. In contrast to the history of feedback, improvement, and iteration of the CalEEMod software, the methods and models used by SMAQMD's consultant, Ramboll, to produce the draft guidance document has not been subject to the same degree of scrutiny. In fact, although SMAQMD has released the draft

[68] Sacramento Metropolitan Air Quality Management District. *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District.* January 31, 2020.

guidance for modeling health risks resulting from the emission of criteria pollutants by projects, Ramboll had not released the underlying data or photochemical grid model (PGM) used in preparation of the draft guidance. Without the benefit of the underlying data or PGM used in the draft guidance, the veracity of the conclusions or methodologies employed by Ramboll cannot be independently verified. Ramboll is anticipated to release the underlying data and PGM, at which time the public and other air districts would be able to more fully peer review Ramboll's work. One aspect of potential review will likely be Ramboll's choice of modeling software. The draft guidance relies on the use of the USEPA's Benefits Mapping and Analysis Program (BenMAP) to assess health risks. However, the potential exists that other software may be more suitable for this specific purpose, or that BenMAP may include systematic assumptions that could skew results. BenMAP has primarily been used for regional-scale and greater impacts, due to the past focus of such analyses on regional or national levels, changes reflected in the modeling due to a local project may not be substantial enough to result in reliable changes in outputs. For instance, a change in health risks attributed to a local project's emissions could fall within the model's normal margin of error.

Because SMAQMD's draft guidance has not been formally adopted by either SMAQMD or the YSAQMD, and the methods employed by Ramboll have not been extensively peer reviewed, the results of any analysis performed under SMAQMD's draft guidance is considered highly speculative.

In summary, the analysis of health risks related to the emission of criteria pollutants by an individual project is speculative and uncertain. The nature of criteria pollutants is such that the emissions from an individual project cannot be directly identified as responsible for health impacts within any specific geographic location. Any generalized conclusions related to potential health impacts would be predicated on a large number of tentative and compounding assumptions including regional growth trends, emissions trends, and meteorological conditions. Despite the aforementioned uncertainties and the lack of a rigorous peer review process for SMAQMD's draft guidance, SMAQMD's draft guidance has been used to prepare a preliminary analysis of the potential health risks that could result from criteria pollutant emissions during operation of the ARC Project.

SMAQMD has prepared two draft tools that are intended for use in analyzing health risks from criteria pollutants. Small projects with criteria pollutant emissions close to SMAQMD's adopted thresholds of significance may use the Minor Project Health Screening Tool, while larger projects with emissions between two and six times greater than SMAQMD's adopted thresholds may use the Strategic Area Project Health Screening Tool.[69] Based on the unmitigated ARC Project emissions presented in Table 3-9, SMAQMD's Draft Strategic Area Project Health Screening Tool would be the applicable tool for ROG and NO_X emissions. However, emissions of $PM_{2.5}$ are estimated to be below the SMAQMD's operational thresholds, and, thus, the more applicable tool for estimating health risks from the mitigated project related to $PM_{2.5}$ would be the Minor Project Health Screening Tool. Although the Minor Project Health Screening Tool would be more applicable for $PM_{2.5}$ emissions, SMAQMD's draft guidance does not provide information

[69] Sacramento Metropolitan Air Quality Management District. *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District* [pgs 5-10]. January 31, 2020.

regarding the use of both tools for different pollutants. Consequently, the City has determined that modeling health risks using the Draft Strategic Area Project Health Screening Tool alone provides the most conservative approach to analysis.

Based on SMAQMD's draft guidance, the operational emissions outputs prepared for the ARC Project, were input into SMAQMD's Strategic Area Project Health Effects Tool.[70] SMAQMD's Health Effects Tool allows for health risks to be estimated for projects in proximity to "Strategic Area Locations," which are distributed throughout the SFNA. Strategic Area Locations were selected by air district personnel based both on historic development trends and prospective planning for likely areas of growth within the SFNA. In order for health risks to be calculated, a Strategic Area Location must be selected. Two Strategic Area Locations are included within YSAQMD's jurisdiction, one in Woodland and one in Vacaville. The City of Davis was not included as a Strategic Area Location. Woodland and Vacaville were chosen by YSAQMD staff as both jurisdictions are seen as having the potential for future growth, in excess of the City of Davis. The selection process was not necessarily based on empirical evidence or results of any previous health risk analyses. Based on outputs from the Health Effects Tool, health risks would be greater when the Vacaville location is selected. Therefore, despite the closer proximity of the site to the Woodland location, in order to present a worst-case estimation of health effects, the Vacaville location has been selected for the purposes of this analysis.

SMAQMD's Strategic Area Project Health Effects Tool requires that the user input a project's emissions in units of lbs/day. Using the Vacaville location, the project's estimated unmitigated operational emissions under both the existing plus project and cumulative plus project conditions were input separately into SMAQMD's Strategic Area Project Health Effects Tool as directed in SMAQMD's Draft Guidance.[71]

Table 3-45 and Table 3-46 below present the health risks related to operational emissions resulting from implementation of the ARC Project and Mace Triangle in both the emissions scenarios presented in Table 3-9.

Based on the information presented in Table 3-45 and Table 3-46, health risks resulting from operations of the ARC Project would represent a small fraction of the background rate of health incidences due to cumulative development in region. However, as shown in the tables, implementation of the ARC Project would result in an increase in the average incidences of health effects per year due to both ozone and $PM_{2.5}$ emissions.

[70] Sacramento Metropolitan Air Quality Management District. *Strategic Area Project Health Effects Tool*. January 28, 2020.

[71] Ramboll. *Instructions for Sac Metro Air District Minor Project and Strategic Area Project Health Effects Screening Tools*. January 28, 2020.

Table 3-45
Draft SMAQMD Health Effects Tool: Existing Plus Project Conditions

Health Endpoint	Age Range[1]	Incidences (per year)[2] (Mean)	Percent of Background Health Incidence[3] (%)
$PM_{2.5}$			
Emergency Room Visits, Asthma	0 - 99	1.8013	0.2272%
Mortality, All Cause	30 - 99	3.4129	0.1853%
Hospital Admissions, Asthma	0 - 64	0.0659	0.0745%
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions)	65 - 99	0.2169	0.0206%
Hospital Admissions, All Respiratory	65 - 99	0.5179	0.0573%
Acute Myocardial Infarction, Nonfatal	18 - 24	0.0001	0.0817%
Acute Myocardial Infarction, Nonfatal	25 - 44	0.0068	0.0609%
Acute Myocardial Infarction, Nonfatal	45 - 54	0.0178	0.0620%
Acute Myocardial Infarction, Nonfatal	55 - 64	0.0246	0.0510%
Acute Myocardial Infarction, Nonfatal	65 - 99	0.1176	0.0578%
Ozone			
Hospital Admissions, All Respiratory	65 - 99	0.2318	0.0257%
Mortality, Non-Accidental	0 - 99	0.1404	0.0114%
Emergency Room Visits, Asthma	0 - 17	1.2045	0.5014%
Emergency Room Visits, Asthma	18 - 99	1.9967	0.3614%

Notes:
1 Affected age ranges are shown. Other age ranges are available, but the endpoints and age ranges shown here are the ones used by the USEPA in their health assessments. The age ranges are consistent with the epidemiological study that is the basis of the health function.
2 Health effects are shown in terms of incidences of each health endpoint and how it compares to the base (2035 base year health effect incidences, or "background health incidence") values. Health effects and background health incidences are across the Northern California model domain.
3 The percent of background health incidence uses the mean incidence. The background health incidence is an estimate of the average number of people that are affected by the health endpoint in a given population over a given period of time. In this case, these background incidence rates cover the modeled domain. Health incidence rates and other health data are typically collected by the government as well as the World Health Organization. The background incidence rates used here are obtained from BenMAP.

Source: SMAQMD, Draft Strategic Area Project Health Effects Tool. 2020.

Table 3-46
Draft SMAQMD Health Effects Tool: Cumulative Plus Project Conditions

Health Endpoint	Age Range[1]	Incidences (per year)[2] (Mean)	Percent of Background Health Incidence[3] (%)
$PM_{2.5}$			
Emergency Room Visits, Asthma	0 - 99	1.8013	0.2272%
Mortality, All Cause	30 - 99	3.4129	0.1853%
Hospital Admissions, Asthma	0 - 64	0.0659	0.0745%
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions)	65 - 99	0.2169	0.0206%
Hospital Admissions, All Respiratory	65 - 99	0.5179	0.0573%
Acute Myocardial Infarction, Nonfatal	18 - 24	0.0001	0.0817%
Acute Myocardial Infarction, Nonfatal	25 - 44	0.0068	0.0609%
Acute Myocardial Infarction, Nonfatal	45 - 54	0.0178	0.0620%
Acute Myocardial Infarction, Nonfatal	55 - 64	0.0246	0.0510%
Acute Myocardial Infarction, Nonfatal	65 - 99	0.1176	0.0578%
Ozone			
Hospital Admissions, All Respiratory	65 - 99	0.2318	0.0257%
Mortality, Non-Accidental	0 - 99	0.1404	0.0114%
Emergency Room Visits, Asthma	0 - 17	1.2045	0.5014%
Emergency Room Visits, Asthma	18 - 99	1.9967	0.3614%

Notes:

1 Affected age ranges are shown. Other age ranges are available, but the endpoints and age ranges shown here are the ones used by the USEPA in their health assessments. The age ranges are consistent with the epidemiological study that is the basis of the health function.

2 Health effects are shown in terms of incidences of each health endpoint and how it compares to the base (2035 base year health effect incidences, or "background health incidence") values. Health effects and background health incidences are across the Northern California model domain.

3 The percent of background health incidence uses the mean incidence. The background health incidence is an estimate of the average number of people that are affected by the health endpoint in a given population over a given period of time. In this case, these background incidence rates cover the modeled domain. Health incidence rates and other health data are typically collected by the government as well as the World Health Organization. The background incidence rates used here are obtained from BenMAP.

Source: SMAQMD, Draft Strategic Area Project Health Effects Tool. 2020.

It is important to note that the estimated health effects are based on air basin wide data that is interpolated with project-specific emissions data. Given the imprecise method of analysis, despite a decrease in the estimated level of emissions between the existing plus project conditions and the cumulative project conditions (a seven percent decrease in NO_X emissions and approximately an 18 percent decrease in $PM_{2.5}$ emissions), the estimated health risks are not anticipated to be altered between each condition as currently modeled. In reality, a reduction in the emissions of criteria pollutants should result in a reduction in the health effects experienced. The lack of responsiveness in the estimation of health risks is indicative of the speculative and generalized nature of the methodologies employed to estimate health risks from the project. Moreover, the project's contribution to such regional health impacts may fall within the margin of error for methods used to estimate regional health impacts.

Based on the above, SMAQMD's draft guidance has not been formally adopted, is not yet industry standard, has not been subject to extensive peer review, and the underlying data has not yet been made available. YSAQMD has adopted thresholds of significance for health effects from the emission of TACs in terms of increased cancer risk and health indices. However, YSAQMD, SMAQMD, nor any other air district in California has yet adopted thresholds of significance for the health risks presented in Table 3-45 and Table 3-46. In the absence of adopted thresholds of significance, and despite the highly speculative nature of this type of health risk analysis, because the project would result in emissions of criteria pollutants in excess of YSAQMD's thresholds of significance (as shown in Table 3-9), and because emissions of criteria pollutants from the ARC Project (as shown in Table 3-45 and Table 3-46) are anticipated to result in an increased average incidence of health risks per year, for the purposes of this SEIR, the ARC Project is considered to result in a cumulatively considerable net increase in health risks due to criteria pollutants.

Conclusion

Buildout of the MRIC Project as well as the Mace Triangle was anticipated to result in a cumulatively considerable and significant and unavoidable impact related to the cumulative emissions of operational criteria pollutants. Similar to the conclusions reached in the Certified Final EIR, the ARC Project, combined with potential future buildout of the Mace Triangle, would be anticipated to result in a significant contribution to cumulative emissions of criteria pollutants. At the time that the Certified Final EIR was prepared, methodologies to assess the cumulative health risks associated with criteria pollutants were not available and CEQA case law had not yet clarified that EIRs should include such an analysis. Although an accepted method of quantifying cumulative health risks has not yet been adopted through a public process by local air districts, the SMAQMD's draft guidance was used to quantify the potential health impacts resulting from implementation of the ARC Project in conjunction with potential buildout of the Mace Triangle Site. Based on the above, the ARC Project would result in a ***cumulatively considerable*** net increase in emissions and health risks resulting from criteria pollutant emissions.

Mitigation Measure(s)

Additional feasible mitigation measures to further reduce the ARC Project's operational emissions of ROG, NOx, and PM_{10} to below the applicable threshold of significance are not currently available and no threshold exists for health effects of criteria pollutants. Therefore, the above impact would remain *cumulatively considerable* and *significant and unavoidable.*

ARC Project and Mace Triangle

3-88 Implement Mitigation Measure 3-11.

3-89 Cumulative loss of habitat in the City of Davis area for special-status species (reference Impact 5-5).

Cumulative impacts related to habitat loss were determined to be cumulatively considerable and significant and unavoidable for the MRIC Project. However, at the time of the MRIC Project analysis, a regional conservation strategy for habitat protection was not in place. As discussed in this SEIR, the Yolo Habitat Conservation Plan/Natural Community Conservation Plan (Yolo HCP/NCCP) was completed in 2018. Implementation of this plan began on January 11, 2019. The goal of the Yolo HCP/NCCP is to conserve natural open space and agricultural areas that provide habitat for special status and at-risk species found within the habitats and natural communities in Yolo County. The Yolo HCP/NCCP provides permits and associated mitigation pursuant to the Federal and State Endangered Species Acts for a variety of development activities and infrastructure improvements identified for construction over the next 50 years in Yolo County. All activities associated with the Yolo HCP/NCCP are conducted under the oversight of the Yolo Habitat Conservancy (YHC), a joint powers authority comprised of the County of Yolo and the cities of Davis, West Sacramento, Winters, and Woodland.

The Yolo HCP/NCCP requires the YHC to protect approximately 33,300 acres over 50 years, primarily through the acquisition of habitat conservation easements on agricultural land funded with development fees paid to the YHC by project proponents. The Yolo HCP/NCCP coordinates these conservation efforts to ensure that the lands are selected consistent with a conservation strategy based on biological criteria, including the selection of lands that provide habitat to multiple species and which are located near existing protected lands and riparian areas. The YHC consults regularly with the CDFW the USFWS to ensure that the Yolo HCP/NCCP is successfully and sustainably implemented.

The Yolo HCP/NCCP provides coverage for impacts associated with the proposed ARC Site, which is consistent with the former MRIC Site (See Yolo HCP/NCCP, Section 3.5.1.3.1.)

With respect to protection of habitat for species covered under the Yolo HCP/NCCP, and potentially occurring on the ARC Site and Mace Triangle Site, the approach to western burrowing owl habitat conservation throughout the Plan area, as laid out in the HCP/NCCP, is hereby incorporated by reference, as an example of the regional approach to conservation inherent in the Plan (see pp. 6-62 to 6-64).

> **Goal WBO1:** Provide for the conservation of western burrowing owl in the Plan Area.
>
> **Objective WBO1.1:** Of the 4,430 acres of protected grassland natural community (Objective NCG1.1), site at least 3,000 acres in modeled western burrowing owl habitat.
> **Rationale:** Grassland provides primary habitat for western burrowing owl. Protecting modeled western burrowing owl primary habitat will help maintain or increase western burrowing owl nesting success by maintaining nesting habitat and prey availability

necessary to rear and fledge young. Out of 80,896 acres of grassland in the Plan Area, 37,690 acres (47 percent) provide primary habitat for western burrowing owl. By ensuring that at least 3,000 acres of protected grassland provide suitable habitat for burrowing owl, grassland protection will be focused in areas suitable for western burrowing owl. Covered activities will result in the loss of 3,172 acres of modeled western burrowing owl habitat, of which 861 acres is primary habitat. Protection of 3,000 acres of primary burrowing owl habitat will mitigate this loss and further provide for the conservation of the species in the Plan Area. The HCP/NCCP will meet this objective as described in Conservation Measure 1, *Establish Reserve System*.

Objective WBO1.2: Of the 14,362 acres of protected non-rice cultivated lands (Objective NCCL1.1), provide at least 2,500 acres of modeled western burrowing owl habitat.
Rationale: This commitment is based on the amount of secondary burrowing owl habitat (primarily cultivated lands, defined in Appendix A, *Covered Species Accounts*) that can reasonably be expected to occur in the cultivated lands targeted for protection. This objective will provide 2,500 acres of modeled secondary burrowing owl habitat to mitigate the loss of 2,311 acres of modeled secondary habitat and, along with Objective WBO1.1, will collectively provide 5,500 acres of newly protected modeled burrowing owl habitat. The protection, management, and enhancement of primary and secondary habitat will mitigate the loss of 3,172 acres (861 acres of primary habitat and 2,311 acres of secondary habitat) that will result from covered activities and further provide for the conservation of western burrowing owl in the Plan Area. The HCP/NCCP will meet this objective as described in Conservation Measure 1, *Establish Reserve System*.

Objective WBO1.3: Maintain a minimum of two active burrowing owl nesting sites within the reverse system, and maintain two active nesting sites in the reserve system for each nesting pair displaced by covered activities and maintain one active nesting site or single owl site in the reserve system for each non-breeding single owl displaced by covered activities.
Rationale: Burrowing owls could be subject to displacement during the permit period if they are found to occur within covered activity work areas. There are currently no active or recently active burrowing owl sites that correspond with the covered activities footprint. Neither of the primary breeding areas (Davis area and southeast panhandle) correspond with any covered activities. The projected take of western burrowing owl, defined as the exclusion and displacement of owls from covered activity work areas (no burrowing owl mortality will be allowed or is expected) is therefore expected to be low and be restricted primarily to single burrowing owl breeding or non-breeding occurrences that may opportunistically inhabit covered activity work areas in the future. Typically unsustainable in the long term due to the temporary nature of onsite conditions, the displacement of these isolated sites represents the primary potential take of burrowing owls from covered activities, which is estimated to not exceed four occupied sites. While burrowing owls are expected to continue to occur outside of the preserve network and indirectly benefit from implementation of the burrowing owl strategy, this commitment to maintain breeding pairs on preserve network lands is designed to specifically address incidental take of burrowing owls as described and defined above.

Objective WBO1.4: Prioritize the acquisition of habitat protected under Objectives WBO1.1 and WBO1.2. The first priority is to identify and preserve occupied habitats in the Yolo Bypass and adjacent lands (Planning Units 16 and 18). This is the portion of the Plan Area that supports the greatest potential for long-term sustainability of breeding

colonies. The second priority is to identify and preserve habitat adjacent to occupied sites that have enhancement potential. The third priority will focus on modeled habitat in the Plan Area with historic records of burrowing owl occupancy and lands that are capable of supporting nesting activity through management and enhancement actions.
Rationale: Results of surveys by the Burrowing Owl Preservation Society indicate that the western burrowing owl population in Yolo County has declined dramatically. They found 15 nesting pairs of western burrowing owls in Yolo County in 2014, as compared with 63 pairs that were counted in Yolo County in 2007, as part of the Institute for Bird Populations' statewide survey. Although these were not comprehensive surveys, they suggest the species is declining in the Plan Area (see Appendix A, *Species Accounts*, for more information on the local and rangewide populations of this species).

Over the last several decades, occupied burrowing owl habitat has been concentrated in two primary areas in Yolo County, 1) within and in the immediate vicinity of Davis, and 2) in the southeastern panhandle including lands within the Yolo Bypass and immediately west of the bypass. The majority of other occurrence records are smaller, long-abandoned breeding colonies (e.g., Yolo County Airport) or single pairs of burrowing owls. The two primary occupied sites in the Davis area, Wildhorse Agricultural Buffer and Mace Ranch Preserve are already protected sites. Additional acquisition opportunities to support these sites, which are adjacent to urban areas and subject to substantial disturbance, is limited. The largest populations have been reported from the southeastern panhandle where land use, mainly in areas of open pasture and grassland cover types, and the presence of relatively large populations of ground squirrels is more conducive to sustainable burrowing owl breeding colonies. Prioritizing conservation activities in this portion of the Plan Area will have the greatest potential for the protection of occupied habitat and the long-term conservation of burrowing owls. The availability of potential acquisition sites that support occupied habitat, however, is limited and highly uncertain. The overall strategy, therefore, also includes habitat management and enhancement elements designed to protect and enhance populations.

Focusing acquisition on other suitable landscapes that have supported or are capable of supporting burrowing owls through management and enhancement can also contribute to burrowing owl conservation. Suitable grassland habitats that occur in portions of the Dunnigan Hills and along the western edge of the Plan Area provide opportunities for more sustainable expansion of burrowing owl populations. There may also be opportunities within the cultivated landscape in the interior of the Plan Area to enhance habitat capable of supporting burrowing

Objective WBO1.5: Implement management and enhancement practices to encourage burrowing owl occupancy on preserve lands. Management practices include maintaining appropriate vegetation height, prohibiting rodenticides, minimizing the spread of invasive weed species, and encouraging the presence of ground squirrels. Enhancement practices include the installation of artificial burrows to augment natural burrows where they are lacking, creating berms as future burrowing sites, and creation of debris piles to enhance prey populations. These actions are designed to maintain existing populations and encourage the expansion of nesting populations in the Plan Area.
Rationale: Since impacts to active nest sites and potential take of individuals are most likely to be associated with opportunistic nesting rather than established and traditional nesting colonies, estimating impacts and take becomes problematic and unpredictable. The loss of habitat is estimated based on the removal of modeled habitat (most or all of which

> is likely to be unoccupied), which then forms the basis of the habitat-based conservation objectives. To address the potential for taking of burrowing owls (the displacement of active sites if they occur within a covered activity work area), in addition to the commitment to maintain burrowing owls within the Reserve System (WBO1.3) and to prioritize the acquisition and protection of occupied habitat (WBO1.4), the strategy also includes the implementation of enhancement practices to encourage the expansion of burrowing owl populations.
>
> Burrowing owls have very specific habitat requirements in order to successfully nest, hunt, and avoid predation. Vegetation height and presence of potential burrows are essential elements of burrowing owl occupancy. If modeled habitat does not meet these requirements, burrowing owls are less likely to occur. Management and in some cases, enhancements on lands within the Reserve System, are therefore important to ensure that lands protected for burrowing owls are actually providing conditions that meet habitat requirements. The HCP/NCCP will meet this objective as described in Conservation Measure 3, *Manage and Enhance Natural Communities*. Vegetation management around occupied and potentially occupied burrows is key to maintaining suitable habitat conditions. The minimum acreage requirement (400 acres) was derived by multiplying the maximum recorded number of occupied owls sites in the Plan Area (63) by an approximately 300-foot radius around each burrow (or about 6.5 acres). This management is designed to enhance vegetation conditions in the immediate vicinity of nesting burrows in order to maintain and encourage occupancy. It does not represent the total foraging area typically used by burrowing owls. Among the enhancement practices is the creation of artificial nest sites and debris piles. These practices, along with habitat management, are designed to encourage owl occupancy by augmenting natural habitat elements. The objective is to maintain and expand burrowing distribution and abundance in the Plan Area.

As a result of this regional conservation strategy, the Yolo HCP/NCCP EIS/EIR concluded that the impact from future development anticipated in the Plan, which includes the ARC Project and the undeveloped portions of the Mace Triangle (see Table 3-1 of Yolo HCP/NCCP), would have a less-than-significant impact on western burrowing owl (Yolo HCP/NCCP EIS/EIR, pg. 4-61). While the off-site storage pond alternative is outside of the anticipated development area within the Plan, only temporary disturbance would be required to create this pond. As discussed elsewhere in this SEIR, the topsoil would be temporarily removed and set aside, to allow for shallow excavation of the pond, after which the topsoil would be relocated. Thus, habitat value for covered species would continue to be provided if the off-site storage pond alternative is ultimately selected.

Similar conservation strategies exist for other covered species, also identified in this SEIR as having potential to be impacted by the ARC Project, and in some cases, Mace Triangle. These include valley elderberry longhorn beetle, giant garter snake, Swainson's hawk, white-tailed kite, and tricolored blackbird, for which the Yolo HCP/NCCP EIS/EIR determined less-than-significant impacts would occur as a result of urban projects in rural areas, including the ARC Project and Mace Triangle Site, due to the Plan's conservation strategy.

In consideration of the beneficial effects of the Yolo HCP/NCCP, the conclusions of the Yolo HCP/NCCP EIS/EIR, and the ARC Project and Mace Triangle's required compliance with the Yolo HCP/NCCP (i.e., payment of applicable Land Cover fees and implementation of avoidance and minimization measures), the ARC Project's and Mace Triangle's incremental contribution to

cumulative biological resources impacts would be ***less-than-cumulatively considerable***. This finding is in contrast to the Certified Final EIR, which concluded that cumulative impacts would be cumulatively considerable and significant and unavoidable.

Mitigation Measure(s)

ARC Project and Mace Triangle

3-89 Implement Mitigation Measures 3-16, 3-17, 3-18, 3-19, 3-20(a-c), and 3-21.

Implementation of the above mitigation measures would ensure that the ARC Project's incremental contribution to cumulative biological resources impacts is reduced to *less than cumulatively considerable* through compliance with the adopted Yolo HCP/NCCP.

3-90 Cumulative impacts to movement corridors in the City of Davis area (reference Impact 5-6).

Cumulative impacts related to movement corridors were determined to be less-than-cumulatively-considerable for the MRIC Project. Development of the ARC Project would result in the conversion of agricultural land to a largely urban environment, including 187 acres for the ARC Site and approximately 11 acres for the undeveloped portions of the Mace Triangle. However, a portion of the 198 acres would remain undeveloped, and could continue to serve as a movement corridor for special-status and otherwise common wildlife species. Specifically, the project is required, per City of Davis ordinance, to include an agricultural buffer around the ARC Site's northern and eastern perimeter. This agricultural buffer would include wildlife friendly vegetation and will continue to enable movement of wildlife through the site. Therefore, the project's incremental contribution toward elimination of movement corridors would be less than cumulatively considerable.

Similar to the ARC Project, other cumulative development, the sites of which may currently contain wildlife movement corridors (i.e., both the West Davis Active Adult Community and Nishi Student Apartments projects) will be required, per City ordinance, to include agricultural buffers that would continue to facilitate any wildlife movements through the sites.

It is also notable that the Yolo HCP/NCCP identifies "Ecological Corridors" within the Plan area (Figure 6-3), none of which pass through or adjacent to the ARC Site or Mace Triangle Site.

In conclusion, the ARC Project's contribution to this significant cumulative impact, similar to the MRIC Project, would be rendered ***less than cumulatively considerable***.

Mitigation Measure(s)
None required.

3-91 Cumulative loss of cultural resources (reference Impact 5-7).

Cumulative impacts related to cultural resources were determined to be less-than-cumulatively-considerable with mitigation for the MRIC Project. While some cultural resources may have regional significance, the resources themselves are site-specific, and impacts to them are project-specific. For example, impacts to a subsurface archeological finds at one project site are generally not made worse by impacts from another project to a cultural resource at another site. Rather the resources and the effects upon them are generally independent. A possible exception to this would be a cultural resource that represents the last known example of its kind or is part of larger cultural resources such as a single building along an intact historic Main Street. For such a resource, cumulative impacts, and the contribution of the proposed project to them, may be cumulatively significant. Such is not the case for the ARC Project. The site-specific cultural resources analysis identified only two historic resources that may be at least partly within the APE associated with the proposed off-site sewer alignment: the William Seward Wright Home and Farm (standing) and the William Robert Wright Family House (demolished). Implementation of Mitigation Measure 3-27 would minimize potential impacts to these resources to a less-than-significant level.

With respect to archeological resources, the Certified Final EIR determined that only the northwestern corner of the MRIC Site, and the northerly sewer alignment, are sensitive for buried prehistoric resources. The area of high archaeological sensitivity identified within the northwestern corner of the parcel falls primarily within the 25-acre City-owned property, which would be excluded from development as part of the ARC Project. Nonetheless, small areas of high archaeological sensitivity may extend to the northwestern edges of the ARC Site, adjacent to the 25-acre property. Mitigation Measure 3-28 requires protection of archaeological resources should any be found during construction.

Because the ARC Project would implement site-specific mitigation consistent with the California Health and Safety Code and the California Public Resources Code, and impacts to any historic or archaeological resources associated with the site would be site-specific, the ARC Project's incremental contribution towards the cumulative impact to cultural resources would be ***less than cumulatively considerable*** with implementation of mitigation, similar to the MRIC Project.

Mitigation Measure(s)

ARC Project

3-91(a) Implement Mitigation Measures 3-28(a) and (b).

ARC Project and Mace Triangle

3-91(b) Implement Mitigation Measure 3-28(c).

Implementation of the above mitigation measures would ensure that the ARC Project's incremental contribution to cumulative cultural resources impacts is reduced to *less than cumulatively considerable*.

3-92 Cumulative increase in the potential for geological related impacts and hazards (reference Impact 5-8).

Cumulative impacts related to geologic related hazards were determined to be less-than-cumulatively-considerable for the MRIC Project. While some geologic features may affect regional construction practices, such as seismicity or soil elasticity, impacts and mitigation measures are site-specific and project-specific. For example, impacts resulting from development on expansive soils or undocumented fill at one project site are not worsened by impacts from development on expansive soils or undocumented fill at another project site. Rather, the soil conditions, and the implications of those conditions for each project, are independent.

As such, the potential for cumulative impacts related to geology, soils, seismicity and mineral resources, to which implementation of the ARC Project might contribute, similar to the MRIC Project, is ***less than cumulatively considerable***.

Mitigation Measure(s)
None required.

3-93 Cumulative impacts related to greenhouse gas (GHG) emissions and global climate change (reference Impact 5-9).

Global climate change is, by nature, a cumulative impact. The cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. Accordingly, the analysis of GHG emissions generated by the ARC Project and the associated contribution towards global climate change, as addressed under the Greenhouse Gas Emissions and Energy section above, is inherently a cumulative impact analysis. Emissions of GHG contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change. A single project on its own could not generate enough GHG emissions to result in any noticeable changes in climatic conditions such as the global average temperature. Although, a project's GHG emissions are at a micro-scale relative to global emissions, a project's GHG emissions could result in a cumulatively considerable incremental contribution to the world-wide phenomenon of global climate change and the associated significant cumulative macro-scale environmental impacts when combined with GHG emissions of other past, present, and future projects.

Based on the cumulative nature of global climate change, emissions from a project must be considered in the context of that project's contribution to cumulative global GHG emissions. According to the analysis above, the ARC Project would result in a substantial increase in GHG emissions from existing levels associated with the site. The ARC Project's GHG emissions would not meet the reduction targets of the Davis CAAP, as accelerated by recent City of Davis resolutions.

Cumulative impacts related to GHG emissions and global climate change were determined to be cumulatively considerable and significant and unavoidable for the MRIC Project. Implementation of Mitigation Measures 3-11, 3-38(a), and 3-72(a) and (b) of this SEIR would reduce the ARC Project's operational GHG emissions, but the level to which such reductions would occur cannot

be determined at this time. Similarly, Mitigation Measure 3-38(b) would reduce emissions from potential future buildout of the Mace Triangle Site; however, due to the speculative nature of future development at the Mace Triangle Site, the ultimate levels at which future emissions reductions could occur is speculative. For both the ARC Project and future buildout of the Mace Triangle Site, the applicable threshold of significance is compliance with the City's goal of net carbon neutrality by the year 2040. Because the efficacy of the aforementioned mitigation measures cannot be known with certainty at this time, implementation of the mitigation measures required in this SEIR alone cannot be shown to reduce project GHG emissions to net zero by 2040.

In addition, the regulatory environment associated with climate change is becoming more stringent and technological advancements for the reduction of GHG emissions are ever-evolving. Based on recent developments, the regulatory environment associated with climate change has a high level of effect on land-use-related GHG emissions. Accordingly, the future regulations that may be in place in the year 2040 could substantially reduce project-related GHG emissions at that time, but are currently unknown and cannot be reasonably predicted or quantified. For instance, should future regulations prohibit the installation of natural gas infrastructure or require an increase in the amount of electric vehicle charging infrastructure within the ARC Site, emissions resulting from project operations could be reduced below the levels presented herein. Due to such regulatory uncertainties, as well as uncertainties related to the actual buildout of the ARC Project as well as the Mace Triangle Site and potential GHG emissions reductions due to sustainability features of each development, the full GHG reductions that would be realized on-site are speculative at this time. In addition to the uncertainty regarding on-site reductions in GHG emissions, the future availability of carbon off-set credits that provide ongoing carbon off-sets (as opposed to one-time off-sets) cannot be determined at this time. Consequently, carbon off-sets sufficient to meet the requirements of the mitigation included in this SEIR may not be available in sufficient levels or at a reasonable financial cost to meet the demand of future phases of the ARC Project or the Mace Triangle. For this reason, and because the ARC Project's GHG emissions cannot be shown to be reduced to net zero by 2040 with certainty at this time, the ARC Project's GHG emissions would be ***cumulatively considerable***.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the GHG emissions associated with the ARC Project, but not to a less-than-significant level. Therefore, similar to the MRIC Project, the impact would remain *cumulatively considerable* and *significant and unavoidable.*

ARC Project

3-93(a) Implement Mitigation Measure 3-11, 3-38(a), and 3-72(a) and (b).

Mace Triangle

3-93(b) Implement Mitigation Measure 3-38(b).

3-94 Cumulative impacts related to energy (reference Impact 5-10).

California leads the nation in renewable energy generation growth and encouragement of alternatively-fueled and hybrid vehicles. State-specific regulations encourage or require energy efficiency and reduction of energy consumption. Several applicable regulations have been discussed throughout this SEIR, including the CBSC and the CalGreen Code. The CalGreen Code, CBSC, and a component part of the CBSC, the California Building Energy Efficiency Standards Code, include building standards that require energy efficiency for all new development and redevelopment projects within the State. The Building Energy Efficiency Standards focus on several key areas to improve the energy efficiency and include requirements to enable both demand reductions during critical peak periods and future solar electric and thermal system installations. The State standards are intended to help reduce the effects of global climate change and reduce cumulative energy consumption. In addition, the Davis CAAP includes objectives for mobility and energy within the City with priorities to reduce VMT, improve efficiency of the transportation network, improve energy efficiency of the vehicle fleet, reduce the carbon content of fuels through the use of alternative fuels, strengthen energy efficiency requirements, develop local solar farms, and develop a renewable energy production plan to meet community electricity needs. As the City implements the CAAP objectives, the overall City's energy consumption will decline.

Overall, buildout of the ARC Project and the Mace Triangle Site in conjunction with cumulative buildout would contribute to an increase in energy usage and consumption from current levels; thus, an increase in demand for energy resources and supplies would occur, which would represent a commitment of non-renewable resources and the irreversible consumption of energy. However, the ARC Project and future development within the Mace Triangle Site, as well as each future development project within the City, would be required to comply with all applicable standards and regulations regarding energy conservation and fuel efficiency in place at the time of approval and/or development. Regulations regarding energy and fuel efficiency continue to become more stringent at the State and local levels. Technological advancements continue to be researched and could, once developed, change the outlook on available alternative energy resources, demand reductions, and overall energy and fuel efficiency regulations. For instance, the State intends for all new commercial development in the year 2030 to achieve zero net energy by way of reduced operational energy demands and increased on-site energy generation. Achievement of zero net energy would require the design of new structures to maximize energy efficiency while also incorporating on-site generation of renewable electricity. Compliance with existing and future regulations, and development of technological advancements, would help to ensure that an inefficient, wasteful, or unnecessary usage of energy would not occur.

Cumulative impacts related to energy were determined to be less-than-cumulatively-considerable for the MRIC Project. The ARC Project would include a number of sustainability features that would reduce the future energy usage resulting from buildout of the ARC Project. For instance, the project would include on-site solar energy systems sufficient to meet 50 percent of the project's energy demand. Moreover, the ARC Project would exceed the existing energy efficiency requirements of the CBSC in part due to the City's required compliance with the Tier 1 requirements of the CalGreen Code. On-site building energy usage would be further reduced through the incorporation of passive solar design features, which reduce the amount of energy consumed for space heating and cooling purposes. Furthermore, the ARC Project would be subject

to a similar TDM Program mitigation as previously contemplated for the MRIC Project, which would contribute to a reduction of the ARC Project's potential increase in demand for oil, promote alternative modes of transportation, and encourage fuel consumption reductions and efficiency. The reduction in energy use related to transportation would be further promoted by inclusion of a transit center as well as widespread development of electric vehicle charging stations within the site. The aforementioned strategies would help to further reduce the ARC Project's overall consumption of energy. Although buildout of the Mace Triangle Site is speculative, future developments within the Mace Triangle Site would be subject to the existing CBSC and City requirements in place at the time that development is proposed for the Mace Triangle Site. Currently, such requirements include mandatory implementation of the Tier 1 standards in CalGreen, inclusion of on-site solar energy systems, and inclusion of electric vehicle parking infrastructure.

Overall, because the ARC Project and potential future development of the Mace Triangle would include measures to reduce energy usage, the ARC Project and the Mace Triangle would not result in a wasteful, inefficient, or unnecessary usage of energy. Thus, the ARC Project combined with the Mace Triangle, similar to the MRIC Project, would represent a ***less than cumulatively considerable*** incremental contribution to cumulative impacts on energy.

Mitigation Measure(s)
None required.

3-95 Increase in the number of people who could be exposed to potential hazards or hazardous materials and an increase in the transport, storage, and use of hazardous materials due to development of the proposed project in combination with future buildout in the City of Davis (reference Impact 5-11).

Cumulative impacts related to the transport, storage, and use of hazardous materials was determined to be less-than-cumulatively-considerable for the MRIC Project. All project-specific impacts related to hazards and hazardous materials were found to be less-than-significant with implementation of relevant mitigation measures set forth in this SEIR. Hazardous materials and other public health and safety issues are generally site-specific and/or project-specific, and would not be significantly affected by other development inside or outside of the City. Other cumulative development would be subject to the same federal, State, and local hazardous materials management requirements as would the ARC Project, which would minimize potential risks associated with increased hazardous materials use in the community.

In conclusion, the contribution of the ARC Project to cumulative impacts related to hazards and hazardous materials, similar to the MRIC Project, would be ***less than cumulatively considerable***.

Mitigation Measure(s)
None required.

3-96 Cumulative impacts associated with increases in volume runoff and effects to on- and off-site flooding within the City of Davis planning area (reference Impact 5-12).

Cumulative impacts related to volume runoff and flooding were determined to be less-than-cumulatively-considerable with mitigation for the MRIC Project. Development of the ARC Project, the West Davis Active Adult Community Project, and other cumulative development within the surrounding principal watersheds that drain to Willow Slough and the Yolo Bypass, will lead to the combined effects of increasing runoff volumes and rates. This could lead to increases in ponding west of the Bypass levee when water levels in the Willow Slough and Yolo Bypass are high. The City considers increases in ponding on off-site properties, as a result of project development, a significant effect. Therefore, the combined runoff effects of the ARC Project, along with other cumulative development in the watersheds draining to Willow Slough and the Yolo Bypass, would be considered significant.

The combined volumes of the ARC Project and other cumulative development would lead to greater downstream water surface elevations (WSEs) and inundation areas at the land side of the Yolo Bypass levee during heavy storm events when flows in Willow Slough and the Yolo Bypass are high. However, the ARC Project, as well as other cumulative development, would be required to mitigate individual incremental increases in volume (as well as peak flow rate increase), so as to ensure that increases in ponding on off-site properties does not occur as a result of cumulative development. With implementation of Mitigation Measures 3-47(a) through 3-47(c) of the Hydrology and Water Quality section, the ARC Project's incremental contribution to cumulative hydrology impacts, similar to the MRIC Project, would be considered ***less than cumulatively considerable***.

Mitigation Measure(s)

ARC Project and Mace Triangle

3-96 Implement Mitigation Measures 3-47(a) through 3-47(c).

Implementation of the above mitigation measure would ensure that the ARC Project's incremental contribution to cumulative hydrology impacts is *less than cumulatively considerable*.

3-97 Cumulative impacts to water quality within the City of Davis (reference Impact 5-13).

Cumulative impacts related to water quality were determined to be less-than-cumulatively-considerable for the MRIC Project. Construction activities resulting from the ARC Project have the potential to affect water quality and contribute to localized violations of water quality standards if stormwater runoff from construction activities enters receiving waters. Additional runoff from the construction site, in combination with the other reasonably foreseeable projects in the Davis area, could carry sediment from erosion of graded or excavated surface materials, leaks or spills from equipment, or inadvertent releases of building products could result in water quality degradation if runoff containing the sediment or contaminants should enter receiving waters in sufficient quantities.

While continued development within the City of Davis would result in additional stormwater runoff and entry of pollutants into receiving waters via construction and operation of future projects, each project is required to comply with the City's regulatory stormwater documents, standards, and requirements. Mitigation Measure 3-33 of this chapter would ensure that the ARC Project applicant and the future Mace Triangle project applicant(s) prepare a Stormwater Pollution Prevention Plan (SWPP), provide adequate storage capacity for the additional stormwater runoff generated, and incorporate sufficient best management practices (BMPs) to successfully remove pollutants from site runoff during the construction and operational phases.

In addition, the applicant proposes to integrate Low Impact Development (LID) measures throughout the ARC Site to provide stormwater quality treatment. The LID measures would include both volume-based best management practices (bioretention, infiltration features, pervious pavement, etc.) and flow-based best management practices (vegetated swales, storm water planter, etc.) in accordance with the Phase II Small MS4 General Permit, as required in the City's Municipal Code. Therefore, impacts related to operational water quality would be reduced to a less-than-significant level with implementation of mitigation.

As demonstrated in this Chapter, the ARC Project would not result in any significant impacts related to water quality or stormwater quality. Overall, the combined water quality effects of increased runoff flows resulting from construction and operation of cumulative projects could be considered significant. However, given that the ARC Project would be required through mitigation and City ordinances to implement BMPs and LID features in the site design, the incremental contribution resulting from the ARC Project, similar to the MRIC Project, would be considered ***less than cumulatively considerable***.

Mitigation Measure(s)
None required.

3-98 Cumulative land use incompatibilities (reference Impact 5-14).

Cumulative impacts related to land use were determined to be less-than-cumulatively-considerable for the MRIC Project. Land use conflicts are site-specific and would not result in a cumulative impact. Incompatibility issues are addressed and mitigated on a project-by-project basis. The ARC Project has been designed to be generally consistent with applicable aspects of the City's General Plan, and as described in this chapter, and would not result in incompatibilities with any of the surrounding land uses. Therefore, the ARC Project's contribution to cumulative land use impacts related to land incompatibilities, similar to the MRIC Project, would be ***less than cumulatively considerable***

Mitigation Measure(s)
None required.

3-99 Cumulative urban decay (reference Impact 5-15).

The urban decay impacts resulting from the ARC Project in combination with related impacts resulting from other foreseeable development is discussed below.

Office and Industrial

At the time the 2015 Urban Decay analysis was prepared by ALH for the EIR, 10 other office and industrial projects were planned in the City of Davis (see Exhibit 7 of Appendix H), two of which were substantial. The two substantial projects were Davis Innovation Center (3,680,000 sf) and Nishi Gateway (352,950 sf). The Davis Innovation Center project is no longer a foreseeable project in Davis, and the approved Nishi project eliminated the 352,950 sf. of other/R&D uses from the proposal. It is noted that the draft Downtown Davis Specific Plan identifies around 600,000 sf of potential new non-residential space, much of which is anticipated to be office/R&D-oriented. While this increase is not minor, it is substantially smaller than the amount of cumulative square footage anticipated at the time the 2015 analysis was conducted (i.e., inclusion of 3.68 million sf for DIC). Thus, the cumulative setting for this urban decay discussion is markedly different. The 2015 analysis concluded it is possible that some existing innovation sector businesses may seek to relocate to the project site upon availability or sometime thereafter. Therefore, existing office and industrial space in Davis could experience increased vacancy as a result of the project.

Whether impacts from the ARC Project's 2,394,000 sf of office/industrial space is considered, or the projected cumulative total of over three million sf of office/industrial space is considered, the impact on the existing office/industrial base within the City of Davis will generally be the same, as there is a fixed amount of space in the City of Davis that is currently attractive to this tenant base. ALH determined this fixed amount of space to be 760,000 sf.

Any resultant vacancies would remain sustained until such time as yet additional demand was generated due to economic growth and expansion. Numerous market factors could likely boost this demand potential, including the attraction of larger increments of office and industrial space and the draw of the City of Davis to businesses located in other regional locations like Woodland and West Sacramento that would prefer a Davis location.

The regulatory review suggests existing City of Davis measures to avoid the onset of deterioration or decay are effective. In addition, innovation space is not subject to the same anchor tenant/small tenant forces to which retail space is subject, whereby small tenants can be greatly affected by larger anchor tenants going out of business. Moreover, many of the office and industrial properties in Davis are owned by major institutional and private real estate companies, with the financial wherewithal to provide them with the option of withstanding prolonged vacancy and funding the maintenance necessary for upkeep even during times of vacancy. Therefore, the potential for properties to be well maintained during periods of prolonged vacancy exists.

Retail Space

At the time of the 2015 ALH Urban Decay analysis, in addition to the MRIC Project, there were seven other projects proposed with new retail components in the City of Davis (see Exhibit 15 of Appendix H to the Certified Final EIR). According to the urban decay analysis conducted specifically for the MRIC Project, an additional estimated cumulative total of 266,745 sf of planned retail could be added to the Davis market by 2035. Just considering individual project applications, this cumulative total has since been reduced, primarily as a result of the elimination of the Davis Innovation Center, which included 120,000 sf. of potential retail space. In addition,

ALH's analysis (Exhibit 15) assumed up to 47,950 sf of retail space in the Nishi Gateway project, whereas the approved Nishi 2.0 project only included 10,000 sf. While a small amount of retail exists as part of the Nugget office complex to the west of the ARC Site across Mace Boulevard, the only major retail/mixed-used project that has been introduced since the 2015 ALH analysis is the University Commons Redevelopment Project, which would result in a net increase of 46,000 sf of retail space. Thus, it is anticipated that the cumulative foreseeable retail space in the 2015 ALH analysis remains conservative.

ALH Economics conducted analysis comparing the size of the planned retail space for each project, and all the projects cumulatively, to the amount of retail anticipated to be supportable by the employment and households associated with each project. The purpose of this analysis was to assess if the cumulative projects, in addition to the Mixed-Use Alternative's, planned retail space would result in negative impacts on the existing retail base that could cause or contribute to urban decay.

The results of this analysis indicate that in the aggregate, the retail demand generated by the cumulative projects is anticipated to exceed the retail supply. It should be noted that the on-site residents resulting from the residential portion of the ARC Project would provide additional demand for the on-site retail space. While it is still anticipated that the cumulative employee demand for retail space can support the anticipated cumulative retail space, the possibility exists for retail space to outpace employee demand as the cumulative projects build out. As a result, phasing controls should be implemented to ensure that the incremental contribution of the ARC Project's retail space toward the potential cumulative urban decay impacts on existing retail space are less than cumulatively considerable.

Hotel

In the 2015 ALH Urban Decay analysis, in addition to the Mixed-Use Alternative, two other projects include new hotel components in the City of Davis (see Exhibit 24 of Appendix H), one of which was the Davis Innovation Center Project (200 room hotel). This hotel is no longer part of the cumulative setting. The other hotel in ALH's Exhibit 24 is the 1111 Richards Hotel. However, ALH assumed the hotel would include 87 net rooms, whereas the approved project includes 65 net rooms. In addition, since completion of the 2015 ALH analysis, two other hotel projects have been approved and constructed: the 118-room Hyatt House hotel on 2750 Cowell Boulevard, and the 120-room Resident Marriot Inn at 4647 Fermi Place. The Downtown Davis Specific Plan currently being prepared includes the potential for an additional 150,000 sf of hotel space, which could accommodate 150 rooms. Thus, when comparing ALH's assumptions with the current cu1mulative setting results in 287 additional rooms (ALH) versus 453 additional rooms (current foreseeable cumulative setting). Thus, the net increase in hotel rooms since the 2015 ALH analysis is only 16 rooms. Adding the proposed project's planned hotel rooms into the future supply results in the total addition of 603 hotel rooms to the Davis market.

ALH Economics prepared a future projection of hotel supply and demand and then examined the occupancy impacts pursuant to the addition of the planned hotel projects. While ALH determined that annual average occupancy could be expected to drop but not to a level that could not be sustained. Overall, historic hotel occupancy rates in Davis were sustained in the 50 percent range

for at least four years, from 2008 through 2012. ALH Economics is not aware of any hotels closing or becoming characterized by poor maintenance and lackluster operations during this time of the economic downturn. Thus, market precedence suggests that reduced occupancy is sustainable for a limited period of time without resulting in existing hotel closure. Nevertheless, this SEIR retains the mitigation measure in the Certified Final EIR that prohibits the ARC Project applicant from building the on-site hotel until the applicant demonstrates to the City's satisfaction that there is sufficient unmet demand from a combination of hotel demand from ARC Project employees and businesses and/or hotel demand from elsewhere within the Davis marketplace to support the hotel space for which the building permit is requested. The objective of this requirement is to ensure that the hotel developed within the ARC will not re-allocate demand from existing Davis hotels, but will instead help the City to provide new hotel offerings that will satisfy currently unmet demand.

Conclusion

Cumulative impacts related to urban decay were determined to be less-than-cumulatively-considerable with mitigation for the MRIC Project. The cumulative analysis conducted for the Mixed-Use Alternative's office/industrial space, in combination with other similar cumulative development, determined that the alternative's incremental contribution to urban decay of these spaces would not be cumulatively considerable. Justification has been provided above as to why it is reasonable to conclude the same for ARC Project. With respect to the alternative's incremental contribution to cumulative urban decay impacts on the retail and hotel sectors, it was determined that, while not necessarily anticipated, in an effort to ensure sufficient cumulative demand exists for the ARC Project hotel and retail space, implementation of Mitigation Measure 3-54 should be required to demonstrate that the project's incremental contribution to cumulative urban decay impacts would be considered ***less than cumulatively considerable***.

Mitigation Measure(s)

ARC Project

3-99 Implement Mitigation Measures 3-54(a) and 3-54(b).

Mace Triangle

None required.

3-100 Cumulative impacts on noise-sensitive receptors (reference Impact 5-16).

ARC Project and Mace Triangle

The Certified Final EIR concluded that cumulative impacts on noise-sensitive receptors would be less than cumulatively considerable.

The cumulative context for noise impacts associated with the ARC Project would consist of the existing and future noise sources that could affect existing noise and vibration-sensitive uses in the

site vicinity. Noise generated by construction would be temporary, and would not add to the permanent noise environment or be considered as part of the cumulative context. Cumulative noise impacts would occur primarily as a result of increased traffic on local roadways due to the ARC Project and on-site activities resulting from operation of the ARC Project. The following analysis is based on noise level increases along roadways resulting from traffic from development of innovation center and residential uses on the ARC Site and potential future commercial/retail development on the Mace Triangle Site.

Cumulative Traffic Noise

The cumulative noise impacts due to ARC Project-related traffic increases on the existing local roadway network were analyzed using cumulative traffic volumes supplied by Fehr & Peers (2020). Table 3-47 shows the predicted cumulative traffic noise level increases on the local roadway network for Cumulative No Project and Cumulative Plus Project conditions.

To determine the proposed project's incremental contribution to the "cumulative no project" noise environment, the FICON criteria were utilized. Pursuant to the FICON standards, an incremental contribution would be significant if the contribution exceeded 5.0 dB where existing noise levels are less than 60 dB, 3.0 dB, where noise levels without the project are 60 to 65 dB, and if the contribution exceeded 1.5 dB where noise levels without the project are greater than 65 dB. In addition, as noted in the Regulatory Context section of Section 4.11, Noise and Vibration, of the Certified Final EIR, a 3.0 dB change is barely perceptible to the human ear.

Off-site traffic noise increase threshold test

The test of significance for increases in off-site traffic noise is two-fold. First, traffic noise levels are reviewed to see if the ARC Project's contribution to traffic noise would exceed the FICON levels identified in Table 4.11-9 of Section 4.11, Noise and Vibration, of the Certified Final EIR. If the ARC Project's incremental increase in traffic noise levels along surrounding roadways would exceed the FICON criteria, the ARC Project would be considered to have a cumulatively considerable noise impact along that roadway segment.

The second part of the significance test would be applied if the ARC Project does not result in the traffic noise level increases shown in Table 4.11-9 of Section 4.11 (i.e., the ARC Project does not exceed the FICON criteria). In this case, each roadway segment is assessed to determine whether the ARC Project's traffic noise contribution would cause any receptors along the roadway to be exposed to exterior noise levels exceeding the City's General Plan Noise Element standards. Specifically, Noise Element Policy 1.1-c requires the following:

For residential uses, Table 19 of the General Plan establishes a Normally Acceptable exterior noise level standard of 60 dB L_{dn}. Therefore, if an existing residential receptor is exposed to existing noise levels of less than 60 dB L_{dn}, any project-related traffic noise level increase that causes noise levels to exceed 60 dB L_{dn} would be considered significant. If an existing receptor is exposed to conditionally acceptable exterior noise levels (60 to 70 dB) the FICON criteria would be used as the test of significance.

Findings

With respect to the first part of the test of significance, Table 3-47 demonstrates that the FICON criteria would not be exceeded as a result of the ARC Project's incremental traffic increase. When ARC Project traffic noise is added to the Cumulative No Project scenario, the noise levels increase by as much as 1.5 dB, which is less than the applicable FICON thresholds along each segment, as shown in Table 3-47.

With respect to the second part of the significance test, the ARC Project's contribution to traffic noise levels would not cause any new exceedances of the City's 60 dB exterior noise level standard.

Cumulative impacts related to noise-sensitive receptors were determined to be less-than-cumulatively-considerable for the MRIC Project. Overall, the ARC Project's incremental contribution to traffic noise levels would also be ***less than cumulatively considerable***.

Mitigation Measure(s)
None required.

3-101 Cumulative population and housing impacts (reference Impact 5-18).

Cumulative impacts related to population and housing were determined to be cumulatively considerable and significant and unavoidable for the MRIC Project analysis. Impacts associated with population and housing related to implementation of the MRIC Project are analyzed in Section 4.12 of the Certified Final EIR.

Consistent with the Population and Housing chapter of the Certified Final EIR, the non-residential portion of the ARC Project would generate approximately 5,882 employees, which correlates to an additional 815 housing units within the City needed to serve the projected employee population. This is explained in the EIR as follows. The estimated employee housing demand at buildout of the ARC is 3,763 (5,882 employees divided by 1.62 employed residents per household). Assuming that 45.4 percent of new ARC Project employees would seek housing outside of the City of Davis, which implies 54.6 percent of new ARC Project employees would live in Davis, similar to the inference made for existing Davis area employees based upon empirical commute patterns, the ARC Project would result in an employee housing demand of 2,053 units within the City of Davis. The remaining housing units (1,710) needed to meet the ARC's Project employee housing demand would be met outside of the City of Davis, within the six-county SACOG region. After accounting for City of Davis residential unit capacity, it was determined that of the 2,053 units demanded by ARC Project employees within the City of Davis, the ARC Project would need to provide approximately 815 units.

Table 3-47
Cumulative No Project and Cumulative Plus ARC Project Traffic Noise Levels

Roadway	Segment	Noise Levels (L_{dn}, dB) at Outdoor Activity Areas of Nearest Sensitive Receptors				
		Cumulative No Project	Cumulative + Project	Change	Significance Criteria[1]	Significant?
Alhambra	South of Covell	52.6	52.6	0.0	+5 dB or > 60 dB	No
Alhambra	West of Mace	56.7	57.6	0.9	+5 dB or > 60 dB	No
Covell Blvd.	L to Pole Line	63.6	64.3	0.7	+3 dB	No
Covell Blvd.	Pole Line to Birch	63.3	64.4	1.2	+3 dB	No
Covell Blvd.	Birch to Baywood	62.9	64.1	1.2	+3 dB	No
Covell Blvd.	Baywood to Manzanita	63.1	64.3	1.2	+3 dB	No
Covell Blvd.	Manzanita to Wright	60.6	61.9	1.3	+3 dB	No
Covell Blvd.	Wright to Monarch	61.0	62.2	1.2	+3 dB	No
Covell Blvd.	Monarch to Alhambra	62.2	63.5	1.3	+3 dB	No
Covell Blvd.	Alhambra to Harper JR HS	61.5	63.0	1.5	+3 dB	No
Cowell Blvd	Drummond to Mace	61.5	61.6	0.1	+3 dB	No
Cowell Blvd	East of Mace	57.2	57.2	0.1	+5 dB or > 60 dB	No
Mace Blvd.	Harper JR HS to Alhambra	51.5	52.7	1.3	+5 dB or > 60 dB	No
Mace Blvd.	Alhambra to 2nd	64.2	65.4	1.2	+3 dB	No
Mace Blvd.	Chiles to Cowell	55.1	55.3	0.2	+5 dB or > 60 dB	No
Mace Blvd.	Cowell to El Macero	61.7	61.9	0.2	+3 dB	No
Mace Blvd.	South of El Macero	60.7	60.8	0.1	+3 dB	No
Pole Line Road	North of Covell	67.0	67.3	0.4	+1.5 dB	No
Pole Line Road	Covell to Claremont	61.6	61.6	0.0	+3 dB	No

Notes:
[1] Where existing noise levels are less than 60 dB an increase of 5 dB would be a significant increase. Additionally, any increase causing noise levels to exceed the City's Normally Acceptable 60 dB L_{dn} noise level standard at an existing residential use would also be significant. Where existing noise levels exceed 60 dB but are less than 65 dB, an increase of 3 dB or more would be significant. Where existing noise levels exceed 65 dB, an increase of 1.5 dB or more would be significant.
[2] Distances to traffic noise contours are measured in feet from the centerlines of the roadways.
[3] Traffic noise levels do not account for shielding from existing noise barriers or intervening structures. Traffic noise levels may vary depending on actual setback distances and localized shielding.

Source: Saxelby Acoustics, 2020.

Under the Cumulative Scenario, the Certified Final EIR estimated that the MRIC, Mace Triangle, Davis Innovation Center, and Nishi Gateway projects, in combination with General Plan buildout, would result in an unmet housing demand within the City of Davis of 4,530 units. [72] The Certified Final EIR determined that the combined effect of this unmet housing demand on other jurisdictions within the SACOG region would be significant with respect to inducing substantial population growth. For the Mixed-Use Alternative cumulative scenario, this cumulative impact would be incrementally reduced due to the Alternative's provision of up to 850 workforce units on-site. Furthermore, the amount of housing provided for this Alternative would enable to the City to satisfy its projected fair share of employee-generated housing. The Certified Final EIR thus concluded that the Mixed-Use Alternative's incremental contribution to this significant cumulative impact would be *less-than-cumulatively considerable* given the provision of up to 850 residential units on-site. The same conclusion is applicable to the ARC Project given that an equivalent number of housing units would be included on-site.

In addition, it is important to note that the Economic Evaluation of Innovation Park Proposal Study, performed by BAE Urban Economics (July 9, 2015), acknowledged the potential change in status of the Davis Innovation Center, and the effects upon the cumulative analysis performed within the study. The BAE report states the following:

> At this time, it is not practical to update this report to reflect the change in the status of the Davis IC project; however, readers of this report may still have an interest in how the assessment of the cumulative scenario might change if it only included MRIC/Mace Triangle and Nishi Property developments. Generally speaking, the impacts under the cumulative scenario at buildout would be significantly reduced, if only MRIC/Mace Triangle and the Nishi Property are assumed to develop. For example, Davis IC accounted for about 56 percent of the total building square footage and almost 60 percent of the total employment increase and employee housing demand that the Draft Report projected under the cumulative scenario. If the cumulative scenario is redefined to include only MRIC/Mace Triangle and the Nishi Property, then the estimated absorption period would likely be reduced roughly in proportion to the reduction in building square footage, and the overall employment and housing demand increases estimated in the report for the cumulative scenario would likely be reduced by almost 60 percent. As a result of a substantial reduction in overall employment and housing demand at buildout, the smaller cumulative scenario would generate substantially reduced excess workforce housing demand that would have to be accommodated outside of Davis, and much less re-allocation of job growth that the Sacramento Area Council of Governments currently projects to occur in other jurisdictions in the absence of any of the proposed Innovation Parks.

Since certification of the Final MRIC EIR, the Nishi project has been approved in a reduced form ("Nishi 2.0"), and the Davis Innovation Center (DIC) Project is no longer proposed within Davis, though a portion of the DIC site was approved for the West Davis Active Adult Community Project. In addition, since the certification of the Final MRIC EIR, new General Plan Amendments (GPA) have been approved by the City for recent residential development projects, the larger projects of which include Sterling Apartments, Lincoln40, 3820 Chiles Road, Davis Live, and the

[72] BAE Urban Economics. *City of Davis Economic Evaluation of Innovation Park Proposals*. May 11, 2015, Table C1. BAE's estimate was revised to exclude the Davis Innovation Center project, which had an estimated employment increase of 10,842 employees.

aforementioned West Davis Active Adult Community. Thus, with respect to reasonably foreseeable projects, the cumulative demand for workforce housing is much reduced since the MRIC Project was being evaluated. Overall, the ARC Project's incremental contribution to the cumulative demand for workforce housing would, unlike the MRIC Project, be ***less-than-cumulatively considerable***.

Mitigation Measure(s)
None required.

3-102 Cumulative impacts to fire protection services from the proposed project in combination with future developments in the City of Davis (reference Impact 5-19).

The following impact discussion is based on the implementation of the ARC Project in combination with other proposed and pending projects in the region.

The closest fire station to the ARC Site is Station 33, located at 425 Mace Boulevard, approximately 0.50-mile south of the ARC Site. Station 33 currently provides fire protection and emergency medical services to the site and its vicinity.

In the court case *City of Hayward v. Board of Trustees of the California State University,* the First District Court of Appeal affirmed that the focus of CEQA analysis should be limited to physical environmental impacts related to a project.[73] The court held that, "The need for additional fire protection services is not an *environmental* impact that CEQA requires a Project Proponent to mitigate."

The ARC Project would not result in substantially increased demand for fire protection services relative to the MRIC Project. Under either the formerly proposed MRIC Project, or the currently proposed ARC Project, a cumulative impact may occur under the following reasonably foreseeable scenario. Station 33 provides back-up response to Station 31 in the downtown core of the City, given the fact that Station 31 is overburdened with calls. As reasonably foreseeable development increases throughout the City, the likelihood that the downtown core station will require backup from Station 33 would also increase. However, if Station 33 is already responding to an incident at the ARC Site, it would not be able to provide needed back-up response to the downtown core station. In other words, the ARC Project could exacerbate the existing response time deficiency experienced in certain areas of the City of Davis by precluding Station 33 from being able to provide back-up to already impacted areas.[74] The ARC Project's incremental impact, then, should be considered a secondary, or indirect cumulative impact, to fire protection services. The below mitigation measure from the Certified Final EIR is retained, accordingly. Among the mitigation options, contributing funds towards the construction of a fourth fire station is noted. The fire station would be located within the urban city limits and is not anticipated to result in significant environmental impacts, though separate CEQA review would be required, unless the project could be found exempt from CEQA.

[73] First Disctrict Court of Appeal. *City of Hayward v. Board of Trustees of the California State University*. (November 30 ,2015) 242 Cal.App.4th 833.
[74] Personal communication with Chief Nathan J. Trauernicht, City of Davis Fire Department. February 5, 2015.

City of Hayward v. California Board of Trustees (2015) is instructive on this point. In that case, the EIR acknowledged that construction of a new or expanded fire station would require compliance with CEQA, but concluded that there would be no significant impact based on its urban location and relatively small size. In response to the City of Hayward's comments on the Draft EIR, the EIR explained why it concluded that the physical environmental impacts from the construction of such a facility would likely be less than significant. As noted in the opinion:

> "Regarding the commenter's concern that the environmental impacts of a new or expanded fire station cannot be known at this time in the absence of a known site for such a facility, the Master Plan EIR explains why it concluded that the physical environmental impacts from the construction of such a facility would likely be less than significant. A new fire station would of necessity be located within the city limits of Hayward and since most of the city is highly developed, the site of a fire station would likely be an infill vacant lot. Even if it were to be located in a less intensely developed portion of the city such as parts of Hayward hills, the development of a fire station would disturb between 0.5 and 1 acre of land. The development at the scale (a two-story high fire station on less than 1 acre of land) is unlikely to result in significant unavoidable environmental impacts. Given the nature of the project (fire station) and its size, environmental documents for fire station construction or expansion are typically categorical exemptions or negative declarations (Note that some lead agencies have determined that fire station expansions qualify for a categorical exemption under section 15301 of the CEQA guidelines)." This explanation is reasonable and sufficient. Given the unknown size and precise location of the future facilities and the absence of control by the Trustees over the future decision-making process, no more detailed analysis is possible at this time. But in view of the known size requirements of a fire station and the general area within which the additional facilities necessarily will be placed, the determination that the new facilities will not result in a significant environmental impact is supported by substantial evidence.

The same holds true for a potential fourth fire station within the City of Davis.

Overall, cumulative impacts related to fire protection were determined to be cumulatively considerable and significant and unavoidable for the MRIC Project. The ARC Project would introduce 850 residential units to a site which currently does not contain housing. In conclusion, the ARC Project, in combination with past, present, and probable future projects, will result in a significant cumulative impact to fire protection services; and the project's incremental contribution would be ***cumulatively considerable***.

Mitigation Measure(s)

ARC Project and Mace Triangle

3-102 *Prior to issuance of building permits for each phase of development, the project applicant shall contribute the project's fair share funding towards one of the following mitigation options, as determined by the City of Davis Department of Community Development and Sustainability and Davis Fire Department:*

1. *Construct a fourth fire station within the City of Davis.*

2. *Modify existing Davis fire facilities, which may include renovation of existing fire stations.*

Once the mitigation option is selected, the identified improvement project(s) shall be included in the City's Capital Improvement Program and the City's Fire Impact Fee updated accordingly. In addition, each improvement project shall be subject to its own environmental review process, unless the improvement can be determined by the City to be exempt from CEQA.

The above impact could be reduced to a less-than-significant level if one of the above two mitigation options is implemented.[75] Successful implementation of each mitigation option, however, cannot be assured, as the full amount of funding for the improvement(s) has not been secured, nor programmed into an identified improvement program. As a result, the project's incremental contribution to this significant impact, similar to the MRIC Project, would remain *cumulatively considerable and significant and unavoidable*.

3-103 Cumulative impacts to public services and recreation from the proposed project in combination with existing and future developments in the City of Davis (reference Impact 5-20).

Cumulative impacts related to other public services and recreation were determined to be less-than-cumulatively-considerable for the MRIC Project. The following impact discussion is based on the implementation of the ARC Project in combination with other proposed and pending projects in the region.

Each development project is required by the City of Davis to pay adopted development impact fees, which include fees for such services as public safety, general facilities, roadways, parks, and open space. Each project's payment of adopted City impact fees for public services and recreation would ensure that the combined, related effects of cumulative development on public services and recreation would not be significant. In addition, in accordance with LAFCo law, the City of Davis would be required to negotiate a tax sharing agreement with the County of Yolo to ensure that the ARC Project incorporation would result in a similar exchange of both revenue and responsibility for service delivery among the County and the City. It follows that the ARC Project's incremental contribution would, similar to the MRIC Project, be ***less than cumulatively considerable***.

Mitigation Measure(s)
None required.

3-104 Conflict with a program, plan, ordinance or policy addressing the circulation system under Cumulative Plus Project conditions (reference Impacts 5-21 and 5-22).

Cumulative impacts related to study intersections were determined to be cumulatively considerable and significant and unavoidable for the MRIC Project.

[75] This mitigation measure has been revised from the Certified Final EIR to eliminate a third option because the Fire Department has already completed a Standards of Cover study.

The cumulative analysis for the ARC Project assumes the same local roadway system and intersection features as are currently present. This is because the City's Capital Improvement Program (CIP) does not include any specific improvements within the study area. Additionally, there are no planned to upgrade the I-80/Mace Boulevard interchange. A high-occupancy-vehicle (HOV) or carpool lane is planned to be added on the adjacent segment of I-80, which has been considered in the traffic forecasts. Consistent with standard practice, traffic signal timings were optimized due to changes in travel demand between current and cumulative conditions.

Travel Demand Forecasting

The local UC Davis/City of Davis travel demand model was used for the purposes of forecasting travel demand within the City of Davis and UC Davis vicinity. This model has been calibrated to a base year of 2019 and forecast years of 2030 and 2036. The model was developed in close coordination with the City of Davis and UC Davis in order to incorporate planned land use and transportation system changes both within the City and its sphere of influence and on the UC Davis campus. The coordination effort included the following elements of model development:

- **TAZ system –** The TAZ development included review by City and UC Davis staff to ensure sufficient detail for both existing and new growth areas.
- **Land use inputs –** Inputs were initially obtained from the SACOG 2012 parcel database used in developing regional model inputs for the 2016 SACOG MTP/SCS. These inputs were reviewed for each TAZ with City and UC Davis staff to develop a complete inventory representing 2016 conditions, which is the model's base year. Similarly, land use forecasts for 2030 and 2036 conditions were developed in cooperation with City staff and UC Davis staff. Land use forecasts for 2030 and 2036 were based on future land use changes throughout the region projected in the 2016 SACOG MTP/SCS. The land use forecasts were refined based on input from City staff and UC Davis staff according to planned City of Davis General Plan growth, planned UC Davis 2018 Long Range Development Plan (LRDP) growth, approved development projects, pipeline development projects, and other reasonably foreseeable land development activities, as follows:
    - UC Davis 2018 Long Range Development Plan (LRDP) – The LRDP anticipates the addition of 5,175 students, 2,135 employees, and 10,958 residents (9,050 students, 485 employees, and 1,423 dependents) on the UC Davis campus between 2016 and 2030. Individual components of the LRDP include the following:
        - West Village Expansion – located west of SR-113 and south of Russell Boulevard, will include an additional 3,300 student beds and 485 employee residents. The student housing portion of the project has been approved by the UC Regents and is currently under construction.
        - Orchard Park Redevelopment – located east of SR-113 and south of Russell Boulevard, will include an additional 200 student family housing units and up to 1,200 student beds.
        - Emerson Hall Replacement (Shasta Hall) – located on Oxford Circle west of Sycamore Lane and north of Russell Boulevard, will include the demolition of an existing 500-bed dormitory and the construction of a new dormitory with capacity for up to 800 student beds.

  - Other mid- to large-sized planned or approved development projects within the City of Davis located over one mile from the project site, including, but not limited to, the West Davis Active Adult Community, the Nishi Residential Project, University Commons, Lincoln40, Sterling 5th Street Apartments, Davis Live Plaza 2555, and the 3820 Chiles Road Apartments.
  - Including the City of Davis development projects listed above, residential and employment growth equal to 2036 control totals projected for the City of Davis by SACOG in the adopted 2016 Metropolitan Community Plan/Sustainable Communities Strategy.
  - Residential and employment growth elsewhere in the SACOG region (e.g., Sacramento, West Sacramento, Woodland, etc.) equal to 2036 forecasts projected by SACOG in the adopted 2016 Metropolitan Transportation Plan/Sustainable Communities Strategy.
- **Roadway network inputs –** The local model roadway network was developed from GIS data representing local, collector, arterial, and freeway functional classifications. Input data included the number of travel lanes and free-flow travel speeds based on the previous UC Davis/City of Davis model developed for the 2003 LRDP update, plus new data from field observations and Google Maps imagery. Capacity inputs for each roadway classification were estimated from reference documents including the HCM 6th Edition and the *Travel Demand Forecasting: Parameters and Techniques, National Cooperative Highway Research Program, Report 716*, (Transportation Research Board, 2012). The long-term forecasting included the following transportation system projects:
  - I-80 HOV lanes from Richards Boulevard to Sacramento.
  - I-80/Richards Boulevard interchange improvements.
  - Anderson Road four-to-two lane reduction between West Covell Boulevard and Villanova Drive.
  - 5th Street four-to-two lane reduction between L Street and Pole Line Road.
- **Vehicle trip rates –** The vehicle trip rates were derived from a variety of sources including the UC Davis Campus Travel Survey, the California Household Travel Survey, local residential trip generation estimates based on observed traffic counts, and the *Trip Generation Manual*, 10th Edition. The rates were estimated for the following trip purposes.
  - Home-Based Work (HBW): trips between a residence and a workplace
  - Home-Based Shop (HBS): trips between a residence and a retail destination
  - Home-Based School (HBK): trips between a residence and a school (K-12)
  - Home-Based Other (HBO): trips between a residence and any other destination
  - Non-Home-Based (OO): trips that do not begin or end at a residence, such as traveling from a workplace to a restaurant, or from a retail store to a bank
  - College (COLL): trips to and from a Community College
  - UC Davis (UCD): trips to and from UC Davis
  - Highway Commercial (HC): trips to and from highway commercial destinations
- **Vehicle trip lengths and external trip patterns –** The vehicle trip lengths and the proportion of vehicle trips that occur exclusively within the model area versus those that have origins or destinations external to the model area were obtained from the UC Davis Campus Travel Survey, the California Household Travel Survey, and the American Community Survey. This information was extracted for each trip purpose above. Trips

traveling through the model area without stopping such as those on I-80, were estimated from the regional SACOG SACSIM model developed for the 2016 SACOG MTP/SCS.

- **Trip assignment –** Trip assignment relies on conventional algorithms that assign trips between origin and destination zones based on travel times that reflect the influence of roadway capacity and speeds. A unique aspect of the assignment process is that UC Davis generated trips had to be associated with parking areas on and off-campus because that is where trips start and end. These parking areas were mapped in collaboration with UC Davis staff and iterative testing of the assignment results was used to refine the association.

Consistent with standard practice, the base year model was calibrated and then validated against actual travel conditions present in 2016. The model passed all applicable validation tests.

Cumulative Analysis Results

Table 3-48 displays intersection LOS and delay under cumulative conditions, without and with the project. This table indicates that many of the study intersections would operate at LOS F without the project. The addition of the project would cause LOS F conditions or worsen already projected LOS F conditions by five seconds or more at 11 study intersections.

Table 3-49 displays the 95th percentile freeway off-ramp queue at the I-80/Mace Boulevard interchange off-ramps under cumulative conditions, without and with the project. This table indicates that vehicle queues would spill back out of both off-ramps onto I-80 under cumulative no project conditions during the AM peak hour. The project would exacerbate these queue spillbacks during the AM peak hour and also cause the queue to spill back to the freeway during the PM peak hour. As discussed under Impact 3-70, the project would exacerbate unacceptable intersection operations at the I-80/County Road 32A interchange under Existing Plus Project conditions. The ARC Project would generate new peak period vehicle trips that would contribute to cumulative LOS F conditions at these interchange ramp terminal intersections.

Table 3-50 displays roadway segment LOS under cumulative conditions, without and with the project. All study roadway segments would operate acceptably under both Cumulative No Project and Cumulative Plus Project conditions, except for Pole Line Road north of Covell Boulevard, which would operate at LOS F during the PM peak hour under both Cumulative No Project and Cumulative Plus Project conditions. The ARC Project would not cause an increase in PM peak hour volume of more than 10 percent, therefore, in accordance with the applicable roadway segment performance thresholds, the ARC Project would not have a cumulatively considerable effect on this unacceptable condition.

Table 3-48
Intersection LOS – Cumulative Plus Project Conditions

Intersection[1]	Control	Cumulative No Project Conditions				Cumulative Plus Project Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
9) Mace Boulevard/Alhambra Drive/South ARC Driveway	Signal	100	F	242	F	**191**	**F**	**301**	**F**
10) 2nd Street/Fermi Place/Target Driveway	Signal	16	B	118	F	17	B	102	F
11) Mace Boulevard/2nd St/CR 32A	Signal	110	F	115	F	**133**	**F**	**204**	**F**
12) CR 32A/Park-and-Ride Lot/West ARC Driveway[2]	TWSC	1 (4)	A (A)	2 (6)	A (A)	**19 (40)**	**A (E)**	**133 (674)**	**F (F)**
13) Mace Boulevard/I-80 WB Ramps	Signal	168	F	100	F	145	F	**137**	**F**
14) Mace Boulevard/Chiles Road	Signal	97	F	146	F	**122**	**F**	125	F
15) Chiles Road/I-80 EB Off-Ramp	Signal	271	F	219	F	**359**	**F**	**275**	**F**
16) Mace Boulevard/Cowell Boulevard	Signal	62	E	200	F	**89**	**F**	190	F
17) Mace Boulevard/El Macero Drive	AWSC	27	D	299	F	44	E	**314**	**F**
21) Mace Boulevard/Central ARC Driveway	TWSC	-	-	-	-	**62 (107)**	**F (F)**	**61 (200)**	**F (F)**
22) Mace Boulevard/CR 30B/North ARC Driveway	TWSC	-	-	-	-	**151 (249)**	**F (F)**	**144 (769)**	**F (F)**
23) CR 32A/East ARC Driveway[2]	TWSC	-	-	-	-	3 (10)	A (A)	**97 (285)**	**F (F)**

Notes: For signalized intersections, average intersection delay is reported in seconds per vehicle for all approaches. For two-way stop-controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches with the delay and LOS for the worst-case movement reported in parentheses.
Shaded cells indicate locations with unacceptable peak hour LOS.
Shaded and bold cells indicate locations where the project would cause a significant impact to peak hour intersection operations in accordance with the significance criteria.
TWSC = Two-Way Stop Control. AWSC = All-Way Stop Control. "-" = Does not exist.

[1] As previously discussed, the cumulative intersection operations analysis was completed for the project vicinity/Mace interchange area, but not for the rest of the study intersections (intersections #1 through #8) analyzed in the Existing Plus Project scenario. This is consistent with the approach taken in the Certified Final EIR. The reasons for this approach are stated on pages 5-52 and -53 of the EIR.

The segment of CR 32A along the ARC Site southern frontage would be annexed into the City of Davis along with the project site. Thus, City of Davis significance thresholds related to roadway performance would apply to study intersections #12 and #23 under Cumulative Plus Project conditions.

Source: Fehr & Peers, 2020.

Table 3-49
Freeway Off-Ramp Queuing – Cumulative Plus Project Conditions

Off-Ramp	Off-Ramp Distance [2]	95th Percentile Queue Length[1]			
		Cumulative No Project Conditions		Cumulative Plus Project Conditions [3]	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
I-80 WB Off-Ramp/ Mace Boulevard	1,200 feet	2,600 feet [4]	450 feet	2,600 feet [4]	2,600 feet [4]
I-80 EB Off-Ramp/ Mace Boulevard	1,100 feet	2,175 feet	1,050 feet	3,050 feet	2,375 feet

[1] Based on results from SimTraffic micro-simulation model.
[2] Measured from the intersection stop bar to the gore point of the freeway off-ramp. Does not include auxiliary lane on freeway mainline.
[3] Shaded cells represent conditions in which the queue would spill onto the freeway mainline.
[4] Results are identical for these scenarios and time periods because queue spills out of model network.

Source: Fehr & Peers, 2020.

Table 3-50
Roadway LOS – Cumulative Plus Project Conditions

Study Roadway Segment	Functional Classification (# of Lanes)	Jurisdiction	Cumulative Conditions				Cumulative Plus Project Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Two-Way Volume	LOS	Two-Way Volume	LOS	Two-Way Volume	LOS	Two-way Volume	LOS
1. East Covell Boulevard: west of Pole Line Road	Arterial (4)	City of Davis	1,710	C	2,200	D	1,990	C	2,570	D
2. East Covell Boulevard: east of Pole Line Road	Arterial (4)	City of Davis	1,460	C	1,740	C	1,890	C	2,270	D
3. Pole Line Road: north of East Covell Boulevard	Arterial (2)	City of Davis	1,460	E	1,730	F	1,610	E	1,890	F
4. Pole Line Road: south of East Covell Boulevard	Arterial (2)	City of Davis	1,090	D	1,270	D	1,090	D	1,270	D
5. East Covell Boulevard: west of Alhambra Drive	Arterial (4)	City of Davis	1,490	C	1,710	C	1,950	C	2,290	D
6. East Covell Boulevard: east of Harper Junior High School	Arterial (4)	City of Davis	1,460	C	1,430	C	1,750	C	1,940	C
7. Alhambra Drive: south of East Covell Boulevard	Arterial (2)	City of Davis	350	C	350	C	540	C	420	C
8. Alhambra Drive: west of Mace Boulevard	Arterial (2)	City of Davis	830	C	910	C	1,150	D	1,180	D
9. 2nd Street: west of the Fermi Place	Arterial (2)	City of Davis	1,080	D	1,280	D	1,190	D	1,410	D
10. CR 32A: east of ARC Site	Highway (2)	Yolo County	170	C	320	C	500	D	900	D
11. Chiles Road: west of I-80 EB Off-Ramp	Arterial (2)	City of Davis	1,120	D	1,000	D	1,230	D	1,250	D
12. Chiles Road: east of Mace Boulevard	Arterial (2)	City of Davis	1,070	D	1,390	D	1,100	D	1,440	D

Table 3-50
Roadway LOS – Cumulative Plus Project Conditions

Study Roadway Segment	Functional Classification (# of Lanes)	Jurisdiction	Cumulative Conditions				Cumulative Plus Project Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Two-Way Volume	LOS	Two-Way Volume	LOS	Two-Way Volume	LOS	Two-way Volume	LOS
13. Cowell Boulevard: west of Mace Boulevard	Arterial (2)	City of Davis	480	C	680	C	500	C	700	C
14. Mace Boulevard: south of El Macero Drive	Arterial (2)	City of Davis	490	C	590	C	500	C	610	C

Notes:
Shaded cells indicate locations with unacceptable peak hour LOS.
Shaded and bold cells indicate locations where the project would cause a significant impact to peak hour roadway segment operations in accordance with the significance criteria.

Source: Fehr & Peers, 2020.

As discussed under Impact 3-70, portions of I-80 through the study area in Yolo and Solano counties operate at LOS F during peak periods. The LOS F conditions will also occur under cumulative conditions. The ARC Project would generate new peak period vehicle trips that would contribute to cumulative LOS F conditions.

Based on the above, the ARC Project's incremental contribution to cumulative circulation system impacts under Cumulative Plus Project Conditions would be ***cumulatively considerable***.

Mitigation Measure(s)

Potential operational enhancements #1-9 listed in Mitigation Measure 3-70(a) were tested by Fehr & Peers under the Cumulative Plus Project conditions. Table 3-51 displays the resulting intersection LOS and delay under Cumulative Plus Project with these operational enhancements in place. Table 3-52 summarizes how the percentage of peak hour travel demand is able to be served within the portion of the study area covered by the micro-simulation model. Table 3-53 summarizes how the operational enhancements would affect freeway off-ramp queues at the I-80/Mace Boulevard interchange. The results in these tables reveal several important conclusions:

1. Background traffic growth will require improvements within this portion of the study area regardless of whether the project is developed.
2. The ARC Project would further worsen operations in this area, though the operational enhancements would provide some benefit. For instance, in the PM peak hour, the percent demand served under Cumulative Plus Project conditions would increase from 65 percent to 83 percent with the enhancements. However, the operational enhancements are not sufficient, in and of themselves, to improve conditions to LOS E or better.

Based on the above, the enhancements identified for the Existing Plus Project scenario in Mitigation Measure 3-70(a) would serve to improve operations at the impacted facilities under Cumulative Plus Project conditions.

However, it is important to note that Mitigation Measure 3-70(a) requires the applicant to work in good faith with Caltrans, Yolo County, and the City to identify feasible physical improvements to the roadway network for purposes of improving operational performance. These include improvements to the I-80/County Road 32A interchange to address unacceptable peak hour operations at the ramp terminal intersections.

Potential improvements that would reduce the project's effect on unacceptable I-80 mainline operations include the following:

1. I-80 corridor improvements: As described above, several planned improvements have been identified by Caltrans and SACOG to address operational deficiencies on the I-80 mainline. These include the construction of HOV lanes between Richards Boulevard in Davis and Sacramento, as well as improvements to Capitol Corridor rail service between Sacramento and Roseville.
2. Implementation of TDM strategies: The implementation of TDM strategies would reduce ARC-related peak hour vehicle trips on I-80. Refer to Mitigation Measure 3-72(a) for a description of potential TDM strategies for the ARC Project.

Table 3-51
Intersection LOS – Cumulative Plus Project Conditions With Potential Operational Enhancements

Intersection	Control	Cumulative Conditions				Cumulative Plus Project Conditions				Cumulative Plus Project With Potential Operational Enhancements			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
9) Mace Boulevard/Alhambra Drive	Signal	100	F	242	F	**191**	**F**	**301**	**F**	**136**	**F**	**266**	**F**
10) 2nd Street/Fermi Place /Target Driveway	Signal	16	B	118	F	17	B	102	F	16	B	33	C
11) Mace Boulevard/2nd St/CR 32A	Signal	110	F	115	F	**133**	**F**	**204**	**F**	97	F	117	F
12) CR 32A/Park-and-Ride Lot[1]	TWSC/ Signal	1 (4)	A (A)	2 (6)	A (A)	**19 (40)**	**A (E)**	**133 (674)**	**F (F)**	12	B	**96**	**F**
13) Mace Boulevard/I-80 WB Ramps	Signal	168	F	100	F	145	F	**137**	**F**	144	F	**114**	**F**
14) Mace Boulevard/Chiles Road	Signal	97	F	146	F	**122**	**F**	125	F	**133**	**F**	57	E
15) Chiles Road/I-80 EB Off-Ramp	Signal	271	F	219	F	**359**	**F**	**275**	**F**	**303**	**F**	157	F
16) Mace Boulevard/Cowell Boulevard	Signal	62	E	200	F	**89**	**F**	190	F	**224**	**F**	109	F
17) Mace Boulevard/El Macero Drive	AWSC	27	D	299	F	44	E	**314**	**F**	**334**	**F**	116	F
21) Mace Boulevard/Central ARC Driveway	TWSC	-	-	-	-	**62 (107)**	**F (F)**	**61 (200)**	**F (F)**	**58 (93)**	**F (F)**	**54 (167)**	**F (F)**
22) Mace Boulevard/CR 30B/North ARC Driveway	TWSC	-	-	-	-	**151 (249)**	**F (F)**	**144 (769)**	**F (F)**	**136 (214)**	**F (F)**	**175 (764)**	**F (F)**
23) CR 32A/East ARC Driveway[1]	TWSC	-	-	-	-	3 (10)	A (A)	**97 (285)**	**F (F)**	3 (9)	A (A)	**67 (263)**	**F (F)**

Notes: For signalized intersections, average intersection delay is reported in seconds per vehicle for all approaches. For two-way stop-controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches with the delay and LOS for the worst-case movement reported in parentheses.
Shaded cells indicate locations with unacceptable peak hour LOS.
Shaded and bold cells indicate locations where the project would cause a significant impact to peak hour intersection operations in accordance with the significance criteria.
TWSC = Two-Way Stop Control. AWSC = All-Way Stop Control. "-" = Does not exist.
[1] The segment of CR 32A along the ARC Site southern frontage would be annexed into the City of Davis along with the project site. Thus, City of Davis significance thresholds related to roadway performance would apply to study intersections #12 and #23 under Cumulative Plus Project conditions.

Source: Fehr & Peers, 2020.

Table 3-52
Percent of Peak Hour Travel Demand Served – Cumulative Plus Project Conditions with Improvements

Metric	Cumulative No Project Conditions[1]				Cumulative Plus Project Conditions[1]				Cumulative Plus Project Conditions + Operational Enhancements[1,2]			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Hourly Demand	Vehicles Served (%)	Hourly Demand	Vehicles Served (%)	Hourly Demand	Vehicles Served (%)	Hourly Demand	Vehicles Served (%)	Hourly Demand	Vehicles Served (%)	Hourly Demand	Vehicles Served (%)
Overall System [3]	18,350	15,964 (87%)	20,035	14,646 (73%)	24,289	17,051 (70%)	25,265	16,431 (65%)	24,289	17,823 (73%)	25,265	21,054 (83%)

[1] Based on results from SimTraffic micro-simulation model.
[2] Refer to Figure 3-18 for illustration of operational enhancements.
[3] Includes study intersections 9 through 17.

Source: Fehr & Peers, 2020.

Table 3-53
Freeway Off-Ramp Queuing – Cumulative Plus Project Conditions with Improvements

Off-Ramp	Off-Ramp Distance[2]	95th Percentile Queue Length[1]					
		Cumulative Conditions		Cumulative Plus Project Conditions[3]		Cumulative Plus Project Conditions + Operational Enhancements[3]	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
I-80 WB Off-Ramp/Mace Boulevard	1,200 feet	2,600 feet	450 feet	2,600 feet	2,600 feet	2,275 feet	2,600 feet
I-80 EB Off-Ramp/Mace Boulevard	1,100 feet	2,175 feet	1,050 feet	3,050 feet	2,375 feet	3,050 feet	500 feet

[1] Based on results from SimTraffic micro-simulation model.
[2] Measured from the intersection stop bar to the gore point of the freeway off-ramp. Does not include auxiliary lane on freeway mainline.
[3] Shaded cells represent conditions in which the queue would spill onto the freeway mainline.

Source: Fehr & Peers, 2020.

The I-80 corridor improvements described above would provide benefits to I-80 mainline operations. Caltrans has identified the need for carpool lanes on I-80 between Richards Boulevard in Davis and West Sacramento to accommodate regional traffic growth. The carpool lane project has already been incorporated into the 2016 SACOG MTP/SCS and is a fully funded project expected to be implemented by 2036. Roadway capacity expansion will lead to induced vehicle travel that will likely offset the short-term congestion relief benefits of the I-80 carpool lanes. Furthermore, LOS F conditions would continue to occur during peak periods on portions of I-80 in Yolo and Solano counties.

The implementation of TDM strategies would reduce vehicle travel to and from the ARC Site on I-80 and lessen the project's contribution to unacceptable LOS F conditions on I-80. However, the level of delay reduction associated with TDM strategies is uncertain. Existing evidence indicates that the effectiveness of TDM strategies with regards to vehicle trip reduction can vary based on a variety of factors, including the context of the surrounding built environment and the aggregate effect of multiple TDM strategies deployed together. Moreover, many TDM strategies are not just site specific, but also rely on implementation and/or adoption by private entities (e.g., elective use of carpool program by office building tenants).

Consistent with *Tracy First v. City of Tracy* (2009) 177 Cal.App.4th 912, contribution of mitigation funds is not required for impacts where the City does not have full jurisdiction nor a plan in place to ensure implementation of mitigation measures. Nevertheless, the applicant has agreed to contribute mitigation funds, as described in Mitigation Measures 3-70(a) and (c). For the above-discussed factors, similar to the MRIC Project, the project's incremental contribution to cumulative circulation system impacts would remain *cumulatively considerable* and *significant and unavoidable*.

ARC Project and Mace Triangle

3-104(a) Implement Mitigation Measure 3-70(a).

3-104(b) Implement Mitigation Measure 3-70(b).

3-104(c) Implement Mitigation Measure 3-70(c).

3-105 Cumulative Increase in Vehicle Miles Traveled (reference Impact 4.14-6).

Impact 3-72 provides an evaluation of potential project impacts to VMT under Existing Plus Project conditions. Under Existing Plus Project conditions, the project would cause a significant impact to VMT by virtue of resulting in project-generated VMT per service population measuring above the applicable significance thresholds relative to existing local and regional VMT per service population averages. The VMT impact analysis for Existing Plus Project conditions applies to Cumulative Plus Project conditions for the following reasons:

- The VMT significance threshold compares project-generated VMT per service population to that of *existing* local and regional development. This comparison is useful because it provides information regarding how the project aligns with long-term environmental goals

related to VMT established based on existing development levels. Use of VMT significance thresholds based on existing development levels is recommended in the OPR Technical Advisory on Evaluating Transportation Impacts in CEQA.

- The OPR Technical Advisory on Evaluating Transportation Impacts in CEQA indicates that VMT efficiency metrics, such as VMT per service population, are not appropriate for CEQA cumulative anlaysis. Instead, the Technical Advisory recommends that an impact finding from an efficiency-based project-specific VMT analysis (i.e., Existing Plus Project conditions) would imply an identical impact finding for a cumulative VMT analysis. An example provided by OPR explains that a project that falls below an efficiency-based threshold that is aligned with long-term environmental goals and relevant plans would have no cumulative impact distinct from the project impact.

Based on the above, the ARC Project's cumulative VMT impact would be considered ***significant***.

Mitigation Measure(s)

Implementation of Mitigation Measures 3-72(a) and (b), as implemented by Mitigation Measures 3-105(a) and (b), would reduce project-generated VMT per service population by instituting a TDM program to reduce external vehicle trips generated by the ARC Project. However, the effectiveness of the TDM strategies is not known and subsequent vehicle trip reduction effects cannot be guaranteed. Existing evidence indicates that the effectiveness of TDM strategies with regards to vehicle trip reduction can vary based on a variety of factors, including the context of the surrounding built environment (e.g., urban versus suburban) and the aggregate effect of multiple TDM strategies deployed together. Moreover, many TDM strategies are not just site specific, but also rely on implementation and/or adoption by private entities (e.g., elective use of carpool program by office building tenants). Due to uncertainties regarding the ability for the aforementioned mitigation measure to reduce cumulative VMT impacts to less-than-significant levels, cumulative VMT impacts would remain *significant and unavoidable*.

ARC Project

3-105(a) Implement Mitigation Measure 3-72(a).

Mace Triangle

3-105(b) Implement Mitigation Measure 3-72(b).

3-106 Cumulative impacts to pedestrian, bicycle, and transit facilities.

Pedestrian and Bicycle

New reasonably foreseeable bicycle or pedestrian facilities would not be constructed within the vicinity of the ARC Site under cumulative conditions. Under cumulative conditions, given the limited amount of reasonably foreseeable land use development near the project site, only modest increases in background bicycle and pedestrian activity would occur within the vicinity of the ARC Site. More substantial increases in background vehicle traffic would occur on study area roadways due to growth elsewhere in and around Davis. However, growth in background vehicle traffic

would not materially change the adverse effects to bicycle and pedestrian that would be attributable to the ARC Project. Therefore, the ARC Project-specific bicycle and pedestrian impact analysis and mitigation measures provided in Impact 3-75 would similarly apply to cumulative plus project conditions.

Transit

The only anticipated change to transit service in the study area under cumulative conditions is the implementation of the Causeway Connection bus service between UC Davis and the UC Davis Health Campus in Sacramento. This service will serve the Mace Park-and-Ride once per hour in the eastbound direction during the morning peak period and once per hour in the westbound direction during the evening peak period. Given this schedule, use of the Causeway Connection service by the project would be nominal given that project employees will primarily generate commute transit demand in the opposite direction.

Under cumulative conditions, substantial increases in background vehicle traffic would occur on study area roadways due to growth elsewhere in and around Davis. Together with the substantial increase in vehicle traffic caused by the ARC Project, this would cause adverse effects to transit operations by increasing transit service delay and running times. However, growth in background vehicle traffic would not materially change the adverse effects to transit services that would be attributable to the ARC Project. Therefore, the project-specific transit service and facility impact analysis and mitigation measures provided in Impact 3-76 would similarly apply to cumulative plus project conditions.

Conclusion

Based on the above, while the major factor contributing to significant degradation of the pedestrian, bicycle, and transit systems in the cumulative condition will be increase in background traffic, the ARC Project's incremental contribution to significant pedestrian, bicycle, and transit impacts is conservatively considered to be ***cumulatively considerable***

Mitigation Measure(s)
Implementation of Mitigation 3-76 would reduce the potentially significant impact related to transit to a less-than-significant level by requiring the project applicant to fund and construct new bus stops with turnouts on both sides of Mace Boulevard at the new primary project access point at Alhambra Drive, until such time that the ARC transit plaza is completed.

Implementation of Mitigation Measures 3-75(a), (b), and (c) would reduce potentially significant impacts associated with pedestrian, bicycle, and facilities to a less-than-significant level by supporting walking, bicycling, and transit to and from the ARC Site and reducing conflicts with other travel modes. However, elements of each mitigation measure would occur within Caltrans, Yolo County, and/or UPRR rights-of-way and would be subject to final approval and actions by others. Furthermore, the ultimate improvements resulting from Mitigation Measure 3-75(c) are subject to change pending the outcome of the Mace Boulevard Corridor Plan.

Therefore, the implementation and effectiveness of the mitigation measures cannot be guaranteed. Due to uncertainties regarding the ability for the aforementioned mitigation measures to reduce impacts to bicycle and pedestrian facilities, bicycle and pedestrian facility impacts would remain *significant and unavoidable*.

3-106 Implement Mitigation Measures 3-75(a) thru (c) and 3-76(a) and (b).

3-107 Cumulative water system impacts (reference Impact 5-27).

Cumulative impacts related to the water system were determined to be less-than-cumulatively-considerable for the MRIC Project. The project-level impact discussion provided in this chapter for water supply and delivery considers the ARC Project's water demand in conjunction with demand from other cumulative buildout over a long-term horizon. This approach reflects a typical cumulative discussion, and is appropriate in this case because arranging the project-level impact discussion in this way enables the reader to see how the discussion corresponds to the analytical requirements of SB 610. In summary, sufficient water supplies are available to serve the ARC Project and other development projects, as well as the buildout demands of the City's current service area into the future during normal-year, single-dry year, and multiple-dry year scenarios.

The project-level analysis above also determined that the City's existing water delivery infrastructure system would be able to accommodate the domestic and fire flow demands associated with the ARC Project and cumulative development.

The above discussion demonstrates that the ARC Project's incremental contribution toward cumulative effects on water supply would, similar to the MRIC Project, be ***less than cumulatively considerable***.

Mitigation Measure(s)
None required.

3-108 Cumulative wastewater treatment and collection system impact (reference Impact 5-28).

Wastewater Treatment Plant Capacity

West Yost evaluated impacts of future General Plan growth on the WWTP, using the following three methodologies:

- Indoor Water Use Basis
- Land Use and Sewer Flow Factor Basis
- BOD Loading Basis

Each methodology is described in further detail below.

Indoor Water Use Basis

The indoor water use associated with future General Plan buildout development is estimated in the WSA for the MRIC Project, which presents total projected water use on an annual average basis, and then assumes that indoor water use represents 49 percent of residential use and 46 percent of commercial/industrial/institutional uses. It should be noted that the WSA for the Mixed-Use Alternative did not present indoor water use. Assuming that indoor water use equates with wastewater generation, the predicted wastewater flows from General Plan buildout development are summarized in Table 3-54.

Table 3-54
Estimated Wastewater Generation from General Plan Buildout Development

Source	Water Demand (ac-ft/yr)	Indoor Use Percentage	Wastewater Generation (mgd)
Residential, Single-family	315	49	0.28
Residential, Multiple-family	276	49	0.25
Commercial/Industrial/Institutional	213	46	0.19
Total	**804**	**-**	**0.72**

Notes:
ac-ft/yr = acre feet per year
mgd = million gallons per day

Source: West Yost Associates. Impacts of Innovation Center/Nishi Property Development on Wastewater Treatment Plant Capacity. Technical Memorandum (Final). April 2, 2015.

As previously discussed, the total estimated wastewater generation for the ARC Project (indoor water use basis) is 0.393 mgd. According to the West Yost Technical Memorandum, the Nishi ("1.0") Project would generate 0.136 mgd, and the Davis Innovation Center would generate 0.322 mgd. Coupled with General Plan buildout of the existing city limits (Table 3-53), this results in total wastewater generation of 1.66 mgd, which approximates the remaining WWTP capacity. As previously discussed, the Davis Innovation Center is no longer an active project. Thus, the 2015 cumulative buildout estimate in West Yost's Sewer Technical Memorandum can be revised to a total of 1.25 mgd, which can be accommodated within the remaining WWTP capacity. While this total does not account for recently approved GPA projects within the City, such as Lincoln40, Sterling 5th Street Apartments, Davis Live, and West Davis Active Adult, it is anticipated that the amount of wastewater previously assumed for Davis Innovation Center, using the indoor water use basis, can account for the additional demand generated by cumulative GPA projects that have been approve since the 2015 analysis.[76] However, this SEIR retains

[76] As discussed in Impact 8-79, if we just more narrowly focus on net change in water demand between the Davis Innovation Center project and the West Davis Active Adult project, it can be seen that the 2015 WSA overestimates total buildout water demand by 385 acre-feet per year. Thus, the water demand figures presented in the WSA tables are conservative. The 385 acre-feet per year is more than sufficient to account for the increased water demands resulting from larger GPA projects approved since preparation of the MRIC EIR. For example, the University Commons project would result in a net increase of approximately 62.9 gpd; Lincoln40 = 45.2 ac-ft/yr; Davis Live = 28.09 ac-ft/yr; and Sterling Apartments = 25.9 ac-ft/yr. This increased water demand

Mitigation Measure 3-83(a), requiring that prior to approval of improvement plans for Phase 2 of development, and all subsequent phases, the applicant shall provide funding for the City to perform a WWTP analysis to identify the then-current City of Davis WWTP capacity, and if necessary, fund WWTP improvements.

Land Use and Sewer Flow Factor Basis

West Yost also evaluated cumulative wastewater demand using the sewer flow factor basis. Buildout of city limits consistent with General Plan land use designations was estimated to generate an additional 0.71 mgd average dry weather (ADWF) flow. West Yost estimated the ADWF of the Davis Innovation Center (0.193 mgd), MRIC (Mixed-Use Alternative/Triangle) (0.303 mgd), and Nishi ("1.0") (0.177 mgd) to be an additional 0.673 mgd. Coupled with General Plan buildout of the existing city limits, this results in total wastewater generation of 1.38 mgd, which is less than the remaining WWTP capacity. As previously discussed, the Davis Innovation Center is no longer an active project. Thus, the 2015 cumulative buildout estimate in West Yost's Sewer Technical Memorandum can be revised to a total of 1.19 mgd, which can be accommodated within the remaining WWTP capacity. This total does not account for recently approved/pending GPA projects within the City, such as Lincoln40, Sterling 5th Street Apartments, Davis Live, West Davis Active Adult, and University Commons, which equates to 0.333 mgd, using the sewer flow factor method.[77] Thus, accounting for GP buildout (0.71 mgd), ARC/Triangle (0.303 mgd), Nishi 1.0 (0.177) and approved/pending GPA projects results in a total ADWF of 1.523 mgd, which is below the remaining WWTP capacity. However, this SEIR retains Mitigation Measure 3-83(a), requiring that prior to approval of improvement plans for Phase 2 of development, and all subsequent phases, the applicant shall provide funding for the City to perform a WWTP analysis to identify the then-current City of Davis WWTP capacity, and if necessary, fund WWTP improvements.

BOD Loading Basis

For General Plan buildout development, the estimated BOD loadings, with a 20 percent safety factor, were estimated by West Yost (2015) to be 1,140 lbs/day. West Yost estimated the BOD loads for the Davis Innovation Center (710 lbs/day), MRIC (Mixed-Use Alternative/Triangle) (700 lbs/day), and Nishi ("1.0") (300 lbs/day) to be an additional 1,450 lbs/day. Coupled with General Plan buildout of the existing city limits, this results in total BOD loading of 2,590 lbs/day. The remaining BOD loading capacity after buildout of the existing city limits, pursuant to the General Plan, is approximately 660 lbs/day (Table 5-24 of the Certified Final EIR). Therefore, even if just the ARC Project was added on top of City GP buildout, sufficient BOD loading capacity would not exist. However, this SEIR retains Mitigation Measure 3-83(a), requiring that prior to approval of improvement plans for Phase 2 of development, and all subsequent phases, the applicant shall provide funding

associated with GPA projects totals 162.09 ac-ft/yr, which is well under the 385 ac-ft/yr unaccounted for water in the 2015 WSA due to the elimination of the Davis Innovation Center project.

[77] University Commons = 0.063 mgd; Lincoln40 = 0.04 mgd; Davis Live = 0.04 mgd; Sterling 5th Street Apartments = 0.06 mgd; West Davis Active Adult = 0.13 mgd. This equates to 0.333 mgd.

for the City to perform a WWTP analysis to identify the then-current City of Davis WWTP capacity, and if necessary, fund WWTP improvements.

Wastewater Collection

As previously discussed, according to the West Yost Sewer Technical Memorandum, the 42-inch diameter trunk sewer north of the ARC Site is predicted to flow at 88 percent of capacity at General Plan buildout PWWF conditions, while the 21-inch diameter trunk sewer east of the ARC Site is predicted to flow at 84 percent of capacity at buildout PWWF conditions. In addition, gravity sewers are required to maintain a depth less than 75 percent of the pipe diameter, which roughly equates to a PWWF that should not exceed 90 percent of the calculated full-pipe capacity of the given sewer line. Based on the aforementioned requirement, the remaining available capacity in the adjacent sewer lines are estimated to be approximately 0.31 mgd and 0.28 mgd, respectively, which indicated inadequate capacity to accommodate either the MRIC Project or the ARC Project. However, as discussed in Section 4.15 of the MRIC Draft EIR, use of the City's current flow factors significantly overestimate the actual ADWF. According to West Yost Associates, a 40 percent reduction in the City's collection system ADWF brings the results in line with the current ADWF values measured at the WWTP; as such, a 40 percent reduction in the estimates is justified.

Applying the 40 percent reduction, the resultant available PWWF flow capacity in the trunk sewer lines in question increases to approximately 5.0 mgd of allowable capacity remaining in the 42-inch diameter trunk sewer at General Plan buildout PWWF conditions, and approximately 1.4 mgd of allowable capacity remaining in the 21-inch diameter sewer at General Plan buildout PWWF conditions. Therefore, the ARC Project's increase of approximately 0.84 mgd (sewer flow factor basis) or 1.04 mgd (water use basis) would be within the allowable capacity remaining in the sewer lines, and adequate buildout PWWF capacity exists to handle the additional flow generated by the ARC Project.

Conclusion

Cumulative impacts related to wastewater treatment were determined to be less-than-cumulatively-considerable with mitigation for the MRIC Project. Based on flow considerations alone, this analysis demonstrates that the WWTP would have the capacity to accommodate flows from all future General Plan buildout development, plus the flows from approved/pending GPA project. However, based on BOD loading considerations, adequate WWTP capacity does not exist to fully accommodate the proposed cumulative projects not anticipated in the General Plan.

With implementation of the following mitigation measures, the project's wastewater effects, in combination with related effects from cumulative development, would result in a ***less than cumulatively considerable*** impact to the City's wastewater system.

Mitigation Measure(s)

ARC Project

3-108 Implement Mitigation Measures 3-80(a) through (c).

Implementation of the above mitigation measure would ensure that the project's incremental contribution to cumulative wastewater impacts is reduced to *less than cumulatively considerable*.

Mace Triangle

None required.

3-109 The project may contribute to cumulative impacts on utilities, including solid waste, natural gas, electric, and telecommunications (reference Impact 5-29).

With respect to solid waste, the Yolo County Central Landfill has a substantial amount of remaining capacity (35,171,142 cubic yards), with an estimated landfill closure date of 2081. The project's incremental contribution to cumulative solid waste generation represents approximately 0.031 percent of the remaining capacity at the Yolo County Central Landfill. This incremental contribution is less than cumulatively considerable.

Since California's energy crisis in 2001, utility planning is done in a much more coordinated manner to achieve adequacy of supply, to establish and oversee formal operational standards for running the bulk power systems, and to address security concerns for critical electrical infrastructures. This coordination is administered under mandatory procedures set up by the electric power industry's electricity reliability organization (the North American Electric Reliability Corporation), with oversight provided by the Federal Energy Regulatory Commission and the US Department of Energy. This planning effort has resulted in a more dependable electricity supply to the State, and new transmission lines are being built throughout California and elsewhere to ensure a steady and reliable supply of electricity. In addition, all projects in California are subject to Title 24 requirements for energy conservation, as discussed in more detail in Section 4.7, Greenhouse Gas Emissions and Energy, of this chapter. Therefore, development of cumulative projects is not anticipated to result in demand exceeding supply, and there would be no significant cumulative impact. The ARC's infrastructure improvements would ensure that necessary upgrades to the natural gas and electrical distribution systems are provided and that capacity of the service provider to provide natural gas and electricity to the project and existing customers would not be exceeded. The ARC's incremental contribution to cumulative demands on natural gas and electricity services would be less than cumulatively considerable.

Telecommunications services are provided on-demand, and service providers expand their distribution systems as needed to accommodate growth. Cumulative projects would increase demand for these services, but would be accommodated by any one of a number of providers in the Davis area. Therefore, a significant cumulative impact would not occur. The ARC's telecommunications needs would be accommodated by these providers, and demand would not exceed supply. Therefore, the ARC's incremental contribution to cumulative demands on telecommunications services would be less than cumulatively considerable.

Cumulative impacts related to utilities, including solid waste, natural gas, electric, and telecommunications, were determined to be less-than-cumulatively-considerable for the proposed project. The above discussion demonstrates that the project's incremental contribution toward

cumulative effects on solid waste, natural gas and electricity, and telecommunications would be ***less than cumulatively considerable***.

Mitigation Measure(s)
None required.

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