Appendix N

Air Quality, Greenhouse Gas Emissions, and Energy Data, Modeling, and Noise Calculations (ESA 2023)

The Appendix herein contains supporting information referenced in the Final Environmental Impact Report. This appendix contains highly detailed tables and other graphic information which are difficult to translate for screen reading software; therefore, the appendix has not been translated into an auditory format. If you have a disability and/or have difficulty accessing any material in this document, please contact us by mail, email, or telephone, and we will work with you to make all reasonable accommodations. Please indicate 1) the nature of the accessibility need; 2) your preferred format; 3) the material you are trying to access and its location within this document; and 4) how to reach you if questions arise while fulfilling your request.

Appendix N-1

Air Quality Calculations and Modeling

ESA

N.1-1 Construction Assumptions

Topanga Lagoon Restoration

Construction Equipment/Worker/Vendor Truck Schedule and Assumptions

Project Land Uses

Land Use Type	CalEEMod LandUse Type	CalEEMod LandUse Subtype	Amount	Unit	Land Use SF	Notes
Temporary Bridge	Other Asphalt Surfaces		0.31	acres	13,500	Temp bridge is 180 ft long * 75 ft width
Topanga Bridge/Roadway NB	Other Asphalt Surfaces		1.80	acres	78,408	This includes bridge construction (460 ft*75 ft) + roadway improvements. Total acreage of impervious surfaces is 3.6 acres split between NB and SB directions evenly
Topanga Bridge/Roadway SB	Other Asphalt Surfaces		1.80	acres	78,408	
Lifeguard HQ	Office	General Office Building	1.5	KSF	1,500	Estimated on Google Earth
Helipad	Other Nonasphalt Surfaces		2.3	KSF	2,300	Estimated on Google Earth
Visitor Services						
Ranger Office	Office	General Office Building	5.5	KSF	5,500	From PD
Parking Lot	Parking Lot		75	Spaces	29,403	

Added 1 day to end to include end date

	Construction Phase	CalEEMod Phase Type	Start Date	End Date	Workdays (7 days/week)	Worker Vehicles/Day	Workers Trips (In/Out)/Day	Vendor Trips/Day (In/Out)
A	Demolition & Temp Parking Provisions	Demolition	1/1/2027	3/1/2027	60	20	40	
A	Unsuitable Material Replacement	Grading/Excavation	1/1/2027	3/1/2027	60	20	40	
A	Relocate Utilities	Trenching	2/1/2027	8/1/2027	182	20	40	
A	Construct Temporary Road/ Bridge	Grading/Excavation	6/1/2027	6/30/2027	30	20	40	
A	Construct Temporary Road/ Bridge	Building Construction	7/1/2027	11/1/2027	124	20	40	
A	Construct Temporary Road/ Bridge	Paving	11/2/2027	12/31/2027	60	20	40	
B	Demolition NB Road/Bridge	Demolition	1/1/2028	2/29/2028	60	20	40	
B	Construct NB Road/Bridge	Grading/Excavation	3/1/2028	4/30/2028	61	20	40	
B	Construct NB Road/Bridge	Building Construction	5/1/2028	11/30/2028	214	20	40	
B	Construct NB Road/Bridge	Paving	12/1/2028	12/31/2028	31	20	40	
B	Demolition SB Road/Bridge	Demolition	1/1/2029	2/28/2029	59	20	40	
B	Construct SB Road/Bridge	Grading/Excavation	3/1/2029	4/30/2029	61	20	40	
B	Construct SB Road/Bridge	Building Construction	5/1/2029	11/30/2029	214	20	40	
B	Construct SB Road/Bridge	Paving	12/1/2029	12/31/2029	31	20	40	
A	Demolition Temporary Bridge	Demolition	1/1/2030	2/28/2030	59	20	40	
A	Construct DBH Facilities (Lifeguard HQ/Helipad)	Building Construction	3/1/2030	3/31/2030	31	20	40	
A	Lagoon Grading	Grading/Excavation	4/1/2030	10/31/2030	214	20	40	
A	Restore Beach Area	Site Preparation	11/1/2030	12/31/2030	61	20	40	
	Visitor Services							
C	Site Preparation		1/1/2027	1/1/2027	1	5	10	
C	Grading		1/2/2027	1/5/2027	4	8	16	
C	Building Construction		1/6/2027	5/25/2027	140	7	14	6
C	Paving		5/19/2027	5/25/2027	7	18	36	
C	Architectural Coating		5/19/2027	5/25/2027	7	1	2	

Topanga Lagoon Restoration

Construction Haul and Concrete Truck Schedule and Assumptions

Project Land Uses

Land Use Type	CalEEMod LandUse Type	CalEEMod LandUse	Amount	Unit	Land Use SF	Notes
Temporary Bridge	Other Asphalt Surfaces		0.31	acres	13,500	Temp bridge is 180 ft long * 75 ft width
Topanga Bridge/Roadway NB	Other Asphalt Surfaces		1.80	acres	78,408	This includes bridge construction (460 ft*75 ft) + roadway improvements. Total acreage of impervious surfaces is 3.6 acres split between NB and SB directions evenly
Topanga Bridge/Roadway SB	Other Asphalt Surfaces		1.80	acres	78,408	
Lifeguard HQ	Office	General Office	1.5	KSF	1,500	Estimated on Google Earth
Helipad	Other Nonasphalt Surfaces		2.3	KSF	2,300	Estimated on Google Earth
Visitor Services						
Ranger Office	Office	General Office	5.5	KSF	5,500	From PD
Parking Lot	Parking Lot		75	Spaces	29,403	

	Construction Phase	CalEEMod Phase Type	Start Date	End Date	Workdays (5 days/week)		Total Haul (or Concrete) Trips (In/Out)	Total Haul (or Concrete) Trucks/Day	Haul (or Concrete) Trips/Day (In/Out)
A	Demolition & Temp Parking Provisions	Demolition	1/1/2027	3/1/2027	42		2,162	26	52
A	Unsuitable Material Replacement	Grading/Excavation	1/1/2027	3/1/2027	42		7,720	92	184
A	Relocate Utilities	Trenching	2/1/2027	8/1/2027	130		260	1	2
A	Construct Temporary Road/ Bridge	Grading/Excavation	6/1/2027	6/30/2027	22		320	8	16
A	Construct Temporary Road/ Bridge	Building Construction	7/1/2027	11/1/2027	88		208	2	4
A	Construct Temporary Road/ Bridge	Paving	11/2/2027	12/31/2027	44				
B	Demolition NB Road/Bridge	Demolition	1/1/2028	2/29/2028	42		270	4	8
B	Construct NB Road/Bridge	Grading/Excavation	3/1/2028	4/30/2028	43		6,100	71	142
B	Construct NB Road/Bridge	Building Construction	5/1/2028	11/30/2028	154		834	3	6
B	Construct NB Road/Bridge	Paving	12/1/2028	12/31/2028	21				
B	Demolition SB Road/Bridge	Demolition	1/1/2029	2/28/2029	43		270	4	8
B	Construct SB Road/Bridge	Grading/Excavation	3/1/2029	4/30/2029	43		5,860	69	138
B	Construct SB Road/Bridge	Building Construction	5/1/2029	11/30/2029	154		834	3	6
B	Construct SB Road/Bridge	Paving	12/1/2029	12/31/2029	21				
A	Demolition Temporary Bridge	Demolition	1/1/2030	2/28/2030	43				
A	Construct DBH Facilities (Lifeguard HQ/Helipad)	Building Construction	3/1/2030	3/31/2030	21				
A	Lagoon Grading	Grading/Excavation	4/1/2030	10/31/2030	154		51,200	251	502
A	Restore Beach Area	Site Preparation	11/1/2030	12/31/2030	43				
	Visitor Services								
C	Site Preparation		1/1/2027	1/1/2027	1				
C	Grading		1/2/2027	1/5/2027	2				
C	Building Construction		1/6/2027	5/25/2027	100				
C	Paving		5/19/2027	5/25/2027	5				
C	Architectural Coating		5/19/2027	5/25/2027	5				

Demolition Quantities - Structures

Buildings	Amount
Total Demolition Debris (CY)	**10,810**
Haul Truck Capacity (CY)	10
Total Haul Trucks Required	1,081
Total Haul Truck Trips (In/Out)	**2,162**
Total Haul Truck Trips (In/Out) per day	52
Tons of Debris	5,405

Demolition Quantities - NB Bridge

Buildings	Amount
Total Demolition Debris (CY)	**1,350**
Haul Truck Capacity (CY)	10
Total Haul Trucks Required	135
Total Haul Truck Trips (In/Out)	**270**
Total Haul Truck Trips (In/Out) per day	8
Tons of Debris	675

Demolition Quantities - SB Bridge

Buildings	Amount
Total Demolition Debris (	**1,350**
Haul Truck Capacity (CY)	10
Total Haul Trucks Require	135
Total Haul Truck Trips (In	**270**
Total Haul Truck Trips (In/Out) per day	8
Tons of Debris	675

Lagoon Excavation Quantities

Parameters	Amount
Excavation Volume (Export) (CY)	**256,000**
Haul Truck Capacity (CY)	10
Total Haul Trucks Required	25,600
Total Haul Truck Trips (In/Out)	**51,200**
Haul Days	**102**
Daily Haul Amount (CY)	**2,510**
Total Haul Truck Trips (In/Out) per day	502

Sediment Beneficial Reuse Study

8/2/2022

Excavation Quantities - ADL Contaminated Soil

Parameters	Amount		
Excavation Volume (Import) (CY)	**12,600**	2,520	Total Import Truck Trips
Excavation Volume (Export) (CY)	**26,000**	5,200	Total Export Truck Trips
Haul Truck Capacity (CY)	10	60	Daily Import Truck Trips
Total Haul Trucks Required	3,860	124	Daily Export Truck Trips
Total Haul Truck Trips (In/Out)	**7,720**		
Daily Haul Amount (CY)	**920**		
Total Haul Truck Trips (In/Out) per day	184		

Foundations/Concrete Quantities - Temporary Bridge

Foundations	Amount
Total Concrete Volume (C	930
Concrete Truck Capacity (	9
Total Concrete Trucks Rec	104
Total Concrete Truck Trips	208
Daily Max Concrete Amou	**11**
Max Concrete Truck Trips	4
Days Needed	52
Tons of Debris	465

Excavation Quantities - NB Road/Bridge and Roadway Excavation

Parameters	Amount		
Excavation Volume (Import) (CY)	12,000	2,400	Total Import Truck Trips
Excavation Volume (Export) (CY)	18,500	3,700	Total Export Truck Trips
Total Quantity	**30,500**	56	Daily Import Truck Trips
Haul Truck Capacity (CY)	10	86	Daily Export Truck Trips
Total Haul Trucks Required	3,050		
Total Haul Truck Trips (In/Out)	**6,100**		
Daily Haul Amount (CY)	**710**		
Total Haul Truck Trips (In/Out) per day	142		

Excavation Quantities - Temporary Bridge Abutments

Parameters	Amount
Excavation Volume (Import) (CY)	1,600
Excavation Volume (Export) (CY)	0
Total Quantity	**1,600**
Haul Truck Capacity (CY)	10
Total Haul Trucks Required	160
Total Haul Truck Trips (In/Out)	**320**
Daily Haul Amount (CY)	**73**
Total Haul Truck Trips (In/Out) per day	16

Excavation Quantities - SB Road/Bridge

Parameters	Amount		
Excavation Volume (Import) (CY)	12,000	2,400	Total Import Truck Trips
Excavation Volume (Export) (CY)	17,300	3,460	Total Export Truck Trips
Total Quantity	**29,300**	56	Daily Import Truck Trips
Haul Truck Capacity (CY)	10	82	Daily Export Truck Trips
Total Haul Trucks Required	2,930		
Total Haul Truck Trips (In/Out)	**5,860**		
Daily Haul Amount (CY)	**682**		
Total Haul Truck Trips (In/Out) per day	138		

Foundations/Concrete Quantities - NB Bridge

Foundations	Amount
Total Concrete Volume (CY)	3,750
Concrete Truck Capacity (CY)	9
Total Concrete Trucks Required	417
Total Concrete Truck Trips (In/Out	834
Daily Max Concrete Amount (CY)	**25**
Max Concrete Truck Trips (In/Out)	6
Days Needed	139

Foundations/Concrete Quantities - SB Bridge

Foundations	Amount
Total Concrete Volume (CY)	3,750
Concrete Truck Capacity (CY)	9
Total Concrete Trucks Required	417
Total Concrete Truck Trips (In/Out)	834
Daily Max Concrete Amount (CY)	**25**
Max Concrete Truck Trips (In/Out) per Day	6
Days Needed	139

Topanga Lagoon Restoration
Air Quality and Greenhouse Gas Assessment - Construction Assumptions
Off-Road Heavy-Duty Construction Equipment - Maximum

Construction Phase	CalEEMod Phase Type	Heavy-Duty Equipment	No. of Heavy-Duty Equipment	No. of hours/day	Hours of Operation/Week Per Equipment	Emissions Tier Rating (After Mitigation if needed) >100	Notes/Comments
Bridge Construction							
Demolition &Temp Parking Provisions	**Demolition**	Excavator	1	8	40		From Sequencing Report (bridge demo + roadway paving)
		Excavator w/ Hoe Ram	1	8	40		
		Loader	1	8	40		
		Dozer	1	8	40	Tier 4 Final	
		Grader	1	8	40	Tier 4 Final	
		Paver	1	8	40		
		Roller	2	8	40		
Unsuitable Material Replacement	**Grading/Excavation**	Excavator	1	8	40		From Sequencing Report (earthwork)
		Water Truck	1	8	40	Tier 4 Final	
		Loader	1	8	40		
		Dozer	1	8	40	Tier 4 Final	
		Grader	1	8	40	Tier 4 Final	
Relocate Utilities	**Trenching**	Excavator	1	8	40		Assumptions based on previous like-sized project
		Dump Truck	1	8	40		modeled as haul trip outside of CalEEMod
		Loader	1	8	40		
Construct Temporary Road/Bridge	**Grading/Excavation**	Excavator	1	8	40		From Sequencing Report (earthwork)
		Water Truck	1	8	40	Tier 4 Final	
		Loader	1	8	40		
		Dozer	1	8	40	Tier 4 Final	
		Grader	1	8	40	Tier 4 Final	
Construct Temporary Road/Bridge	**Building Construction**	Jackhammer	1	8	40		From Sequencing Report (bridge construction) - modeled as generator
		Heavy Duty Forklift	1	8	40		
		Crane	1	8	40	Tier 4 Final	
		Crawler Tractor	1	8	40		
		Generator	1	8	40		for Jackhammer above
Construct Temporary Road/Bridge	**Paving**	Dozer	1	8	40	Tier 4 Final	From Sequencing Report (roadway paving)
		Grader	1	8	40	Tier 4 Final	
		Paver	1	8	40		
		Roller	1	8	40		
Demolition NB Road/Bridge	**Demolition**	Excavator	1	8	40		From Sequencing Report (bridge demo)
		Excavator w/ Hoe Ram	1	8	40		
		Loader	1	8	40		
Construct NB Road/Bridge	**Grading/Excavation**	Excavator	1	8	40		From Sequencing Report (earthwork)
		Water Truck	1	8	40	Tier 4 Final	
		Loader	1	8	40		
		Dozer	1	8	40	Tier 4 Final	
		Grader	1	8	40	Tier 4 Final	
Construct NB Road/Bridge	**Building Construction**	Jackhammer	1	8	40		From Sequencing Report (bridge construction) - modeled as generator
		Heavy Duty Forklift	1	8	40		
		Crane	1	8	40	Tier 4 Final	
		Crawler Tractor	1	8	40		
		Generator	1	8	40		for Jackhammer above
Construct NB Road/Bridge	**Paving**	Dozer	1	8	40	Tier 4 Final	From Sequencing Report (roadway paving)
		Grader	1	8	40	Tier 4 Final	
		Paver	1	8	40		
		Roller	1	8	40		
Demolition SB Road/Bridge	**Demolition**	Excavator	1	8	40		From Sequencing Report (bridge demo)
		Excavator w/ Hoe Ram	1	8	40		
		Loader	1	8	40		
Construct SB Road/Bridge	**Grading/Excavation**	Excavator	1	8	40		From Sequencing Report (earthwork)
		Water Truck	1	8	40	Tier 4 Final	
		Loader	1	8	40		
		Dozer	1	8	40	Yes	
		Grader	1	8	40	Yes	
Construct SB Road/Bridge	**Building Construction**	Jackhammer	1	8	40		From Sequencing Report (bridge construction) - modeled as generator
		Heavy Duty Forklift	1	8	40		
		Crane	1	8	40	Yes	
		Crawler Tractor	1	8	40		
		Generator	1	8	40		for Jackhammer above
Construct SB Road/Bridge	**Paving**						
		Dozer	1	8	40	Yes	From Sequencing Report (roadway paving)
		Grader	1	8	40	Yes	
		Paver	1	8	40		
		Roller	1	8	40		
Demolition Temporary Bridge	**Demolition**	Excavator	1	8	40		From Sequencing Report (bridge demo)
		Excavator w/ Hoe Ram	1	8	40		
		Loader	1	8	40		
Construct DBH Facilities(Lifeguard HQ/Helipad)	**Building Construction**	Jackhammer	1	8	40		From Sequencing Report (bridge construction) - modeled as generator
		Heavy Duty Forklift	1	8	40		
		Crane	1	8	40	Yes	
		Crawler Tractor	1	8	40		
		Generator	1	8	40		for Jackhammer above
Lagoon Grading	**Grading/Excavation**	Excavator	1	8	40		From Sediment Reuse Report (Option 4)
		Grader	1	8	40	Yes	
		Water Truck	1	8	40	Yes	
Restore Beach Area	**Site Preparation**	Tractors/Loaders/Backhoes	1	8	40		CalEEMod Defaults
		Graders	1	8	40	Yes	
Visitor Services							
	Site Preparation	Tractors/Loaders/Backhoes	1	8	40		CalEEMod Defaults
		Graders	1	8	40	Yes	
	Grading	Graders	1	8	40	Yes	CalEEMod Defaults
		Rubber Tired Dozer	1	8	40	Yes	
		Tractors/Loaders/Backhoes	1	8	40		
	Building Construction	Cranes	1	8	40	Yes	CalEEMod Defaults
		Forklifts	2	8	40		
		Tractors/Loaders/Backhoes	2	8	40		
	Paving	Cement and Mortar Mixers	4	8	40		CalEEMod Defaults
		Pavers	1	8	40		
		Rollers	1	8	40		
		Tractors/Loaders/Backhoes	1	8	40		
	Architectural Coating	Air Compressors	1	8	40		

Topanga Lagoon Restoration
Air Quality and Greenhouse Gas Assessment - Construction Assumptions Opt 2
Off-Road Heavy-Duty Construction Equipment - Maximum

Construction Phase	CalEEMod Phase Type	Heavy-Duty Equipment	No. of Heavy-Duty Equipment	No. of hours/day	Hours of Operation/Week Per Equipment	Emissions Tier Rating (After Mitigation if needed)	Notes/Comments
Seepage Pit	**Grading/Excavation**	Excavator	1	8	40		Assumptions
		Grader	1	8	40	Tier 4 Final	
		Pump	1	8	40		

LandUseSubType	LandUseUnitAmount	LandUseSizeMetric
Other Non-Asphalt Surfaces	8	1000sqft

Construction Equipment/Worker/Vendor Truck Schedule and Assumptions

Construction Phase	CalEEMod Phase Type	Start Date	End Date	Workdays (7 days/week)	Worker Vehicles/Day	Workers Trips (In/Out)/Day	Vendor Trips/Day (In/Out)
Seepage Pit	Grading/Excavation	4/1/2030	10/31/2030	214	20	40	0

Topanga Lagoon Restoration
Air Quality and Greenhouse Gas Assessment - Construction Assumptions Opt 2

LandUseSubType	LandUseUnitAmount	LandUseSizeMetric
Other Non-Asphalt Surfaces	8	1000sqft

Grading Excavation Quantities

Parameters	Amount
Excavation Volume (Export) (CY)	**1,000**
Haul Truck Capacity (CY)	10
Total Haul Trucks Required	100
Total Haul Truck Trips (In/Out)	**200**
Haul Days	**43**
Daily Haul Amount (CY)	**24**
Total Haul Truck Trips (In/Out) per day	6

Construction Haul and Concrete Truck Schedule and Assumptions

Construction Phase	CalEEMod Phase Type	Start Date	End Date	Workdays (5 days/week)	Total Haul (or Concrete) Trips (In/Out)	Total Haul (or Concrete) Trucks/Day	Haul (or Concrete) Trips/Day (In/Out)
Seepage Pit	Grading/Excavation	4/1/2030	10/31/2030	154	200	3	6

Topanga Lagoon Restoration
Air Quality and Greenhouse Gas Assessment - Construction Assumptions Opt 3
Off-Road Heavy-Duty Construction Equipment - Maximum

Construction Phase	CalEEMod Phase Type	Heavy-Duty Equipment	No. of Heavy-Duty Equipment	No. of hours/day	Hours of Operation/Week Per Equipment	Emissions Tier Rating (After Mitigation if needed)	Notes/Comments
Sewer - Option 3	**Demolition**	Excavator	1	8	40		Assumptions based on Option 3
		Excavator w/ Hoe Ram	1	8	40		
		Loader	1	8	40		
Sewer - Option 3	**Grading/Excavation**	Excavator	1	8	40		Assumptions based on Option 3
		Water Truck	1	8	40	Tier 4 Final	
		Loader	1	8	40		
		Dozer	1	8	40	Tier 4 Final	
		Grader	1	8	40	Tier 4 Final	
Sewer - Option 3	**Building Construction**	Jackhammer	1	8	40		Assumptions based on Option 3 - modeled as a gene
		Heavy Duty Forklift	1	8	40		
		Crane	1	8	40	Tier 4 Final	
		Crawler Tractor	1	8	40		
		Generator	1	8	40		for Jackhammer above
Sewer - Option 3	**Paving**	Dozer	1	8	40	Tier 4 Final	Assumptions based on Option 3
		Grader	1	8	40	Tier 4 Final	
		Paver	1	8	40		
		Roller	1	8	40		

Construction Equipment/Worker/Vendor Truck Schedule and Assumptions

LandUseSubType	LandUseUnitAmount	LandUseSizeMetric
Other Asphalt Surfaces	40	1000sqft

Construction Phase	CalEEMod Phase Type	Start Date	End Date	Workdays (7 days/week)	Worker Vehicles/Day	Workers Trips (In/Out)/Day	Vendor Trips/Day (In/Out)
Demolition NB Road/Bridge	Demolition	1/1/2031	2/28/2031	59	20	40	0
Construct NB Road/Bridge	Grading/Excavation	3/1/2031	4/30/2031	61	20	40	0
Construct NB Road/Bridge	Building Construction	5/1/2031	11/30/2031	214	20	40	0
Construct NB Road/Bridge	Paving	12/1/2031	12/31/2031	31	20	40	0

N.2-1 Project and Project Overlap Air Quality Emissions Calculations

Topanga Lagoon - Total Emissions Summary
Air Quality Construction Analysis

Regional Maximums Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
				lb/day		
Demo + Parking Provisions - 2027	2.24	31.92	26.33	0.154	6.38	2.15
Demo + Parking Provisions - 2027 SJVAB	0.29	20.70	7.59	0.165	5.38	1.63
Unsuitable Material Replacement - 2027	2.73	58.07	36.23	0.365	14.41	5.21
Unsuitable Material Replacement - 2027 SJVAB	0.69	49.36	18.10	0.394	12.82	3.88
Relocate Utilities - 2027	0.31	2.25	4.82	0.011	0.64	0.20
Construct Temp Bridge - Grading - 2027	2.01	17.37	19.38	0.057	4.48	2.21
Construct Temp Bridge - BC - 2027	0.90	7.64	9.09	0.024	1.00	0.48
Construct Temp Bridge - Paving - 2027	1.60	12.90	15.31	0.027	1.11	0.68
Visitor Services - Site Preparation - 2027	0.44	3.47	5.99	0.009	0.50	0.21
Visitor Services - Grading - 2027	1.35	11.49	13.13	0.023	3.49	1.86
Visitor Services - Building Construction - 2027	0.75	6.90	9.82	0.021	0.48	0.29
Visitor Services - Paving - 2027	0.94	5.09	7.82	0.014	0.67	0.30
Visitor Services - Architectural Coating - 2027	8.61	1.11	1.59	0.003	0.05	0.03
NB Road/Bridge - Demo - 2028	0.41	3.92	6.19	0.019	1.03	0.30
NB Road/Bridge - Grading - 2028	2.39	33.10	27.80	0.169	8.04	3.27
NB Road/Bridge - BC - 2028	0.87	7.44	9.12	0.026	1.03	0.47
NB Road/Bridge - Paving - 2028	1.70	12.47	15.24	0.027	1.08	0.65
SB Road/Bridge - Demo - 2029	0.40	3.83	6.09	0.018	1.02	0.30
SB Road/Bridge - Grading - 2029	2.32	30.95	27.10	0.161	7.86	3.19
SB Road/Bridge - BC - 2029	0.84	7.06	8.98	0.026	1.01	0.45
SB Road/Bridge - Paving - 2029	1.65	11.71	15.06	0.027	1.05	0.62
Demo Temp Bridge - 2030	0.35	2.61	5.41	0.010	0.68	0.20
Construct DBH Facilities - 2030	0.79	5.97	8.44	0.020	0.78	0.37
Lagoon Grading - 2030	2.57	76.93	44.95	0.549	18.80	5.71
Restore Beach Area - 2030	0.46	2.90	7.05	0.012	0.85	0.27
Seepage Pit - 2030	0.55	4.25	7.00	0.018	1.08	0.35
Sewer Connection - 2031	1.80	13.15	18.02	0.045	4.02	2.02
Overlapping Phases						
	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + 'Visitor Services - Site Preparation - 2027	5.41	93.45	68.55	0.529	21.29	7.57
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + 'Visitor Services - Grading - 2027	6.31	101.47	75.69	0.542	24.27	9.22
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + 'Visitor Services - Building Construction - 2027	5.71	96.89	72.38	0.541	21.27	7.65
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + 'Relocate Utilities - 2027 + Visitor Services - Building Construction - 2027	6.02	99.14	77.20	0.551	21.91	7.85
Relocate Utilities - 2027 + Visitor Services - Building Construction - 2027 + 'Visitor Services - Paving - 2027 + Visitor Services - Architectural Coating - 2027	10.60	15.36	24.04	0.049	1.85	0.82
Relocate Utilities - 2027 + Construct Temp Bridge - Grading - 2027	2.32	19.61	24.20	0.068	5.12	2.41
Relocate Utilities - 2027 + Construct Temp Bridge - BC - 2027	1.22	9.89	13.91	0.035	1.64	0.68
Seepage Pit - Overlap	11.15	105.72	84.19	0.570	25.36	9.58
Project Daily Maximum Emissions	**11.15**	**105.72**	**84.19**	**0.570**	**25.36**	**9.58**
SCAQMD Regional Significance Thresholds	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
Exceeds Thresholds?	**No**	**Yes**	**No**	**No**	**No**	**No**
Localized Maximum **Source**	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**
				lb/day		
Demo + Parking Provisions - 2027	1.88	16.26	18.51	0.029	1.95	0.84
Unsuitable Material Replacement - 2027	1.84	14.68	16.42	0.034	3.40	1.91
Relocate Utilities - 2027	0.19	1.80	2.93	0.004	0.05	0.05
Construct Temp Bridge - Grading - 2027	1.84	14.68	16.42	0.034	3.39	1.91
Construct Temp Bridge - BC - 2027	0.78	6.87	7.04	0.015	0.33	0.31
Construct Temp Bridge - Paving - 2027	1.48	12.78	13.58	0.022	0.59	0.55
Visitor Services - Site Preparation - 2027	0.41	3.44	5.56	0.008	0.37	0.17
Visitor Services - Grading - 2027	1.30	11.44	12.43	0.021	3.28	1.81
Visitor Services - Building Construction - 2027	0.69	6.51	8.94	0.017	0.25	0.23
Visitor Services - Paving - 2027	0.83	4.98	6.25	0.010	0.20	0.19
Visitor Services - Architectural Coating - 2027	8.61	1.11	1.50	0.002	0.03	0.02
NB Road/Bridge - Demo - 2028	0.27	2.57	3.95	0.005	0.22	0.08
NB Road/Bridge - Grading - 2028	1.81	14.11	16.44	0.034	3.37	1.88
NB Road/Bridge - BC - 2028	0.74	6.40	7.03	0.015	0.30	0.28
NB Road/Bridge - Paving - 2028	1.59	12.36	13.60	0.022	0.56	0.52
SB Road/Bridge - Demo - 2029	0.27	2.53	3.96	0.005	0.22	0.08
SB Road/Bridge - Grading - 2029	1.76	13.23	16.32	0.034	3.33	1.85
SB Road/Bridge - BC - 2029	0.71	6.06	6.99	0.015	0.28	0.26
SB Road/Bridge - Paving - 2029	1.55	11.61	13.51	0.022	0.53	0.49
Demo Temp Bridge - 2030	0.25	2.51	3.94	0.005	0.16	0.07
Construct DBH Facilities - 2030	0.69	5.87	6.97	0.015	0.27	0.24
Lagoon Grading - 2030	0.78	4.64	7.57	0.019	0.43	0.20
Restore Beach Area - 2030	0.36	2.81	5.58	0.008	0.33	0.14
Seepage Pit - 2030	0.43	3.29	5.10	0.008	0.35	0.16
Sewer Connection - 2031	1.69	12.23	16.21	0.034	3.29	1.82
Overlapping Phases						
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + 'Visitor Services - Site Preparation - 2027	4.13	34.38	40.49	0.071	5.73	2.92
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + 'Visitor Services - Grading - 2027	5.01	42.38	47.37	0.084	8.63	4.56
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + 'Visitor Services - Building Construction - 2027	4.40	37.45	43.88	0.080	5.60	2.98
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + 'Relocate Utilities - 2027 + Visitor Services - Building Construction - 2027	4.59	39.25	46.81	0.084	5.65	3.02
Relocate Utilities - 2027 + Visitor Services - Building Construction - 2027 + 'Visitor Services - Paving - 2027 + Visitor Services - Architectural Coating - 2027	10.32	14.40	19.62	0.034	0.53	0.48
Relocate Utilities - 2027 + Construct Temp Bridge - Grading - 2027	2.03	16.49	19.35	0.038	3.44	1.96
Relocate Utilities - 2027 + Construct Temp Bridge - BC - 2027	0.96	8.68	9.97	0.019	0.39	0.36
Seepage Pit - Overlap	10.75	45.67	52.47	0.092	8.99	4.71
Project Daily Maximum Emissions	**10.75**	**45.67**	**52.47**	**0.092**	**8.99**	**4.71**
SCAQMD Localized Significance Thresholds		**221.0**	**1531.0**		**13.0**	**6.0**
Exceeds Thresholds?		**No**	**No**		**No**	**No**

Construction Annual Construction Emissions

Regional Maximums Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
				tons/yr		
Demo + Parking Provisions - 2027	0.06	0.82	0.74	0.00354	0.16	0.0538
Demo + Parking Provisions - 2027 SJVAB	0.01	0.43	0.16	0.00347	0.11	0.0341
Unsuitable Material Replacement - 2027	0.07	1.35	0.92	0.00802	0.34	0.1279
Unsuitable Material Replacement - 2027 SJVAB	0.01	1.04	0.38	0.00827	0.27	0.0814
Relocate Utilities - 2027	0.03	0.20	0.43	0.00093	0.06	0.0176
Construct Temp Bridge - Grading - 2027	0.03	0.25	0.29	0.00078	0.06	0.0325
Construct Temp Bridge - BC - 2027	0.06	0.46	0.56	0.00143	0.06	0.0291
Construct Temp Bridge - Paving - 2027	0.05	0.39	0.46	0.00081	0.03	0.0203
Visitor Services - Site Preparation - 2027	0.0002	0.0017	0.0030	0.000005	0.0003	0.0001
Visitor Services - Grading - 2027	0.00	0.02	0.03	0.00005	0.01	0.0037
Visitor Services - Building Construction - 2027	0.05	0.48	0.69	0.00146	0.03	0.0203
Visitor Services - Paving - 2027	0.00	0.02	0.03	0.00005	0.00	0.0011
Visitor Services - Architectural Coating - 2027	0.03	0.00	0.01	0.00001	0.00	0.0001
NB Road/Bridge - Demo - 2028	0.01	0.11	0.18	0.00048	0.03	0.0083
NB Road/Bridge - Grading - 2028	0.07	0.84	0.76	0.00398	0.21	0.0885
NB Road/Bridge - BC - 2028	0.09	0.77	0.96	0.00262	0.10	0.0486
NB Road/Bridge - Paving - 2028	0.03	0.19	0.24	0.00041	0.02	0.0101
SB Road/Bridge - Demo - 2029	0.01	0.10	0.18	0.00047	0.03	0.0080
SB Road/Bridge - Grading - 2029	0.07	0.79	0.74	0.00381	0.20	0.0864
SB Road/Bridge - BC - 2029	0.09	0.73	0.95	0.00260	0.10	0.0463
SB Road/Bridge - Paving - 2029	0.03	0.18	0.23	0.00041	0.02	0.0096
Demo Temp Bridge - 2030	0.01	0.08	0.16	0.00029	0.02	0.0058
Construct DBH Facilities - 2030	0.01	0.09	0.13	0.00030	0.01	0.0058
Lagoon Grading - 2030	0.18	4.19	2.80	0.02932	1.01	0.3099
Restore Beach Area - 2030	0.01	0.09	0.21	0.00037	0.03	0.0082
Seepage Pit - 2030	0.06	0.43	0.74	0.00178	0.11	0.0355
Sewer Connection - 2031	0.17	1.29	1.84	0.00440	0.25	0.1175
Annual Emissions						
	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
2027	0.41	5.47	4.69	0.03	1.13	0.42
2028	0.20	1.91	2.14	0.01	0.36	0.16
2029	0.19	1.80	2.10	0.01	0.35	0.15
2030	0.27	4.88	4.04	0.03	1.18	0.37
2031	0.17	1.29	1.84	0.004	0.25	0.12
Maximum Annual Emissions	**0.41**	**5.47**	**4.69**	**0.03**	**1.18**	**0.42**
de Minimis Threhsold	**10**	**10**	**100**	**100**	**70**	**70**
Exceeds Thresholds?	**No**	**No**	**No**	**No**	**No**	**No**

Topanga Lagoon - Total Emissions Summary

Air Quality Construction Analysis

Construction Annual Equipment + Worker + Vendor Emissions

Days	Regional Maximums Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
		tons/yr					
60	Demo + Parking Provisions - 2027	0.060	0.491	0.608	0.001003	0.074	0.029
60	Unsuitable Material Replacement - 2027	0.059	0.444	0.545	0.001168	0.118	0.061
182	Relocate Utilities - 2027	0.028	0.175	0.425	0.000786	0.052	0.016
30	Construct Temp Bridge - Grading - 2027	0.029	0.222	0.272	0.000584	0.059	0.031
124	Construct Temp Bridge - BC - 2027	0.055	0.434	0.545	0.001232	0.053	0.027
60	Construct Temp Bridge - Paving - 2027	0.048	0.387	0.459	0.000805	0.033	0.020
1	Visitor Services - Site Preparation - 2027	0.000	0.002	0.003	0.000005	0.000	0.000
4	Visitor Services - Grading - 2027	0.003	0.023	0.026	0.000045	0.007	0.004
140	Visitor Services - Building Construction - 2027	0.052	0.483	0.687	0.001465	0.034	0.020
7	Visitor Services - Paving - 2027	0.003	0.018	0.027	0.000051	0.002	0.001
7	Visitor Services - Architectural Coating - 2027	0.030	0.004	0.006	0.000009	0.000	0.000
60	NB Road/Bridge - Demo - 2028	0.011	0.081	0.168	0.000295	0.022	0.006
61	NB Road/Bridge - Grading - 2028	0.059	0.434	0.551	0.001185	0.119	0.061
214	NB Road/Bridge - BC - 2028	0.091	0.697	0.928	0.002116	0.088	0.044
31	NB Road/Bridge - Paving - 2028	0.026	0.193	0.236	0.000415	0.017	0.010
59	SB Road/Bridge - Demo - 2029	0.011	0.078	0.163	0.000288	0.022	0.006
61	SB Road/Bridge - Grading - 2029	0.057	0.407	0.545	0.001182	0.117	0.060
214	SB Road/Bridge - BC - 2029	0.087	0.659	0.914	0.002106	0.085	0.041
31	SB Road/Bridge - Paving - 2029	0.026	0.182	0.233	0.000413	0.016	0.010
59	Demo Temp Bridge - 2030	0.010	0.077	0.160	0.000285	0.020	0.006
31	Construct DBH Facilities - 2030	0.012	0.093	0.131	0.000304	0.012	0.006
214	Lagoon Grading - 2030	0.094	0.507	0.967	0.002488	0.101	0.036
61	Restore Beach Area - 2030	0.014	0.089	0.215	0.000375	0.026	0.008
214	Seepage Pit - 2030	0.057	0.363	0.703	0.001294	0.093	0.031
365	Sewer Connection - 2031	0.170	1.232	1.815	0.003958	0.232	0.113

Topanga Lagoon - Total Emissions Summary

Air Quality Construction Analysis

Construction Annual Haul and Concrete Truck Emissions

Days	Regional Maximums Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
		tons/yr					
42	Demo + Parking Provisions - 2027	0.005	0.326	0.128	0.0025	0.082	0.025
42	Demo + Parking Provisions - 2027 SJVAB	0.006	0.435	0.159	0.0035	0.113	0.034
42	Unsuitable Material Replacement - 2027	0.016	0.908	0.380	0.0069	0.220	0.067
42	Unsuitable Material Replacement - 2027 SJVAB	0.015	1.037	0.380	0.0083	0.269	0.081
130	Relocate Utilities - 2027	0.000	0.021	0.010	0.0001	0.005	0.001
22	Construct Temp Bridge - Grading - 2027	0.001	0.028	0.013	0.0002	0.006	0.002
88	Construct Temp Bridge - BC - 2027	0.001	0.028	0.013	0.0002	0.006	0.002
44	Construct Temp Bridge - Paving - 2027	0.000	0.000	0.000	0.0000	0.000	0.000
1	Visitor Services - Site Preparation - 2027	0.000	0.000	0.000	0.0000	0.000	0.000
2	Visitor Services - Grading - 2027	0.000	0.000	0.000	0.0000	0.000	0.000
100	Visitor Services - Building Construction - 2027	0.000	0.000	0.000	0.0000	0.000	0.000
5	Visitor Services - Paving - 2027	0.000	0.000	0.000	0.0000	0.000	0.000
5	Visitor Services - Architectural Coating - 2027	0.000	0.000	0.000	0.0000	0.000	0.000
42	NB Road/Bridge - Demo - 2028	0.001	0.026	0.013	0.0002	0.006	0.002
43	NB Road/Bridge - Grading - 2028	0.010	0.406	0.209	0.0028	0.089	0.027
154	NB Road/Bridge - BC - 2028	0.002	0.071	0.035	0.0005	0.016	0.005
21	NB Road/Bridge - Paving - 2028	0.000	0.000	0.000	0.0000	0.000	0.000
43	SB Road/Bridge - Demo - 2029	0.001	0.026	0.013	0.0002	0.006	0.002
43	SB Road/Bridge - Grading - 2029	0.010	0.379	0.199	0.0026	0.086	0.026
154	SB Road/Bridge - BC - 2029	0.002	0.069	0.034	0.0005	0.016	0.005
21	SB Road/Bridge - Paving - 2029	0.000	0.000	0.000	0.0000	0.000	0.000
43	Demo Temp Bridge - 2030	0.000	0.000	0.000	0.0000	0.000	0.000
21	Construct DBH Facilities - 2030	0.000	0.000	0.000	0.0000	0.000	0.000
102	Lagoon Grading - 2030	0.087	3.682	1.831	0.0268	0.910	0.274
43	Restore Beach Area - 2030	0.000	0.000	0.000	0.0000	0.000	0.000
154	Seepage Pit - 2030	0.002	0.066	0.033	0.0005	0.016	0.005
261	Sewer Connection - 2031	0.001	0.060	0.030	0.0004	0.015	0.005

Demo, Temporary Bridge, Lagoon Excavation, and DBH Facilities
Air Quality Construction Analysis

Regional Maximums Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
						lb/day				
Demo + Parking Provisions - 2027	2.24	31.92	26.33	0.154	5.47	0.91	6.38	1.31	0.84	2.15
Unsuitable Material Replacement - 2027	2.73	58.07	36.23	0.365	13.24	1.17	14.41	4.12	1.09	5.21
Relocate Utilities - 2027	0.31	2.25	4.82	0.011	0.58	0.06	0.64	0.15	0.05	0.20
Construct Temp Bridge - Grading - 2027	2.01	17.37	19.38	0.057	3.82	0.66	4.48	1.61	0.60	2.21
Construct Temp Bridge - BC - 2027	0.90	7.64	9.09	0.024	0.65	0.34	1.00	0.16	0.32	0.48
Construct Temp Bridge - Paving - 2027	1.60	12.90	15.31	0.027	0.52	0.60	1.11	0.13	0.55	0.68
Demo Temp Bridge - 2030	0.35	2.61	5.41	0.010	0.63	0.06	0.68	0.15	0.05	0.20
Construct DBH Facilities - 2030	0.79	5.97	8.44	0.020	0.52	0.27	0.78	0.13	0.25	0.37
Lagoon Grading - 2030	2.57	76.93	44.95	0.549	17.71	1.08	18.80	4.68	1.03	5.71
Restore Beach Area - 2030	0.46	2.90	7.05	0.012	0.72	0.13	0.85	0.15	0.12	0.27

Overlapping Phases

	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027	4.96	89.99	62.56	0.520	18.71	2.07	20.79	5.43	1.94	7.36
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + Relocate Utilities - 2027	5.27	92.23	67.38	0.530	19.30	2.13	21.43	5.57	1.99	7.56
Relocate Utilities - 2027 + Construct Temp Bridge - Grading - 2027	2.32	19.61	24.20	0.068	4.41	0.71	5.12	1.76	0.66	2.41
Project Daily Maximum Emissions	**5.27**	**92.23**	**67.38**	**0.549**	**19.30**	**2.13**	**21.43**	**5.57**	**1.99**	**7.56**

Localized Maximum Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
						lb/day				
Demo + Parking Provisions - 2027	1.88	16.26	18.51	0.029	1.25	0.70	1.95	0.19	0.65	0.84
Unsuitable Material Replacement - 2027	1.84	14.68	16.42	0.034	2.78	0.62	3.40	1.34	0.57	1.91
Relocate Utilities - 2027	0.19	1.80	2.93	0.004	0.00	0.05	0.05	0.00	0.05	0.05
Construct Temp Bridge - Grading - 2027	1.84	14.68	16.42	0.034	2.76	0.62	3.39	1.34	0.57	1.91
Construct Temp Bridge - BC - 2027	0.78	6.87	7.04	0.015	0.00	0.33	0.33	0.00	0.31	0.31
Construct Temp Bridge - Paving - 2027	1.48	12.78	13.58	0.022	0.00	0.59	0.59	0.00	0.55	0.55
Demo Temp Bridge - 2030	0.25	2.51	3.94	0.005	0.11	0.05	0.16	0.02	0.05	0.07
Construct DBH Facilities - 2030	0.69	5.87	6.97	0.015	0.00	0.27	0.27	0.00	0.24	0.24
Lagoon Grading - 2030	0.78	4.64	7.57	0.019	0.23	0.19	0.43	0.03	0.18	0.20
Restore Beach Area - 2030	0.36	2.81	5.58	0.008	0.21	0.13	0.33	0.02	0.12	0.14

Overlapping Phases

Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027	4.34	35.49	44.68	0.085	0.55	1.57	2.12	0.07	1.44	1.51
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + Relocate Utilities - 2027	3.56	28.61	37.64	0.070	0.55	1.23	1.78	0.07	1.13	1.20
Relocate Utilities - 2027 + Construct Temp Bridge - Grading - 2027	2.08	15.83	24.06	0.047	0.55	0.64	1.19	0.07	0.59	0.65
Project Daily Maximum Emissions	**4.34**	**35.49**	**44.68**	**0.085**	**2.78**	**1.57**	**3.40**	**1.34**	**1.44**	**1.91**

Demo, Temporary Bridge, Lagoon Excavation, and DBH Facilities

Air Quality Construction Analysis

Summer	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
Demo + Parking Provisions - 2027	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Unsuitable Material Replacement - 2027	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Relocate Utilities - 2027	0.19	1.80	2.93	0.0040	0.00	0.05	0.05	0.00	0.05	0.05	0.12	0.44	1.89	0.007	0.58	0.01	0.59	0.15	0.01	0.15
Construct Temp Bridge - Grading - 2027	1.84	14.68	16.42	0.0343	2.76	0.62	3.39	1.34	0.57	1.91	0.17	2.69	2.96	0.023	1.06	0.03	1.09	0.27	0.03	0.30
Construct Temp Bridge - BC - 2027	0.78	6.87	7.04	0.0152	0.00	0.33	0.33	0.00	0.31	0.31	0.13	0.76	2.04	0.009	0.65	0.01	0.66	0.16	0.01	0.17
Construct Temp Bridge - Paving - 2027	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Demo Temp Bridge - 2030	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Construct DBH Facilities - 2030	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Lagoon Grading - 2030	0.78	4.64	7.57	0.0189	0.23	0.19	0.43	0.03	0.18	0.20	1.80	72.28	37.37	0.531	17.48	0.89	18.37	4.66	0.85	5.51
Restore Beach Area - 2030	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Demo + Parking Provisions - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Unsuitable Material Replacement - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Relocate Utilities - 2027	0.31	2.25	4.82	0.011	0.58	0.06	0.64	0.15	0.05	0.20
Construct Temp Bridge - Grading - 2027	2.01	17.37	19.38	0.057	3.82	0.66	4.48	1.61	0.60	2.21
Construct Temp Bridge - BC - 2027	0.90	7.64	9.09	0.024	0.65	0.34	1.00	0.16	0.32	0.48
Construct Temp Bridge - Paving - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Demo Temp Bridge - 2030	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Construct DBH Facilities - 2030	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Lagoon Grading - 2030	2.57	76.93	44.95	0.549	17.71	1.08	18.80	4.68	1.03	5.71
Restore Beach Area - 2030	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00

Note: Offsite emissions pasted over from EMFAC2021 analysis

Overlapping Phases	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + Relocate Utilities - 2027	0.31	2.25	4.82	0.011	0.58	0.06	0.64	0.15	0.05	0.20
Relocate Utilities - 2027 + Construct Temp Bridge - Grading - 2027	2.32	19.61	24.20	0.068	4.41	0.71	5.12	1.76	0.66	2.41
Project Daily Maximum Emissions	**2.57**	**76.93**	**44.95**	**0.549**	**17.71**	**1.08**	**18.80**	**4.68**	**1.03**	**5.71**

Demo, Temporary Bridge, Lagoon Excavation, and DBH Facilities

Air Quality Construction Analysis

Winter	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
Demo + Parking Provisions - 2027	1.88	16.26	18.51	0.029	1.25	0.70	1.95	0.19	0.65	0.84	0.36	15.66	7.81	0.125	4.22	0.20	4.43	1.12	0.20	1.31
Unsuitable Material Replacement - 2027	1.84	14.68	16.42	0.034	2.78	0.62	3.40	1.34	0.57	1.91	0.89	43.38	19.81	0.331	10.46	0.54	11.00	2.78	0.52	3.30
Relocate Utilities - 2027	0.19	1.80	2.93	0.004	0.00	0.05	0.05	0.00	0.05	0.05	0.12	0.44	1.89	0.007	0.58	0.01	0.59	0.15	0.01	0.15
Construct Temp Bridge - Grading - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Construct Temp Bridge - BC - 2027	0.78	6.87	7.04	0.015	0.00	0.33	0.33	0.00	0.31	0.31	0.13	0.76	2.04	0.009	0.65	0.01	0.66	0.16	0.01	0.17
Construct Temp Bridge - Paving - 2027	1.48	12.78	13.58	0.022	0.00	0.59	0.59	0.00	0.55	0.55	0.12	0.12	1.74	0.005	0.52	0.00	0.52	0.13	0.00	0.13
Demo Temp Bridge - 2030	0.25	2.51	3.94	0.005	0.11	0.05	0.16	0.02	0.05	0.07	0.10	0.10	1.47	0.004	0.52	0.00	0.52	0.13	0.00	0.13
Construct DBH Facilities - 2030	0.69	5.87	6.97	0.015	0.00	0.27	0.27	0.00	0.24	0.24	0.10	0.10	1.47	0.004	0.52	0.00	0.52	0.13	0.00	0.13
Lagoon Grading - 2030	0.78	4.64	7.57	0.019	0.23	0.19	0.43	0.03	0.18	0.20	1.80	72.28	37.37	0.531	17.48	0.89	18.37	4.66	0.85	5.51
Restore Beach Area - 2030	0.36	2.81	5.58	0.008	0.21	0.13	0.33	0.02	0.12	0.14	0.10	0.10	1.47	0.004	0.52	0.00	0.52	0.13	0.00	0.13

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Demo + Parking Provisions - 2027	2.24	31.92	26.33	0.154	5.47	0.91	6.38	1.31	0.84	2.15
Unsuitable Material Replacement - 2027	2.73	58.07	36.23	0.365	13.24	1.17	14.41	4.12	1.09	5.21
Relocate Utilities - 2027	0.31	2.25	4.82	0.011	0.58	0.06	0.64	0.15	0.05	0.20
Construct Temp Bridge - Grading - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Construct Temp Bridge - BC - 2027	0.90	7.64	9.09	0.024	0.65	0.34	1.00	0.16	0.32	0.48
Construct Temp Bridge - Paving - 2027	1.60	12.90	15.31	0.027	0.52	0.60	1.11	0.13	0.55	0.68
Demo Temp Bridge - 2030	0.35	2.61	5.41	0.010	0.63	0.06	0.68	0.15	0.05	0.20
Construct DBH Facilities - 2030	0.79	5.97	8.44	0.020	0.52	0.27	0.78	0.13	0.25	0.37
Lagoon Grading - 2030	2.57	76.93	44.95	0.549	17.71	1.08	18.80	4.68	1.03	5.71
Restore Beach Area - 2030	0.46	2.90	7.05	0.012	0.72	0.13	0.85	0.15	0.12	0.27

Note: Offsite emissions pasted over from EMFAC2021 analysis

Overlapping Phases	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027	4.96	89.99	62.56	0.520	18.71	2.07	20.79	5.43	1.94	7.36
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + Relocate Utilities - 2027	5.27	92.23	67.38	0.530	19.30	2.13	21.43	5.57	1.99	7.56
Relocate Utilities - 2027 + Construct Temp Bridge - Grading - 2027	0.31	2.25	4.82	0.011	0.58	0.06	0.64	0.15	0.05	0.20
Project Daily Maximum Emissions	**5.27**	**92.23**	**67.38**	**0.549**	**19.30**	**2.13**	**21.43**	**5.57**	**1.99**	**7.56**

NB-SB Bridge Construction
Air Quality Construction Analysis

Regional Maximums	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Source						lb/day				
NB Road/Bridge - Demo - 2028	0.41	3.92	6.19	0.019	0.94	0.08	1.03	0.22	0.08	0.30
NB Road/Bridge - Grading - 2028	2.39	33.10	27.80	0.169	7.23	0.81	8.04	2.52	0.75	3.27
NB Road/Bridge - BC - 2028	0.87	7.44	9.12	0.026	0.72	0.31	1.03	0.18	0.29	0.47
NB Road/Bridge - Paving - 2028	1.70	12.47	15.24	0.027	0.52	0.57	1.08	0.13	0.52	0.65
SB Road/Bridge - Demo - 2029	0.40	3.83	6.09	0.018	0.95	0.08	1.02	0.22	0.07	0.30
SB Road/Bridge - Grading - 2029	2.32	30.95	27.10	0.161	7.10	0.76	7.86	2.48	0.71	3.19
SB Road/Bridge - BC - 2029	0.84	7.06	8.98	0.026	0.72	0.29	1.01	0.18	0.27	0.45
SB Road/Bridge - Paving - 2029	1.65	11.71	15.06	0.027	0.52	0.53	1.05	0.13	0.49	0.62
Project Daily Maximum Emissions	**2.39**	**33.10**	**27.80**	**0.169**	**7.23**	**0.81**	**8.04**	**2.52**	**0.75**	**3.27**

Localized Maximum	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Source						lb/day				
NB Road/Bridge - Demo - 2028	0.27	2.57	3.95	0.005	0.16	0.07	0.22	0.02	0.06	0.08
NB Road/Bridge - Grading - 2028	1.81	14.11	16.44	0.034	2.77	0.60	3.37	1.34	0.55	1.88
NB Road/Bridge - BC - 2028	0.74	6.40	7.03	0.015	0.00	0.30	0.30	0.00	0.28	0.28
NB Road/Bridge - Paving - 2028	1.59	12.36	13.60	0.022	0.00	0.56	0.56	0.00	0.52	0.52
SB Road/Bridge - Demo - 2029	0.27	2.53	3.96	0.005	0.16	0.06	0.22	0.02	0.05	0.08
SB Road/Bridge - Grading - 2029	1.76	13.23	16.32	0.034	2.77	0.56	3.33	1.34	0.51	1.85
SB Road/Bridge - BC - 2029	0.71	6.06	6.99	0.015	0.00	0.28	0.28	0.00	0.26	0.26
SB Road/Bridge - Paving - 2029	1.55	11.61	13.51	0.022	0.00	0.53	0.53	0.00	0.49	0.49
Project Daily Maximum Emissions	**1.81**	**14.11**	**16.44**	**0.034**	**2.77**	**0.60**	**3.37**	**1.34**	**0.55**	**1.88**

NB-SB Bridge Construction

Air Quality Construction Analysis

Summer	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
NB Road/Bridge - Demo - 2028	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
NB Road/Bridge - Grading - 2028	1.81	14.11	16.44	0.034	2.77	0.60	3.37	1.34	0.55	1.88	0.58	18.99	11.36	0.134	4.46	0.22	4.67	1.18	0.21	1.39
NB Road/Bridge - BC - 2028	0.74	6.40	7.03	0.015	0.00	0.30	0.30	0.00	0.28	0.28	0.13	1.04	2.09	0.011	0.72	0.01	0.73	0.18	0.01	0.20
NB Road/Bridge - Paving - 2028	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
SB Road/Bridge - Demo - 2029	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
SB Road/Bridge - Grading - 2029	1.76	13.23	16.32	0.034	2.77	0.56	3.33	1.34	0.51	1.85	0.55	17.72	10.79	0.127	4.32	0.21	4.53	1.14	0.20	1.34
SB Road/Bridge - BC - 2029	0.71	6.06	6.99	0.015	0.00	0.28	0.28	0.00	0.26	0.26	0.12	1.00	1.99	0.011	0.72	0.01	0.73	0.18	0.01	0.20
SB Road/Bridge - Paving - 2029	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
NB Road/Bridge - Demo - 2028	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
NB Road/Bridge - Grading - 2028	2.39	33.10	27.80	0.169	7.23	0.81	8.04	2.52	0.75	3.27
NB Road/Bridge - BC - 2028	0.87	7.44	9.12	0.026	0.72	0.31	1.03	0.18	0.29	0.47
NB Road/Bridge - Paving - 2028	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
SB Road/Bridge - Demo - 2029	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
SB Road/Bridge - Grading - 2029	2.32	30.95	27.10	0.161	7.10	0.76	7.86	2.48	0.71	3.19
SB Road/Bridge - BC - 2029	0.84	7.06	8.98	0.026	0.72	0.29	1.01	0.18	0.27	0.45
SB Road/Bridge - Paving - 2029	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Project Daily Maximum Emissions	**2.39**	**33.10**	**27.80**	**0.169**	**7.23**	**0.81**	**8.04**	**2.52**	**0.75**	**3.27**

Note: Offsite emissions pasted over from EMFAC2021 analysis

Visitor Services Bridge Construction
Air Quality Construction Analysis

Regional Maximums Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
					lb/day					
Site Preparation - 2027	0.44	3.47	5.99	0.009	0.34	0.17	0.50	0.05	0.15	0.21
Grading - 2027	1.35	11.49	13.13	0.023	2.97	0.52	3.49	1.39	0.48	1.86
Building Construction - 2027	0.75	6.90	9.82	0.021	0.23	0.25	0.48	0.06	0.23	0.29
Paving - 2027	0.94	5.09	7.82	0.014	0.47	0.20	0.67	0.12	0.19	0.30
Architectural Coating - 2027	8.61	1.11	1.59	0.003	0.03	0.03	0.05	0.01	0.02	0.03

Overlapping Phases

	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Building Construction - 2027 + Paving - 2027 + Architectural Coating - 2027	10.29	13.11	19.22	0.038	0.72	0.48	1.20	0.18	0.44	0.62
Project Daily Maximum Emissions	**10.29**	**13.11**	**19.22**	**0.038**	**2.97**	**0.52**	**3.49**	**1.39**	**0.48**	**1.86**

Localized Maximum Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
					lb/day					
Site Preparation - 2027	0.41	3.44	5.56	0.008	0.21	0.17	0.37	0.02	0.15	0.17
Grading - 2027	1.30	11.44	12.43	0.021	2.76	0.52	3.28	1.34	0.48	1.81
Building Construction - 2027	0.69	6.51	8.94	0.017	0.00	0.25	0.25	0.00	0.23	0.23
Paving - 2027	0.83	4.98	6.25	0.010	0.00	0.20	0.20	0.00	0.19	0.19
Architectural Coating - 2027	8.61	1.11	1.50	0.002	0.00	0.03	0.03	0.00	0.02	0.02

Overlapping Phases

Building Construction - 2027 + Paving - 2027 + Architectural Coating - 2027	10.13	12.60	16.70	0.030	0.00	0.47	0.47	0.00	0.44	0.44
Project Daily Maximum Emissions	**10.13**	**12.60**	**16.70**	**0.030**	**2.76**	**0.52**	**3.28**	**1.34**	**0.48**	**1.81**

Visitor Services Bridge Construction

Air Quality Construction Analysis

Summer	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
Site Preparation - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Grading - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction - 2027	0.69	6.51	8.94	0.017	0.00	0.25	0.25	0.00	0.23	0.23	0.05	0.40	0.87	0.004	0.23	0.00	0.24	0.06	0.00	0.06
Paving - 2027	0.83	4.98	6.25	0.010	0.00	0.20	0.20	0.00	0.19	0.19	0.10	0.11	1.56	0.004	0.47	0.00	0.47	0.12	0.00	0.12
Architectural Coating - 2027	8.61	1.11	1.50	0.002	0.00	0.03	0.03	0.00	0.02	0.02	0.01	0.01	0.09	0.000	0.03	0.00	0.03	0.01	0.00	0.01

Note: Offsite emissions pasted over from EMFAC2021 analysis

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Site Preparation - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Grading - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction - 2027	0.75	6.90	9.82	0.021	0.23	0.25	0.48	0.06	0.23	0.29
Paving - 2027	0.94	5.09	7.82	0.014	0.47	0.20	0.67	0.12	0.19	0.30
Architectural Coating - 2027	8.61	1.11	1.59	0.003	0.03	0.03	0.05	0.01	0.02	0.03

Overlapping Phases										
	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Building Construction - 2027 + Paving - 2027 + Architectural Coating - 2027	10.29	13.11	19.22	0.038	0.72	0.48	1.20	0.18	0.44	0.62
Project Daily Maximum Emissions	**10.29**	**13.11**	**19.22**	**0.038**	**0.72**	**0.48**	**1.20**	**0.18**	**0.44**	**0.62**

Visitor Services Bridge Construction
Air Quality Construction Analysis

Winter	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
Site Preparation - 2027	0.41	3.44	5.56	0.0079	0.21	0.17	0.37	0.02	0.15	0.17	0.03	0.03	0.43	0.001	0.13	0.00	0.13	0.03	0.00	0.03
Grading - 2027	1.30	11.44	12.43	0.0207	2.76	0.52	3.28	1.34	0.48	1.81	0.05	0.05	0.70	0.002	0.21	0.00	0.21	0.05	0.00	0.05
Building Construction - 2027	0.69	6.51	8.94	0.0173	0.00	0.25	0.25	0.00	0.23	0.23	0.05	0.40	0.87	0.004	0.23	0.00	0.24	0.06	0.00	0.06
Paving - 2027	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating - 2027	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00

Note: Offsite emissions pasted over from EMFAC2021 analysis

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Site Preparation - 2027	0.44	3.47	5.99	0.009	0.34	0.17	0.50	0.05	0.15	0.21
Grading - 2027	1.35	11.49	13.13	0.023	2.97	0.52	3.49	1.39	0.48	1.86
Building Construction - 2027	0.75	6.90	9.82	0.021	0.23	0.25	0.48	0.06	0.23	0.29
Paving - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00

Overlapping Phases										
	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Building Construction - 2027 + Paving - 2027 + Architectural Coating - 2027	0.75	6.90	9.82	0.021	0.23	0.25	0.48	0.06	0.23	0.29
Project Daily Maximum Emissions	**1.35**	**11.49**	**13.13**	**0.023**	**2.97**	**0.52**	**3.49**	**1.39**	**0.48**	**1.86**

Topanga Lagoon - Total Emissions Summary - Mitigated
Air Quality Construction Analysis

Regional Maximums Source	ROG	NOX	CO	SO2 lb/day	Total PM10	Total PM2.5
Demo + Parking Provisions - 2027	1.22	22.42	26.50	0.154	5.93	1.74
Demo + Parking Provisions - 2027 SJVAB	0.29	20.70	7.59	0.165	5.38	1.63
Unsuitable Material Replacement - 2027	1.39	46.79	39.98	0.365	13.89	4.75
Unsuitable Material Replacement - 2027 SJVAB	0.69	49.36	18.10	0.394	12.82	3.88
Relocate Utilities - 2027	0.31	2.25	4.82	0.011	0.64	0.20
Construct Temp Bridge - Grading - 2027	0.67	6.09	23.13	0.057	3.97	1.75
Construct Temp Bridge - BC - 2027	0.63	4.85	10.91	0.024	0.88	0.38
Construct Temp Bridge - Paving - 2027	0.58	3.41	15.48	0.027	0.66	0.27
Visitor Services - Site Preparation - 2027	0.18	1.30	6.31	0.009	0.38	0.09
Visitor Services - Grading - 2027	0.33	1.99	13.30	0.023	3.04	1.45
Visitor Services - Building Construction - 2027	0.47	4.11	11.64	0.021	0.37	0.18
Visitor Services - Paving - 2027	0.94	5.09	7.82	0.014	0.67	0.30
Visitor Services - Architectural Coating - 2027	8.61	1.11	1.59	0.003	0.05	0.03
NB Road/Bridge - Demo - 2028	0.41	3.92	6.19	0.019	1.03	0.30
NB Road/Bridge - Grading - 2028	1.07	22.36	31.54	0.169	7.56	2.83
NB Road/Bridge - BC - 2028	0.61	4.92	10.94	0.026	0.93	0.38
NB Road/Bridge - Paving - 2028	0.69	3.32	15.38	0.027	0.65	0.26
SB Road/Bridge - Demo - 2029	0.40	3.83	6.09	0.018	1.02	0.30
SB Road/Bridge - Grading - 2029	1.04	21.06	30.97	0.161	7.41	2.78
SB Road/Bridge - BC - 2029	0.59	4.76	10.84	0.026	0.91	0.36
SB Road/Bridge - Paving - 2029	0.68	3.24	15.29	0.027	0.65	0.25
Demo Temp Bridge - 2030	0.35	2.61	5.41	0.010	0.68	0.20
Construct DBH Facilities - 2030	0.55	3.77	10.31	0.020	0.69	0.29
Lagoon Grading - 2030	2.06	74.01	48.90	0.549	18.66	5.59
Restore Beach Area - 2030	0.24	1.29	7.35	0.012	0.76	0.18
Seepage Pit - 2030	0.33	2.64	7.30	0.018	0.99	0.26
Sewer Connection - 2031	0.58	4.24	21.98	0.045	3.59	1.62
Overlapping Phases						
	ROG	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + 'Visitor Services - Site Preparation - 2027	2.78	70.52	72.79	0.529	20.20	6.58
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + 'Visitor Services - Grading - 2027	2.93	71.21	79.78	0.542	22.86	7.94
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + 'Visitor Services - Building Construction - 2027	3.08	73.33	78.12	0.541	20.19	6.67
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + 'Relocate Utilities - 2027 + Visitor Services - Building Construction - 2027	3.39	75.58	82.94	0.551	20.83	6.87
Relocate Utilities - 2027 + Visitor Services - Building Construction - 2027 + 'Visitor Services - Paving - 2027 + Visitor Services - Architectural Coating - 2027	10.33	12.57	25.86	0.049	1.73	0.72
Relocate Utilities - 2027 + Construct Temp Bridge - Grading - 2027	0.98	8.34	27.95	0.068	4.61	1.95
Relocate Utilities - 2027 + Construct Temp Bridge - BC - 2027	0.94	7.09	15.73	0.035	1.52	0.58
Seepage Pit - Overlap	10.66	78.22	90.24	0.570	23.85	8.20
Project Daily Maximum Emissions	**10.66**	**78.22**	**90.24**	**0.570**	**23.85**	**8.20**
SCAQMD Regional Significance Thresholds	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
Exceeds Thresholds?	**No**	**No**	**No**	**No**	**No**	**No**
Localized Maximum Source	**ROG**	**NOX**	**CO**	**SO2 lb/day**	**Total PM10**	**Total PM2.5**
Demo + Parking Provisions - 2027	0.86	6.76	18.68	0.029	1.50	0.42
Unsuitable Material Replacement - 2027	0.50	3.41	20.17	0.034	2.89	1.45
Relocate Utilities - 2027	0.19	1.80	2.93	0.004	0.05	0.05
Construct Temp Bridge - Grading - 2027	0.50	3.41	20.17	0.034	2.88	1.44
Construct Temp Bridge - BC - 2027	0.50	4.08	8.87	0.015	0.22	0.20
Construct Temp Bridge - Paving - 2027	0.46	3.28	13.74	0.022	0.14	0.13
Visitor Services - Site Preparation - 2027	0.15	1.27	5.87	0.008	0.25	0.06
Visitor Services - Grading - 2027	0.28	1.94	12.60	0.021	2.83	1.40
Visitor Services - Building Construction - 2027	0.42	3.71	10.77	0.017	0.13	0.12
Visitor Services - Paving - 2027	0.83	4.98	6.25	0.010	0.20	0.19
Visitor Services - Architectural Coating - 2027	8.61	1.11	1.50	0.002	0.03	0.02
NB Road/Bridge - Demo - 2028	0.27	2.57	3.95	0.005	0.22	0.08
NB Road/Bridge - Grading - 2028	0.49	3.37	20.18	0.034	2.88	1.44
NB Road/Bridge - BC - 2028	0.48	3.88	8.85	0.015	0.19	0.18
NB Road/Bridge - Paving - 2028	0.59	3.20	13.74	0.022	0.13	0.12
SB Road/Bridge - Demo - 2029	0.27	2.53	3.96	0.005	0.22	0.08
SB Road/Bridge - Grading - 2029	0.49	3.34	20.18	0.034	2.88	1.44
SB Road/Bridge - BC - 2029	0.47	3.76	8.85	0.015	0.18	0.17
SB Road/Bridge - Paving - 2029	0.58	3.14	13.74	0.022	0.13	0.12
Demo Temp Bridge - 2030	0.25	2.51	3.94	0.005	0.16	0.07
Construct DBH Facilities - 2030	0.45	3.68	8.84	0.015	0.17	0.16
Lagoon Grading - 2030	0.26	1.73	11.52	0.019	0.29	0.08
Restore Beach Area - 2030	0.14	1.20	5.88	0.008	0.24	0.05
Seepage Pit - 2030	0.21	1.68	5.40	0.008	0.26	0.07
Sewer Connection - 2031	0.48	3.59	20.17	0.034	2.86	1.43
Overlapping Phases						
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + 'Visitor Services - Site Preparation - 2027	1.50	11.44	44.73	0.071	4.64	1.93
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + 'Visitor Services - Grading - 2027	1.63	12.11	51.46	0.084	7.22	3.27
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + 'Visitor Services - Building Construction - 2027	1.77	13.89	49.62	0.080	4.53	1.99
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + 'Relocate Utilities - 2027 + Visitor Services - Building Construction - 2027	1.96	15.69	52.55	0.084	4.58	2.04
Relocate Utilities - 2027 + Visitor Services - Building Construction - 2027 + 'Visitor Services - Paving - 2027 + Visitor Services - Architectural Coating - 2027	10.05	11.61	21.45	0.034	0.41	0.38
Relocate Utilities - 2027 + Construct Temp Bridge - Grading - 2027	0.69	5.21	23.10	0.038	2.93	1.49
Relocate Utilities - 2027 + Construct Temp Bridge - BC - 2027	0.69	5.88	11.80	0.019	0.27	0.25
Seepage Pit - Overlap	10.26	17.37	57.95	0.092	7.48	3.34
Project Daily Maximum Emissions	**10.26**	**17.37**	**57.95**	**0.092**	**7.48**	**3.34**
SCAQMD Localized Significance Thresholds		**221.0**	**1531.0**		**13.0**	**6.0**
Exceeds Thresholds?		**No**	**No**		**No**	**No**

Demo, Temporary Bridge, Lagoon Excavation, and DBH Facilities

Air Quality Construction Analysis

Mitigated Emissions

Regional Maximums Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
						lb/day				
Demo + Parking Provisions - 2027	1.22	22.42	26.50	0.154	5.47	0.46	5.93	1.31	0.43	1.74
Unsuitable Material Replacement - 2027	1.39	46.79	39.98	0.365	13.24	0.66	13.89	4.12	0.63	4.75
Relocate Utilities - 2027	0.31	2.25	4.82	0.011	0.58	0.06	0.64	0.15	0.05	0.20
Construct Temp Bridge - Grading - 2027	0.67	6.09	23.13	0.057	3.82	0.15	3.97	1.61	0.14	1.75
Construct Temp Bridge - BC - 2027	0.63	4.85	10.91	0.024	0.65	0.23	0.88	0.16	0.21	0.38
Construct Temp Bridge - Paving - 2027	0.58	3.41	15.48	0.027	0.52	0.15	0.66	0.13	0.14	0.27
Demo Temp Bridge - 2030	0.35	2.61	5.41	0.010	0.63	0.06	0.68	0.15	0.05	0.20
Construct DBH Facilities - 2030	0.55	3.77	10.31	0.020	0.52	0.17	0.69	0.13	0.16	0.29
Lagoon Grading - 2030	2.06	74.01	48.90	0.549	17.71	0.94	18.66	4.68	0.90	5.59
Restore Beach Area - 2030	0.24	1.29	7.35	0.012	0.72	0.03	0.76	0.15	0.03	0.18

Overlapping Phases

	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027	2.60	69.22	66.48	0.520	18.71	1.11	19.82	5.43	1.06	6.49
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + Relocate Utilities - 2027	2.91	71.46	71.30	0.530	19.30	1.17	20.47	5.57	1.11	6.68
Relocate Utilities - 2027 + Construct Temp Bridge - Grading - 2027	0.98	8.34	27.95	0.068	4.41	0.20	4.61	1.76	0.19	1.95
Project Daily Maximum Emissions	**2.91**	**74.01**	**71.30**	**0.549**	**19.30**	**1.17**	**20.47**	**5.57**	**1.11**	**6.68**

Localized Maximum Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
						lb/day				
Demo + Parking Provisions - 2027	0.86	6.76	18.68	0.029	1.25	0.25	1.50	0.19	0.23	0.42
Unsuitable Material Replacement - 2027	0.50	3.41	20.17	0.034	2.78	0.11	2.89	1.34	0.11	1.45
Relocate Utilities - 2027	0.19	1.80	2.93	0.004	0.00	0.05	0.05	0.00	0.05	0.05
Construct Temp Bridge - Grading - 2027	0.50	3.41	20.17	0.034	2.76	0.11	2.88	1.34	0.11	1.44
Construct Temp Bridge - BC - 2027	0.50	4.08	8.87	0.015	0.00	0.22	0.22	0.00	0.20	0.20
Construct Temp Bridge - Paving - 2027	0.46	3.28	13.74	0.022	0.00	0.14	0.14	0.00	0.13	0.13
Demo Temp Bridge - 2030	0.25	2.51	3.94	0.005	0.11	0.05	0.16	0.02	0.05	0.07
Construct DBH Facilities - 2030	0.45	3.68	8.84	0.015	0.00	0.17	0.17	0.00	0.16	0.16
Lagoon Grading - 2030	0.26	1.73	11.52	0.019	0.23	0.05	0.29	0.03	0.05	0.08
Restore Beach Area - 2030	0.14	1.20	5.88	0.008	0.21	0.03	0.24	0.02	0.03	0.05

Overlapping Phases

Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027	2.07	16.48	52.80	0.085	0.55	0.67	1.22	0.07	0.63	0.69
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + Relocate Utilities - 2027	1.57	12.39	43.93	0.070	0.55	0.45	1.00	0.07	0.42	0.49
Relocate Utilities - 2027 + Construct Temp Bridge - Grading - 2027	1.10	9.11	30.18	0.047	0.55	0.31	0.86	0.07	0.29	0.35
Project Daily Maximum Emissions	**2.07**	**16.48**	**52.80**	**0.085**	**2.78**	**0.67**	**2.89**	**1.34**	**0.63**	**1.45**

Demo, Temporary Bridge, Lagoon Excavation, and DBH Facilities

Air Quality Construction Analysis

Mitigated Emissions

Summer	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
Demo + Parking Provisions - 2027	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Unsuitable Material Replacement - 2027	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Relocate Utilities - 2027	0.19	1.80	2.93	0.0040	0.00	0.05	0.05	0.00	0.05	0.05	0.12	0.44	1.89	0.007	0.58	0.01	0.59	0.15	0.01	0.15
Construct Temp Bridge - Grading - 2027	0.50	3.41	20.17	0.0343	2.76	0.11	2.88	1.34	0.11	1.44	0.17	2.69	2.96	0.023	1.06	0.03	1.09	0.27	0.03	0.30
Construct Temp Bridge - BC - 2027	0.50	4.08	8.87	0.0152	0.00	0.22	0.22	0.00	0.20	0.20	0.13	0.76	2.04	0.009	0.65	0.01	0.66	0.16	0.01	0.17
Construct Temp Bridge - Paving - 2027	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Demo Temp Bridge - 2030	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Construct DBH Facilities - 2030	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Lagoon Grading - 2030	0.26	1.73	11.52	0.0189	0.23	0.05	0.29	0.03	0.05	0.08	1.80	72.28	37.37	0.531	17.48	0.89	18.37	4.66	0.85	5.51
Restore Beach Area - 2030	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Demo + Parking Provisions - 2027	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00
Unsuitable Material Replacement - 2027	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00
Relocate Utilities - 2027	0.31	2.25	4.82	0.0109	0.58	0.06	0.64	0.15	0.05	0.20
Construct Temp Bridge - Grading - 2027	0.67	6.09	23.13	0.0570	3.82	0.15	3.97	1.61	0.14	1.75
Construct Temp Bridge - BC - 2027	0.63	4.85	10.91	0.0244	0.65	0.23	0.88	0.16	0.21	0.38
Construct Temp Bridge - Paving - 2027	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00
Demo Temp Bridge - 2030	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00
Construct DBH Facilities - 2030	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00
Lagoon Grading - 2030	2.06	74.01	48.90	0.5494	17.71	0.94	18.66	4.68	0.90	5.59
Restore Beach Area - 2030	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00

Note: Offsite emissions pasted over from EMFAC2021 analysis

Overlapping Phases

	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + Relocate Utilities - 2027	0.31	2.25	4.82	0.011	0.58	0.06	0.64	0.15	0.05	0.20
Relocate Utilities - 2027 + Construct Temp Bridge - Grading - 2027	0.98	8.34	27.95	0.068	4.41	0.20	4.61	1.76	0.19	1.95
Project Daily Maximum Emissions	**2.06**	**74.01**	**48.90**	**0.549**	**17.71**	**0.94**	**18.66**	**4.68**	**0.90**	**5.59**

Demo, Temporary Bridge, Lagoon Excavation, and DBH Facilities

Air Quality Construction Analysis

Mitigated Emissions

Winter	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
Demo + Parking Provisions - 2027	0.86	6.76	18.68	0.029	1.25	0.25	1.50	0.19	0.23	0.42	0.36	15.66	7.81	0.125	4.22	0.20	4.43	1.12	0.20	1.31
Unsuitable Material Replacement - 2027	0.50	3.41	20.17	0.034	2.78	0.11	2.89	1.34	0.11	1.45	0.89	43.38	19.81	0.331	10.46	0.54	11.00	2.78	0.52	3.30
Relocate Utilities - 2027	0.19	1.80	2.93	0.004	0.00	0.05	0.05	0.00	0.05	0.05	0.12	0.44	1.89	0.007	0.58	0.01	0.59	0.15	0.01	0.15
Construct Temp Bridge - Grading - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Construct Temp Bridge - BC - 2027	0.50	4.08	8.87	0.015	0.00	0.22	0.22	0.00	0.20	0.20	0.13	0.76	2.04	0.009	0.65	0.01	0.66	0.16	0.01	0.17
Construct Temp Bridge - Paving - 2027	0.46	3.28	13.74	0.022	0.00	0.14	0.14	0.00	0.13	0.13	0.12	0.12	1.74	0.005	0.52	0.00	0.52	0.13	0.00	0.13
Demo Temp Bridge - 2030	0.25	2.51	3.94	0.005	0.11	0.05	0.16	0.02	0.05	0.07	0.10	0.10	1.47	0.004	0.52	0.00	0.52	0.13	0.00	0.13
Construct DBH Facilities - 2030	0.45	3.68	8.84	0.015	0.00	0.17	0.17	0.00	0.16	0.16	0.10	0.10	1.47	0.004	0.52	0.00	0.52	0.13	0.00	0.13
Lagoon Grading - 2030	0.26	1.73	11.52	0.019	0.23	0.05	0.29	0.03	0.05	0.08	1.80	72.28	37.37	0.531	17.48	0.89	18.37	4.66	0.85	5.51
Restore Beach Area - 2030	0.14	1.20	5.88	0.008	0.21	0.03	0.24	0.02	0.03	0.05	0.10	0.10	1.47	0.004	0.52	0.00	0.52	0.13	0.00	0.13

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Demo + Parking Provisions - 2027	1.22	22.42	26.50	0.154	5.47	0.46	5.93	1.31	0.43	1.74
Unsuitable Material Replacement - 2027	1.39	46.79	39.98	0.365	13.24	0.66	13.89	4.12	0.63	4.75
Relocate Utilities - 2027	0.31	2.25	4.82	0.011	0.58	0.06	0.64	0.15	0.05	0.20
Construct Temp Bridge - Grading - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Construct Temp Bridge - BC - 2027	0.63	4.85	10.91	0.024	0.65	0.23	0.88	0.16	0.21	0.38
Construct Temp Bridge - Paving - 2027	0.58	3.41	15.48	0.027	0.52	0.15	0.66	0.13	0.14	0.27
Demo Temp Bridge - 2030	0.35	2.61	5.41	0.010	0.63	0.06	0.68	0.15	0.05	0.20
Construct DBH Facilities - 2030	0.55	3.77	10.31	0.020	0.52	0.17	0.69	0.13	0.16	0.29
Lagoon Grading - 2030	2.06	74.01	48.90	0.549	17.71	0.94	18.66	4.68	0.90	5.59
Restore Beach Area - 2030	0.24	1.29	7.35	0.012	0.72	0.03	0.76	0.15	0.03	0.18

Note: Offsite emissions pasted over from EMFAC2021 analysis

Overlapping Phases	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027	2.60	69.22	66.48	0.520	18.71	1.11	19.82	5.43	1.06	6.49
Demo + Parking Provisions - 2027 + Unsuitable Material Replacement - 2027 + Relocate Utilities - 2027	2.91	71.46	71.30	0.530	19.30	1.17	20.47	5.57	1.11	6.68
Relocate Utilities - 2027 + Construct Temp Bridge - Grading - 2027	0.31	2.25	4.82	0.011	0.58	0.06	0.64	0.15	0.05	0.20
Project Daily Maximum Emissions	**2.91**	**74.01**	**71.30**	**0.549**	**19.30**	**1.17**	**20.47**	**5.57**	**1.11**	**6.68**

NB-SB Bridge Construction

Air Quality Construction Analysis

Mitigated Emissions

Regional Maximums Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
					lb/day					
NB Road/Bridge - Demo - 2028	0.41	3.92	6.19	0.019	0.94	0.08	1.03	0.22	0.08	0.30
NB Road/Bridge - Grading - 2028	1.07	22.36	31.54	0.169	7.23	0.32	7.56	2.52	0.31	2.83
NB Road/Bridge - BC - 2028	0.61	4.92	10.94	0.026	0.72	0.21	0.93	0.18	0.19	0.38
NB Road/Bridge - Paving - 2028	0.69	3.32	15.38	0.027	0.52	0.13	0.65	0.13	0.13	0.26
SB Road/Bridge - Demo - 2029	0.40	3.83	6.09	0.018	0.95	0.08	1.02	0.22	0.07	0.30
SB Road/Bridge - Grading - 2029	1.04	21.06	30.97	0.161	7.10	0.31	7.41	2.48	0.30	2.78
SB Road/Bridge - BC - 2029	0.59	4.76	10.84	0.026	0.72	0.19	0.91	0.18	0.18	0.36
SB Road/Bridge - Paving - 2029	0.68	3.24	15.29	0.027	0.52	0.13	0.65	0.13	0.12	0.25
Project Daily Maximum Emissions	**1.07**	**22.36**	**31.54**	**0.169**	**7.23**	**0.32**	**7.56**	**2.52**	**0.31**	**2.83**

Localized Maximum Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
					lb/day					
NB Road/Bridge - Demo - 2028	0.27	2.57	3.95	0.005	0.16	0.07	0.22	0.02	0.06	0.08
NB Road/Bridge - Grading - 2028	0.49	3.37	20.18	0.034	2.77	0.11	2.88	1.34	0.10	1.44
NB Road/Bridge - BC - 2028	0.48	3.88	8.85	0.015	0.00	0.19	0.19	0.00	0.18	0.18
NB Road/Bridge - Paving - 2028	0.59	3.20	13.74	0.022	0.00	0.13	0.13	0.00	0.12	0.12
SB Road/Bridge - Demo - 2029	0.27	2.53	3.96	0.005	0.16	0.06	0.22	0.02	0.05	0.08
SB Road/Bridge - Grading - 2029	0.49	3.34	20.18	0.034	2.77	0.10	2.88	1.34	0.10	1.44
SB Road/Bridge - BC - 2029	0.47	3.76	8.85	0.015	0.00	0.18	0.18	0.00	0.17	0.17
SB Road/Bridge - Paving - 2029	0.58	3.14	13.74	0.022	0.00	0.13	0.13	0.00	0.12	0.12
Project Daily Maximum Emissions	**0.59**	**3.88**	**20.18**	**0.034**	**2.77**	**0.19**	**2.88**	**1.34**	**0.18**	**1.44**

NB-SB Bridge Construction

Air Quality Construction Analysis

Mitigated Emissions

Summer	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
NB Road/Bridge - Demo - 2028	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
NB Road/Bridge - Grading - 2028	0.49	3.37	20.18	0.034	2.77	0.11	2.88	1.34	0.10	1.44	0.58	18.99	11.36	0.134	4.46	0.22	4.67	1.18	0.21	1.39
NB Road/Bridge - BC - 2028	0.48	3.88	8.85	0.015	0.00	0.19	0.19	0.00	0.18	0.18	0.13	1.04	2.09	0.011	0.72	0.01	0.73	0.18	0.01	0.20
NB Road/Bridge - Paving - 2028	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
SB Road/Bridge - Demo - 2029	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
SB Road/Bridge - Grading - 2029	0.49	3.34	20.18	0.034	2.77	0.10	2.88	1.34	0.10	1.44	0.55	17.72	10.79	0.127	4.32	0.21	4.53	1.14	0.20	1.34
SB Road/Bridge - BC - 2029	0.47	3.76	8.85	0.015	0.00	0.18	0.18	0.00	0.17	0.17	0.12	1.00	1.99	0.011	0.72	0.01	0.73	0.18	0.01	0.20
SB Road/Bridge - Paving - 2029	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
NB Road/Bridge - Demo - 2028	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
NB Road/Bridge - Grading - 2028	1.07	22.36	31.54	0.169	7.23	0.32	7.56	2.52	0.31	2.83
NB Road/Bridge - BC - 2028	0.61	4.92	10.94	0.026	0.72	0.21	0.93	0.18	0.19	0.38
NB Road/Bridge - Paving - 2028	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
SB Road/Bridge - Demo - 2029	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
SB Road/Bridge - Grading - 2029	1.04	21.06	30.97	0.161	7.10	0.31	7.41	2.48	0.30	2.78
SB Road/Bridge - BC - 2029	0.59	4.76	10.84	0.026	0.72	0.19	0.91	0.18	0.18	0.36
SB Road/Bridge - Paving - 2029	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Project Daily Maximum Emissions	**1.07**	**22.36**	**31.54**	**0.169**	**7.23**	**0.32**	**7.56**	**2.52**	**0.31**	**2.83**

Note: Offsite emissions pasted over from EMFAC2021 analysis

NB-SB Bridge Construction

Air Quality Construction Analysis

Mitigated Emissions

Winter	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
NB Road/Bridge - Demo - 2028	0.27	2.57	3.95	0.005	0.16	0.07	0.22	0.02	0.06	0.08	0.14	1.35	2.24	0.013	0.79	0.02	0.80	0.20	0.02	0.22
NB Road/Bridge - Grading - 2028	0.49	3.37	20.18	0.034	2.77	0.11	2.88	1.34	0.10	1.44	0.58	18.99	11.36	0.134	4.46	0.22	4.67	1.18	0.21	1.39
NB Road/Bridge - BC - 2028	0.48	3.88	8.85	0.015	0.00	0.19	0.19	0.00	0.18	0.18	0.13	1.04	2.09	0.011	0.72	0.01	0.73	0.18	0.01	0.20
NB Road/Bridge - Paving - 2028	0.59	3.20	13.74	0.022	0.00	0.13	0.13	0.00	0.12	0.12	0.11	0.11	1.64	0.005	0.52	0.00	0.52	0.13	0.00	0.13
SB Road/Bridge - Demo - 2029	0.27	2.53	3.96	0.005	0.16	0.06	0.22	0.02	0.05	0.08	0.13	1.30	2.14	0.013	0.79	0.02	0.80	0.20	0.02	0.22
SB Road/Bridge - Grading - 2029	0.49	3.34	20.18	0.034	2.77	0.10	2.88	1.34	0.10	1.44	0.55	17.72	10.79	0.127	4.32	0.21	4.53	1.14	0.20	1.34
SB Road/Bridge - BC - 2029	0.47	3.76	8.85	0.015	0.00	0.18	0.18	0.00	0.17	0.17	0.12	1.00	1.99	0.011	0.72	0.01	0.73	0.18	0.01	0.20
SB Road/Bridge - Paving - 2029	0.58	3.14	13.74	0.022	0.00	0.13	0.13	0.00	0.12	0.12	0.10	0.10	1.55	0.004	0.52	0.00	0.52	0.13	0.00	0.13

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
NB Road/Bridge - Demo - 2028	0.41	3.92	6.19	0.019	0.94	0.08	1.03	0.22	0.08	0.30
NB Road/Bridge - Grading - 2028	1.07	22.36	31.54	0.169	7.23	0.32	7.56	2.52	0.31	2.83
NB Road/Bridge - BC - 2028	0.61	4.92	10.94	0.026	0.72	0.21	0.93	0.18	0.19	0.38
NB Road/Bridge - Paving - 2028	0.69	3.32	15.38	0.027	0.52	0.13	0.65	0.13	0.13	0.26
SB Road/Bridge - Demo - 2029	0.40	3.83	6.09	0.018	0.95	0.08	1.02	0.22	0.07	0.30
SB Road/Bridge - Grading - 2029	1.04	21.06	30.97	0.161	7.10	0.31	7.41	2.48	0.30	2.78
SB Road/Bridge - BC - 2029	0.59	4.76	10.84	0.026	0.72	0.19	0.91	0.18	0.18	0.36
SB Road/Bridge - Paving - 2029	0.68	3.24	15.29	0.027	0.52	0.13	0.65	0.13	0.12	0.25
Project Daily Maximum Emissions	**1.07**	**22.36**	**31.54**	**0.169**	**7.23**	**0.32**	**7.56**	**2.52**	**0.31**	**2.83**

Note: Offsite emissions pasted over from EMFAC2021 analysis

Visitor Services Construction

Air Quality Construction Analysis

Mitigated Emissions

Regional Maximums Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
					lb/day					
Site Preparation - 2027	0.18	1.30	6.31	0.009	0.34	0.04	0.38	0.05	0.04	0.09
Grading - 2027	0.33	1.99	13.30	0.023	2.97	0.07	3.04	1.39	0.07	1.45
Building Construction - 2027	0.47	4.11	11.64	0.021	0.23	0.13	0.37	0.06	0.13	0.18
Paving - 2027	0.94	5.09	7.82	0.014	0.47	0.20	0.67	0.12	0.19	0.30
Architectural Coating - 2027	8.61	1.11	1.59	0.003	0.03	0.03	0.05	0.01	0.02	0.03
Overlapping Phases										
	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Building Construction - 2027 + Paving - 2027 + Architectural Coating - 2027	10.02	10.32	21.04	0.038	0.72	0.36	1.09	0.18	0.34	0.52
Project Daily Maximum Emissions	**10.02**	**10.32**	**21.04**	**0.038**	**2.97**	**0.36**	**3.04**	**1.39**	**0.34**	**1.45**

Localized Maximum Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
					lb/day					
Site Preparation - 2027	0.15	1.27	5.87	0.008	0.21	0.04	0.25	0.02	0.04	0.06
Grading - 2027	0.28	1.94	12.60	0.021	2.76	0.07	2.83	1.34	0.06	1.40
Building Construction - 2027	0.42	3.71	10.77	0.017	0.00	0.13	0.13	0.00	0.12	0.12
Paving - 2027	0.83	4.98	6.25	0.010	0.00	0.20	0.20	0.00	0.19	0.19
Architectural Coating - 2027	8.61	1.11	1.50	0.002	0.00	0.03	0.03	0.00	0.02	0.02
Overlapping Phases										
Building Construction - 2027 + Paving - 2027 + Architectural Coating - 2027	9.86	9.81	18.52	0.030	0.00	0.36	0.36	0.00	0.33	0.33
Project Daily Maximum Emissions	**9.86**	**9.81**	**18.52**	**0.030**	**2.76**	**0.36**	**2.83**	**1.34**	**0.33**	**1.40**

Visitor Services Construction

Air Quality Construction Analysis

Mitigated Emissions

Summer	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
Site Preparation - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Grading - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction - 2027	0.42	3.71	10.77	0.017	0.00	0.13	0.13	0.00	0.12	0.12	0.05	0.40	0.87	0.004	0.23	0.00	0.24	0.06	0.00	0.06
Paving - 2027	0.83	4.98	6.25	0.010	0.00	0.20	0.20	0.00	0.19	0.19	0.10	0.11	1.56	0.004	0.47	0.00	0.47	0.12	0.00	0.12
Architectural Coating - 2027	8.61	1.11	1.50	0.002	0.00	0.03	0.03	0.00	0.02	0.02	0.01	0.01	0.09	0.000	0.03	0.00	0.03	0.01	0.00	0.01

Note: Offsite emissions pasted over from EMFAC2021 analysis

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Site Preparation - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Grading - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction - 2027	0.47	4.11	11.64	0.021	0.23	0.13	0.37	0.06	0.13	0.18
Paving - 2027	0.94	5.09	7.82	0.014	0.47	0.20	0.67	0.12	0.19	0.30
Architectural Coating - 2027	8.61	1.11	1.59	0.003	0.03	0.03	0.05	0.01	0.02	0.03

Overlapping Phases										
	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Building Construction - 2027 + Paving - 2027 + Architectural Coating - 2027	10.02	10.32	21.04	0.038	0.72	0.36	1.09	0.18	0.34	0.52
Project Daily Maximum Emissions	**10.02**	**10.32**	**21.04**	**0.038**	**0.72**	**0.36**	**1.09**	**0.18**	**0.34**	**0.52**

Visitor Services Construction

Air Quality Construction Analysis

Mitigated Emissions

Winter	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
Site Preparation - 2027	0.15	1.27	5.87	0.008	0.21	0.04	0.25	0.02	0.04	0.06	0.03	0.03	0.43	0.001	0.13	0.00	0.13	0.03	0.00	0.03
Grading - 2027	0.28	1.94	12.60	0.021	2.76	0.07	2.83	1.34	0.06	1.40	0.05	0.05	0.70	0.002	0.21	0.00	0.21	0.05	0.00	0.05
Building Construction - 2027	0.42	3.71	10.77	0.017	0.00	0.13	0.13	0.00	0.12	0.12	0.05	0.40	0.87	0.004	0.23	0.00	0.24	0.06	0.00	0.06
Paving - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00

Note: Offsite emissions pasted over from EMFAC2021 analysis

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Site Preparation - 2027	0.18	1.30	6.31	0.009	0.34	0.04	0.38	0.05	0.04	0.09
Grading - 2027	0.33	1.99	13.30	0.023	2.97	0.07	3.04	1.39	0.07	1.45
Building Construction - 2027	0.47	4.11	11.64	0.021	0.23	0.13	0.37	0.06	0.13	0.18
Paving - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating - 2027	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00

Overlapping Phases										
	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Building Construction - 2027 + Paving - 2027 + Architectural Coating - 2027	0.47	4.11	11.64	0.021	0.23	0.13	0.37	0.06	0.13	0.18
Project Daily Maximum Emissions	**0.47**	**4.11**	**13.30**	**0.023**	**2.97**	**0.13**	**3.04**	**1.39**	**0.13**	**1.45**

N.2-2 Project Construction Air Quality Mobile Emissions

Topanga Canyon - Temporary Bridge
Total Emissions

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Idling per Day (minutes)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10 Dust	PM10 Exh	Total PM10	PM2.5 Dust	PM2.5 Exh	Total PM2.5	(MT/yr) Total CO2e
Demolition &Temp Parking Provisions	2027	Export	SCAB													
Total Haul Trips	2,162															
Hauling	52	42	8	77	15	0.25	15.54	6.08	0.12	3.70	0.20	3.91	0.99	0.19	1.18	263.27
Vendor	0	60	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.90
					Total	0.36	15.66	7.81	0.13	4.22	0.20	4.43	1.12	0.20	1.31	276.16
Unsuitable Material Replacement	2027	Export	SCAB		Workers+Vendors	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	5,200															
Hauling	124	42	8	77	15	0.59	37.05	14.49	0.29	8.83	0.48	9.31	2.36	0.46	2.82	633.20
Vendor	0	60	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.90
					Total	0.70	37.17	16.23	0.29	9.35	0.48	9.83	2.49	0.46	2.95	646.10
Relocate Utilities	2027				Workers+Vendors	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	260															
Hauling	2	130	8	36.5	15	0.01	0.32	0.15	0.00	0.07	0.00	0.07	0.02	0.00	0.02	15.41
Vendor	0	182	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	182	8	18.5	0	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	39.12
					Total	0.12	0.44	1.89	0.01	0.58	0.01	0.59	0.15	0.01	0.15	54.53
Construct Temporary Road/Bridge	2027	Grading/Excavation			Workers+Vendors	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	320															
Hauling	16	22	8	36.5	15	0.06	2.56	1.22	0.02	0.54	0.03	0.57	0.14	0.03	0.17	18.97
Vendor	0	30	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	30	8	18.5	0	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.45
					Total	0.17	2.69	2.96	0.02	1.06	0.03	1.09	0.27	0.03	0.30	25.41
Construct Temporary Road/Bridge	2027	Building Construction			Workers+Vendors	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	208															
Hauling	4	88	8	36.5	15	0.01	0.64	0.31	0.00	0.14	0.01	0.14	0.04	0.01	0.04	12.33
Vendor	0	124	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	124	8	18.5	0	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	26.65
					Total	0.13	0.76	2.04	0.01	0.65	0.01	0.66	0.16	0.01	0.17	38.98
Construct Temporary Road/Bridge	2027	Paving			Workers+Vendors	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	44	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	60	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.90
					Total	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.90
Demolition Temporary Bridge	2030				Workers+Vendors	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	43	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	11.91
					Total	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	11.91
Construct DBH Facilities(Lifeguard HQ/Helipad)	2030				Workers+Vendors	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	21	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.26
					Total	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.26
Lagoon Grading	2030				Workers+Vendors	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	51,200															
Hauling	502	102	8	36.5	15	1.70	72.19	35.91	0.53	16.96	0.89	17.85	4.53	0.85	5.38	2820.96
Vendor	0	214	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	43.18
					Total	1.80	72.28	37.37	0.53	17.48	0.89	18.37	4.66	0.85	5.51	2864.15
Restore Beach Area	2030				Workers+Vendors	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	43	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	61	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.31
					Total	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.31
Unsuitable Material Replacement	2027	Export	SJVAB		Workers+Vendors	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	5200															
Hauling	124	42	8	106	15	0.69	49.36	18.10	0.39	12.16	0.66	12.82	3.24	0.63	3.88	865.92
Vendor	0	60	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Total	0.69	49.36	18.10	0.39	12.16	0.66	12.82	3.24	0.63	3.88	865.92
Unsuitable Material Replacement	2027	Import			Workers+Vendors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total Haul Trips	2520															
Hauling	60	42	8	20	15	0.19	6.21	3.58	0.04	1.11	0.06	1.17	0.30	0.06	0.35	85.19
Vendor	0	60	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Total	0.19	6.21	3.58	0.04	1.11	0.06	1.17	0.30	0.06	0.35	85.19
Demolition &Temp Parking Provisions	2027	Export	SJVAB		Workers+Vendors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total Haul Trips	2,162															
Hauling	52	42	8	106	15	0.29	20.70	7.59	0.17	5.10	0.28	5.38	1.36	0.27	1.63	360.02
Vendor	0	60	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Total	0.29	20.70	7.59	0.17	5.10	0.28	5.38	1.36	0.27	1.63	360.02
					Workers+Vendors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Topanga Canyon - Temporary Bridge
Running Emissions

		Running Emissions Factor (grams/mile)						Running Emissions Factor (grams/mile)		
		ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX
2027	2027Hauling Hauling	0.013128	1.553518611	0.45473657	0.01336714	0.02273486	0.02174732	1471.80075	0.0608523	0.23462364
2027	2027Vendor Vendor	0.01570588	1.102331968	0.36327753	0.01214871	0.01475662	0.01411185	1311.1435	0.03509759	0.18307889
2027	2027Worker Worker	0.01447264	0.062492418	0.90233334	0.00281062	0.00150729	0.0013867	284.320587	0.00354266	0.00566149
2028	2028Hauling Hauling	0.01261339	1.493718015	0.43877031	0.01305596	0.02247317	0.02149714	1438.29866	0.05768159	0.22931835
2028	2028Vendor Vendor	0.01417298	1.038868065	0.3360531	0.01185313	0.01426835	0.01364491	1280.01295	0.03342244	0.17922194
2028	2028Worker Worker	0.01314756	0.057035459	0.85167037	0.00274948	0.00140448	0.00129194	278.134904	0.00325313	0.00533773
2029	2029Hauling Hauling	0.01213472	1.434866903	0.4224926	0.01273534	0.0221686	0.0212059	1403.60667	0.05465536	0.22381566
2029	2029Vendor Vendor	0.0128196	0.978781777	0.31101237	0.01152628	0.01380314	0.01320005	1245.46404	0.03180989	0.17489835
2029	2029Worker Worker	0.01192021	0.051957034	0.80464317	0.00269297	0.00130724	0.00120239	272.417637	0.00298654	0.00503952
2030	2030Hauling Hauling	0.01169729	1.381905725	0.40596438	0.01241489	0.02183595	0.02088778	1368.72007	0.05170538	0.2182712
2030	2030Vendor Vendor	0.01168751	0.9252091	0.28941545	0.01117412	0.01336285	0.01277903	1208.11234	0.03023265	0.17022289
2030	2030Worker Worker	0.01081241	0.047255061	0.76242747	0.00264062	0.00121547	0.00111789	267.121939	0.00274623	0.00476556
2031	2031Hauling Hauling	0.01126827	1.331771303	0.38663416	0.01209496	0.02148002	0.02054741	1333.31591	0.04842446	0.21262163
2031	2031Vendor Vendor	0.01070694	0.874998281	0.26868024	0.01079467	0.01293916	0.01237394	1167.57711	0.02847022	0.16520071
2031	2031Worker Worker	0.00977403	0.042746598	0.72305591	0.00259298	0.00112929	0.00103861	262.302837	0.0025216	0.00450761
0	GWP	N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day)						Regional Emissions (MT/year)			
					ROG	NOX	CO	SO2	PM10	PM2.5	CO2	CH4	N2O	CO2e
Demolition &Temp Parking	2027													
Total Haul Trips	2162													
Hauling	52	42	8	77	0.12	13.71	4.01	0.12	0.20	0.19	245.02	0.25	11.64	256.91
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.02	0.10	1.47	0.00	0.00	0.00	12.62	0.00	0.07	12.70
Unsuitable Material Replac	2027													
Total Haul Trips	5200													
Hauling	124	42	8	77	0.28	32.70	9.57	0.28	0.48	0.46	589.31	0.61	28.00	617.91
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.02	0.10	1.47	0.00	0.00	0.00	12.62	0.00	0.07	12.70
Relocate Utilities	2027													
Total Haul Trips	260													
Hauling	2	130	8	36.5	0.00	0.25	0.07	0.00	0.00	0.00	13.97	0.01	0.66	14.65
Vendor	0	182	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	182	8	18.5	0.02	0.10	1.47	0.00	0.00	0.00	38.29	0.01	0.23	38.53
Construct Temporary Road/	2027													
Total Haul Trips	320													
Hauling	16	22	8	36.5	0.02	2.00	0.59	0.02	0.03	0.03	17.19	0.02	0.82	18.03
Vendor	0	30	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	30	8	18.5	0.02	0.10	1.47	0.00	0.00	0.00	6.31	0.00	0.04	6.35
Construct Temporary Road/	2027													
Total Haul Trips	208													
Hauling	4	88	8	36.5	0.00	0.50	0.15	0.00	0.01	0.01	11.17	0.01	0.53	11.72
Vendor	0	124	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	124	8	18.5	0.02	0.10	1.47	0.00	0.00	0.00	26.09	0.01	0.15	26.25
Construct Temporary Road/	2027													
Total Haul Trips	0													
Hauling	0	44	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.02	0.10	1.47	0.00	0.00	0.00	12.62	0.00	0.07	12.70
Demolition Temporary Brid	2030													
Total Haul Trips	0													
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.02	0.08	1.24	0.00	0.00	0.00	11.66	0.00	0.06	11.73
Construct DBH Facilities(Life	2030													
Total Haul Trips	0													
Hauling	0	21	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.02	0.08	1.24	0.00	0.00	0.00	6.13	0.00	0.03	6.16
Lagoon Grading	2030													
Total Haul Trips	51200													
Hauling	502	102	8	36.5	0.47	55.82	16.40	0.50	0.88	0.84	2557.86	2.42	121.56	2681.84
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.02	0.08	1.24	0.00	0.00	0.00	42.30	0.01	0.22	42.54
Restore Beach Area	2030													
Total Haul Trips	0													
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.02	0.08	1.24	0.00	0.00	0.00	12.06	0.00	0.06	12.13
Unsuitable Material Replac	2027													
Total Haul Trips	5200													
Hauling	124	42	8	106	0.38	45.02	13.18	0.39	0.66	0.63	811.26	0.84	38.54	850.63
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unsuitable Material Replac	2027													
Total Haul Trips	2520													
Hauling	60	42	8	20	0.03	4.11	1.20	0.04	0.06	0.06	74.18	0.08	3.52	77.78
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition &Temp Parking	2027													
Total Haul Trips	2162													
Hauling	52	42	8	106	0.16	18.88	5.53	0.16	0.28	0.26	337.30	0.35	16.02	353.67
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - Temporary Bridge
Start Emissions

		Start Emissions Factor (grams/trip)						Start Emissions Factor (grams/trip)		
		ROG_STREX	NOX_STREX	CO_STREX	SOx_STREX	PM10_STREX	PM2.5_STREX	CO2_STREX	CH4_STREX	N2O_STREX
2027	2027Hauling Hauling	0.00060894	2.672142352	0.00302137	3.16557E-07	5.30481E-07	4.87758E-07	0.03202066	7.5498E-08	7.36611E-06
2027	2027Vendor Vendor	0.080213538	1.961946447	0.60365405	5.50826E-05	6.07836E-05	5.58883E-05	5.57177064	0.005494835	0.004037678
2027	2027Worker Worker	1.038950633	0.251050817	3.01934346	0.000691936	0.002053348	0.001887978	69.9913431	0.06616369	0.030829475
2028	2028Hauling Hauling	0.000490696	2.636914961	0.00257595	2.71845E-07	4.29594E-07	3.94995E-07	0.02749789	6.56178E-08	5.97594E-06
2028	2028Vendor Vendor	0.075419112	1.927915654	0.55968909	5.22383E-05	5.76932E-05	5.30468E-05	5.28405692	0.005169504	0.003780947
2028	2028Worker Worker	0.997046953	0.239560346	2.85187017	0.000675557	0.001941969	0.001785569	68.3345653	0.062483886	0.030029939
2029	2029Hauling Hauling	0.000383539	2.591170334	0.00214107	2.33546E-07	3.28727E-07	3.02252E-07	0.02362391	5.62127E-08	4.65545E-06
2029	2029Vendor Vendor	0.069289941	1.883995908	0.51714657	4.94212E-05	5.46034E-05	5.02058E-05	4.99909929	0.004852786	0.003548842
2029	2029Worker Worker	0.945798618	0.229251267	2.69630558	0.000660221	0.001832244	0.00168468	66.7833	0.059077063	0.029313823
2030	2030Hauling Hauling	0.00027279	2.546881303	0.00161285	1.92445E-07	2.06187E-07	1.89581E-07	0.01946637	4.71315E-08	4.0595E-06
2030	2030Vendor Vendor	0.063656597	1.839529651	0.47865041	4.67001E-05	5.18671E-05	4.76899E-05	4.72385215	0.004565454	0.003322989
2030	2030Worker Worker	0.901632052	0.219772527	2.55165593	0.00064583	0.001725708	0.001586724	65.3276344	0.055883281	0.028658371
2031	2031Hauling Hauling	0.000210057	2.503276097	0.00139863	1.66951E-07	1.58801E-07	1.46012E-07	0.01688763	4.13015E-08	2.64568E-06
2031	2031Vendor Vendor	0.059141215	1.792713918	0.44197461	4.38654E-05	4.91716E-05	4.52115E-05	4.43711805	0.004280254	0.003105544
2031	2031Worker Worker	0.857879142	0.211029605	2.41545051	0.000632455	0.001621689	0.001491083	63.974738	0.052892816	0.028060877
	GWP		N/A					1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Demolition &Temp Parking	2027													
Total Haul Trips	2162													
Hauling	52	42	8	77	0.00	0.31	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.16
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.09	0.02	0.27	0.00	0.00	0.00	0.17	0.00	0.00	0.19
Unsuitable Material Replac	2027													
Total Haul Trips	5200													
Hauling	124	42	8	77	0.00	0.73	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.39
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.09	0.02	0.27	0.00	0.00	0.00	0.17	0.00	0.00	0.19
Relocate Utilities	2027													
Total Haul Trips	260													
Hauling	2	130	8	36.5	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02
Vendor	0	182	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	182	8	18.5	0.09	0.02	0.27	0.00	0.00	0.00	0.51	0.00	0.00	0.59
Construct Temporary Road/	2027													
Total Haul Trips	320													
Hauling	16	22	8	36.5	0.00	0.09	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02
Vendor	0	30	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	30	8	18.5	0.09	0.02	0.27	0.00	0.00	0.00	0.08	0.00	0.00	0.10
Construct Temporary Road/	2027													
Total Haul Trips	208													
Hauling	4	88	8	36.5	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.02
Vendor	0	124	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	124	8	18.5	0.09	0.02	0.27	0.00	0.00	0.00	0.35	0.00	0.00	0.40
Construct Temporary Road/	2027													
Total Haul Trips	0													
Hauling	0	44	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.09	0.02	0.27	0.00	0.00	0.00	0.17	0.00	0.00	0.19
Demolition Temporary Brid	2030													
Total Haul Trips	0													
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.08	0.02	0.23	0.00	0.00	0.00	0.15	0.00	0.00	0.18
Construct DBH Facilities(Life	2030													
Total Haul Trips	0													
Hauling	0	21	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.08	0.02	0.23	0.00	0.00	0.00	0.08	0.00	0.00	0.09
Lagoon Grading	2030													
Total Haul Trips	51200													
Hauling	502	102	8	36.5	0.00	2.82	0.00	0.00	0.00	0.00	2.20	0.00	0.00	2.33
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.08	0.02	0.23	0.00	0.00	0.00	0.56	0.00	0.00	0.64
Restore Beach Area	2030													
Total Haul Trips	0													
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.08	0.02	0.23	0.00	0.00	0.00	0.16	0.00	0.00	0.18
Unsuitable Material Replac	2027													
Total Haul Trips	5200													
Hauling	124	42	8	106	0.00	0.73	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.39
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unsuitable Material Replac	2027													
Total Haul Trips	2520													
Hauling	60	42	8	20	0.00	0.35	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.19
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition &Temp Parking	2027													
Total Haul Trips	2162													
Hauling	52	42	8	106	0.00	0.31	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.16
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - Temporary Bridge
Idling Emissions

		Idling Emissions Factor (grams/minute)						Idling Emissions Factor (grams/minute)		
		ROG_IDLEX	NOx_IDLEX	CO_IDLEX	SOx_IDLEX	PM10_IDLEX	PM2.5_IDLEX	CO2_IDLEX	CH4_IDLEX	N2O_IDLEX
2027	2027Hauling Hauling	0.07592279	0.881696127	1.19921987	0.00159973	0.00047074	0.00044926	181.442358	0.03427011	0.02916541
2027	2027Vendor Vendor	0.05529965	0.899602458	1.04932075	0.00167506	0.00086494	0.00082645	186.589554	0.03155173	0.02918792
2027	2027Worker Worker	0	0	0	0	0	0	0	0	0
2028	2028Hauling Hauling	0.07529788	0.857767875	1.19214339	0.00156045	0.00045204	0.00043133	177.300744	0.03377364	0.02851321
2028	2028Vendor Vendor	0.05432839	0.863093228	1.0395891	0.00163993	0.00074988	0.00071632	182.978932	0.03134729	0.02865517
2028	2028Worker Worker	0	0	0	0	0	0	0	0	0
2029	2029Hauling Hauling	0.07461794	0.835480721	1.18399992	0.00152188	0.00043143	0.00041158	173.194944	0.03323976	0.02786481
2029	2029Vendor Vendor	0.05333308	0.827999465	1.02749811	0.0016013	0.00065239	0.00062302	178.951612	0.03104801	0.02805443
2029	2029Worker Worker	0	0	0	0	0	0	0	0	0
2030	2030Hauling Hauling	0.07391144	0.816007794	1.17493744	0.0014846	0.00041331	0.00039421	169.186161	0.03269373	0.0272299
2030	2030Vendor Vendor	0.05232472	0.795299763	1.01321823	0.00155966	0.00057171	0.0005458	174.561724	0.03067462	0.02739395
2030	2030Worker Worker	0	0	0	0	0	0	0	0	0
2031	2031Hauling Hauling	0.0732853	0.799579641	1.1664382	0.00145061	0.00039768	0.00037924	165.457521	0.03205186	0.02663599
2031	2031Vendor Vendor	0.05130878	0.763402339	0.99683404	0.00151522	0.00050437	0.00048136	169.805962	0.03011968	0.02667472
2031	2031Worker Worker	0	0	0	0	0	0	0	0	0
	GWP	N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	Idling minutes per Day	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Demolition &Temp Parking	2027													
Total Haul Trips	2162													
Hauling	52	42	8	15	0.13	1.52	2.06	0.00	0.00	0.00	5.88	0.03	0.28	6.19
Vendor	0	60	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unsuitable Material Replac	2027													
Total Haul Trips	5200													
Hauling	124	42	8	15	0.31	3.62	4.92	0.01	0.00	0.00	14.15	0.07	0.68	14.90
Vendor	0	60	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Relocate Utilities	2027													
Total Haul Trips	260													
Hauling	2	130	8	15	0.01	0.06	0.08	0.00	0.00	0.00	0.71	0.00	0.03	0.74
Vendor	0	182	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	182	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct Temporary Road/	2027													
Total Haul Trips	320													
Hauling	16	22	8	15	0.04	0.47	0.63	0.00	0.00	0.00	0.87	0.00	0.04	0.92
Vendor	0	30	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	30	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct Temporary Road/	2027													
Total Haul Trips	208													
Hauling	4	88	8	15	0.01	0.12	0.16	0.00	0.00	0.00	0.57	0.00	0.03	0.60
Vendor	0	124	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	124	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct Temporary Road/	2027													
Total Haul Trips	0													
Hauling	0	44	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	60	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition Temporary Brid	2030													
Total Haul Trips	0													
Hauling	0	43	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct DBH Facilities(Life	2030													
Total Haul Trips	0													
Hauling	0	21	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lagoon Grading	2030													
Total Haul Trips	51200													
Hauling	502	102	8	15	1.23	13.55	19.50	0.02	0.01	0.01	129.93	0.63	6.23	136.79
Vendor	0	214	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restore Beach Area	2030													
Total Haul Trips	0													
Hauling	0	43	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	61	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unsuitable Material Replac	2027													
Total Haul Trips	5200													
Hauling	124	42	8	15	0.31	3.62	4.92	0.01	0.00	0.00	14.15	0.07	0.68	14.90
Vendor	0	60	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unsuitable Material Replac	2027													
Total Haul Trips	2520													
Hauling	60	42	8	15	0.15	1.75	2.38	0.00	0.00	0.00	6.86	0.03	0.33	7.22
Vendor	0	60	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition &Temp Parking	2027													
Total Haul Trips	2162													
Hauling	52	42	8	15	0.13	1.52	2.06	0.00	0.00	0.00	5.88	0.03	0.28	6.19
Vendor	0	60	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - Temporary Bridge
Road Dust, Break Wear, and Tire wear Emissions

		Emission Factors (grams/mile)					
		PM10			PM2.5		
		RD	PM10_PMBW	PM10_PMTW	RD	PM2.5_PMBW	PM2.5_PMTW
2027	2027Hauling Hauling	0.29984991	0.084297987	0.03545106	0.07359952	0.0295043	0.00886277
2027	2027Vendor Vendor	0.29984991	0.063623189	0.02372553	0.07359952	0.02226812	0.00593138
2027	2027Worker Worker	0.29984991	0.009305649	0.008	0.07359952	0.00325698	0.002
2028	2028Hauling Hauling	0.29984991	0.084486989	0.03545475	0.07359952	0.02957045	0.00886369
2028	2028Vendor Vendor	0.29984991	0.063544145	0.02372738	0.07359952	0.02224045	0.00593184
2028	2028Worker Worker	0.29984991	0.009284129	0.008	0.07359952	0.00324945	0.002
2029	2029Hauling Hauling	0.29984991	0.084584422	0.03545835	0.07359952	0.02960455	0.00886459
2029	2029Vendor Vendor	0.29984991	0.063359545	0.02372918	0.07359952	0.02217584	0.00593229
2029	2029Worker Worker	0.29984991	0.00926272	0.008	0.07359952	0.00324195	0.002
2030	2030Hauling Hauling	0.29984991	0.08460378	0.03546191	0.07359952	0.02961132	0.00886548
2030	2030Vendor Vendor	0.29984991	0.063078834	0.02373095	0.07359952	0.02207759	0.00593274
2030	2030Worker Worker	0.29984991	0.00924132	0.008	0.07359952	0.00323446	0.002
2031	2031Hauling Hauling	0.29984991	0.084504548	0.03546578	0.07359952	0.02957659	0.00886644
2031	2031Vendor Vendor	0.29984991	0.062682863	0.02373289	0.07359952	0.021939	0.00593322
2031	2031Worker Worker	0.29984991	0.009221285	0.008	0.07359952	0.00322745	0.002

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) PM10 RD	PM10 BW	PM10 TW	PM2.5 RD	PM2.5 BW	PM2.5 TW
Demolition &Temp Parking	2027									
Total Haul Trips	2162									
Hauling	52	42	8	77	2.65	0.74	0.31	0.65	0.26	0.08
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Unsuitable Material Replac	2027									
Total Haul Trips	5200									
Hauling	124	42	8	77	6.31	1.77	0.75	1.55	0.62	0.19
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Relocate Utilities	2027									
Total Haul Trips	260									
Hauling	2	130	8	36.5	0.05	0.01	0.01	0.01	0.00	0.00
Vendor	0	182	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	182	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct Temporary Road/	2027									
Total Haul Trips	320									
Hauling	16	22	8	36.5	0.39	0.11	0.05	0.09	0.04	0.01
Vendor	0	30	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	30	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct Temporary Road/	2027									
Total Haul Trips	208									
Hauling	4	88	8	36.5	0.10	0.03	0.01	0.02	0.01	0.00
Vendor	0	124	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	124	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct Temporary Road/	2027									
Total Haul Trips	0									
Hauling	0	44	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Demolition Temporary Brid	2030									
Total Haul Trips	0									
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct DBH Facilities(Life	2030									
Total Haul Trips	0									
Hauling	0	21	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Lagoon Grading	2030									
Total Haul Trips	51200									
Hauling	502	102	8	36.5	12.11	3.42	1.43	2.97	1.20	0.36
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Restore Beach Area	2030									
Total Haul Trips	0									
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Unsuitable Material Replac	2027									
Total Haul Trips	5200									
Hauling	124	42	8	106	8.69	2.44	1.03	2.13	0.85	0.26
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00
Unsuitable Material Replac	2027									
Total Haul Trips	2520									
Hauling	60	42	8	20	0.79	0.22	0.09	0.19	0.08	0.02
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00
Demolition &Temp Parking	2027									
Total Haul Trips	2162									
Hauling	52	42	8	106	3.64	1.02	0.43	0.89	0.36	0.11
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - Temporary Bridge
Road Dust

Paved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,P} = (k\ (sL)^{0.91} \times (W)^{1.02})$

Where:

- $EF_{Dust,P}$ = Paved Road Dust Emission Factor (having the same units as k)
- k = particle size multiplier
- sL = road surface silt loading (g/m^2)
- W = average fleet vehicle weight (tons) (CARB uses 2.4 tons as a fleet average vehicle weight factor)

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	0.9979	0.2449
sL	0.1	0.1
W	2.4	2.4
$EF_{Dust,P}$	3.00E-01	7.36E-02

Unpaved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,U} = (k\ (\ s / 12)^{1} \times (Sp / 30)^{0.5} / (M / 0.5)^{0.2}) - C)$

Where:

- $EF_{Dust,U}$ = Unpaved Road Dust Emission Factor (having the same units as k)
- k = particle size multiplier
- s = surface material silt content (%)
- Sp = mean vehicle speed (mph)
- M = surface material moisture content (%)
- C = Emission Factor for 1980s vehicle fleet exhaust, brake wear, and tire wear

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	816.47	81.65
s	4.3%	4.3%
Sp	15	15
M	0.5%	0.5%
C	0.00047	0.00036
$EF_{Dust,U}$	5.20E+00	5.19E-01

Sources:

SCAQMD, CalEEMod, Version 2022.1.
CARB, *Entrained Dust from Paved Road Travel: Emission Estimation Methodology Background Document* , (1997).
USEPA, *AP-42* , Fifth Edition, Volume I, Chapter 13.2.1 - Paved Roads, (2011).
ESA, 2023.

Topanga Canyon - NB/SB Bridge
Total Emissions

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Idling per Day (minutes)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10 Dust	PM10 Exh	Total PM10	PM2.5 Dust	PM2.5 Exh	Total PM2.5	(MT/yr) Total CO2e
Demolition NB Road/Bridge	2028															
Total Haul Trips	270															
Hauling	8	42	8	36.5	15	0.03	1.24	0.60	0.01	0.27	0.01	0.28	0.07	0.01	0.09	15.64
Vendor	0	60	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0	0.11	0.11	1.64	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.61
					Total	0.14	1.35	2.24	0.01	0.79	0.02	0.80	0.20	0.02	0.22	28.25
Construct NB Road/Bridge	2028	Grading/Excavation		Export	Workers+Ver	0.11	0.11	1.64	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	3,700															
Hauling	86	43	8	36.5	15	0.30	13.28	6.43	0.09	2.91	0.16	3.06	0.78	0.15	0.93	214.26
Vendor	0	61	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0	0.11	0.11	1.64	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.82
					Total	0.41	13.39	8.07	0.10	3.42	0.16	3.58	0.90	0.15	1.06	227.09
Construct NB Road/Bridge	2028	Building Construction			Workers+Ver	0.11	0.11	1.64	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	834															
Hauling	6	154	8	36.5	15	0.02	0.93	0.45	0.01	0.20	0.01	0.21	0.05	0.01	0.06	48.30
Vendor	0	214	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0	0.11	0.11	1.64	0.00	0.52	0.00	0.52	0.13	0.00	0.13	44.99
					Total	0.13	1.04	2.09	0.01	0.72	0.01	0.73	0.18	0.01	0.20	93.28
Construct NB Road/Bridge	2028	Paving			Workers+Ver	0.11	0.11	1.64	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	21	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0	0.11	0.11	1.64	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.52
					Total	0.11	0.11	1.64	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.52
Demolition SB Road/Bridge	2029				Workers+Ver	0.11	0.11	1.64	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	270															
Hauling	8	43	8	36.5	15	0.03	1.19	0.59	0.01	0.27	0.01	0.28	0.07	0.01	0.09	15.26
Vendor	0	59	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0	0.10	0.10	1.55	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.14
					Total	0.13	1.30	2.14	0.01	0.79	0.02	0.80	0.20	0.02	0.22	27.40
Construct SB Road/Bridge	2029	Grading/Excavation		Export	Workers+Ver	0.10	0.10	1.55	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	3,460															
Hauling	82	43	8	36.5	15	0.28	12.20	6.00	0.09	2.77	0.15	2.92	0.74	0.14	0.88	195.51
Vendor	0	61	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0	0.10	0.10	1.55	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.56
					Total	0.39	12.31	7.55	0.09	3.29	0.15	3.44	0.87	0.14	1.01	208.07
Construct SB Road/Bridge	2029	Building Construction			Workers+Ver	0.10	0.10	1.55	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	834															
Hauling	6	154	8	36.5	15	0.02	0.89	0.44	0.01	0.20	0.01	0.21	0.05	0.01	0.06	47.13
Vendor	0	214	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0	0.10	0.10	1.55	0.00	0.52	0.00	0.52	0.13	0.00	0.13	44.05
					Total	0.12	1.00	1.99	0.01	0.72	0.01	0.73	0.18	0.01	0.20	91.17
Construct SB Road/Bridge	2029	Paving			Workers+Ver	0.10	0.10	1.55	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	21	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0	0.10	0.10	1.55	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.38
					Total	0.10	0.10	1.55	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.38
Construct NB Road/Bridge	2028	Grading/Excavation		Import	Workers+Ver	0.10	0.10	1.55	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	2,400															
Hauling	56	43	8	20	15	0.17	5.60	3.29	0.04	1.04	0.06	1.09	0.28	0.05	0.33	79.26
Vendor	0	61	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	18.5	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Total	0.17	5.60	3.29	0.04	1.04	0.06	1.09	0.28	0.05	0.33	79.26
Construct SB Road/Bridge	2029	Grading/Excavation		Import	Workers+Ver	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total Haul Trips	2400															
Hauling	56	43	8	20	15	0.17	5.41	3.24	0.03	1.04	0.06	1.09	0.28	0.05	0.33	77.34
Vendor	0	61	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	18.5	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Total	0.17	5.41	3.24	0.03	1.04	0.06	1.09	0.28	0.05	0.33	77.34
					Workers+Ver	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Topanga Canyon - NB/SB Bridge
Running Emissions

		Running Emissions Factor (grams/mile)						Running Emissions Factor (grams/mile)		
		ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX
2027	2027Hauling Hauling	0.013128	1.553518611	0.45473657	0.01336714	0.02273486	0.02174732	1471.80075	0.0608523	0.23462364
2027	2027Vendor Vendor	0.01570588	1.102331968	0.36327753	0.01214871	0.01475662	0.01411185	1311.1435	0.03509759	0.18307889
2027	2027Worker Worker	0.01447264	0.062492418	0.90233334	0.00281062	0.00150729	0.0013867	284.320587	0.00354266	0.00566149
2028	2028Hauling Hauling	0.01261339	1.493718015	0.43877031	0.01305596	0.02247317	0.02149714	1438.29866	0.05768159	0.22931835
2028	2028Vendor Vendor	0.01417298	1.038868065	0.3360531	0.01185313	0.01426835	0.01364491	1280.01295	0.03342244	0.17922194
2028	2028Worker Worker	0.01314756	0.057035459	0.85167037	0.00274948	0.00140448	0.00129194	278.134904	0.00325313	0.00533773
2029	2029Hauling Hauling	0.01213472	1.434866903	0.4224926	0.01273534	0.0221686	0.0212059	1403.60667	0.05465536	0.22381566
2029	2029Vendor Vendor	0.0128196	0.978781777	0.31101237	0.01152628	0.01380314	0.01320005	1245.46404	0.03180989	0.17489835
2029	2029Worker Worker	0.01192021	0.051957034	0.80464317	0.00269297	0.00130724	0.00120239	272.417637	0.00298654	0.00503952
2030	2030Hauling Hauling	0.01169729	1.381905725	0.40596438	0.01241489	0.02183595	0.02088778	1368.72007	0.05170538	0.2182712
2030	2030Vendor Vendor	0.01168751	0.9252091	0.28941545	0.01117412	0.01336285	0.01277903	1208.11234	0.03023265	0.17022289
2030	2030Worker Worker	0.01081241	0.047255061	0.76242747	0.00264062	0.00121547	0.00111789	267.121939	0.00274623	0.00476556
2031	2031Hauling Hauling	0.01126827	1.331771303	0.38663416	0.01209496	0.02148002	0.02054741	1333.31591	0.04842446	0.21262163
2031	2031Vendor Vendor	0.01070694	0.874998281	0.26868024	0.01079467	0.01293916	0.01237394	1167.57711	0.02847022	0.16520071
2031	2031Worker Worker	0.00977403	0.042746598	0.72305591	0.00259298	0.00112929	0.00103861	262.302837	0.0025216	0.00450761
0	GWP	N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Demolition NB Road/Bridge	2028													
Total Haul Trips	270													
Hauling	8	42	8	36.5	0.01	0.96	0.28	0.01	0.01	0.01	14.17	0.01	0.67	14.86
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.02	0.09	1.39	0.00	0.00	0.00	12.35	0.00	0.07	12.42
Construct NB Road/Bridge	2028													
Total Haul Trips	3700													
Hauling	86	43	8	36.5	0.09	10.34	3.04	0.09	0.16	0.15	194.24	0.19	9.23	203.67
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.02	0.09	1.39	0.00	0.00	0.00	12.56	0.00	0.07	12.63
Construct NB Road/Bridge	2028													
Total Haul Trips	834													
Hauling	6	154	8	36.5	0.01	0.72	0.21	0.01	0.01	0.01	43.78	0.04	2.08	45.91
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.02	0.09	1.39	0.00	0.00	0.00	44.05	0.01	0.25	44.31
Construct NB Road/Bridge	2028													
Total Haul Trips	0													
Hauling	0	21	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.02	0.09	1.39	0.00	0.00	0.00	6.38	0.00	0.04	6.42
Demolition SB Road/Bridge	2029													
Total Haul Trips	270													
Hauling	8	43	8	36.5	0.01	0.92	0.27	0.01	0.01	0.01	13.83	0.01	0.66	14.50
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.02	0.08	1.31	0.00	0.00	0.00	11.89	0.00	0.07	11.96
Construct SB Road/Bridge	2029													
Total Haul Trips	3460													
Hauling	82	43	8	36.5	0.08	9.47	2.79	0.08	0.15	0.14	177.26	0.17	8.42	185.86
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.02	0.08	1.31	0.00	0.00	0.00	12.30	0.00	0.07	12.37
Construct SB Road/Bridge	2029													
Total Haul Trips	834													
Hauling	6	154	8	36.5	0.01	0.69	0.20	0.01	0.01	0.01	42.73	0.04	2.03	44.80
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.02	0.08	1.31	0.00	0.00	0.00	43.14	0.01	0.24	43.39
Construct SB Road/Bridge	2029													
Total Haul Trips	0													
Hauling	0	21	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.02	0.08	1.31	0.00	0.00	0.00	6.25	0.00	0.03	6.29
Construct NB Road/Bridge	2028													
Total Haul Trips	2400													
Hauling	56	43	8	20	0.03	3.69	1.08	0.03	0.06	0.05	69.04	0.07	3.28	72.39
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct SB Road/Bridge	2029													
Total Haul Trips	2400													
Hauling	56	43	8	20	0.03	3.54	1.04	0.03	0.05	0.05	67.37	0.07	3.20	70.64
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - NB/SB Bridge
Start Emissions

			Start Emissions Factor (grams/trip)						Start Emissions Factor (grams/trip)		
			ROG_STREX	NOX_STREX	CO_STREX	SOx_STREX	PM10_STREX	PM2.5_STREX	CO2_STREX	CH4_STREX	N2O_STREX
2027	2027Hauling	Hauling	0.00060894	2.672142352	0.00302137	3.16557E-07	5.30481E-07	4.87758E-07	0.03202066	7.5498E-08	7.36611E-06
2027	2027Vendor	Vendor	0.080213538	1.961946447	0.60365405	5.50826E-05	6.07836E-05	5.58883E-05	5.57177064	0.005494835	0.004037678
2027	2027Worker	Worker	1.038950633	0.251050817	3.01934346	0.000691936	0.002053348	0.001887978	69.9913431	0.06616369	0.030829475
2028	2028Hauling	Hauling	0.000490696	2.636914961	0.00257595	2.71845E-07	4.29594E-07	3.94995E-07	0.02749789	6.56178E-08	5.97594E-06
2028	2028Vendor	Vendor	0.075419112	1.927915654	0.55968909	5.22383E-05	5.76932E-05	5.30468E-05	5.28405692	0.005169504	0.003780947
2028	2028Worker	Worker	0.997046953	0.239560346	2.85187017	0.000675557	0.001941969	0.001785569	68.3345653	0.062483886	0.030029939
2029	2029Hauling	Hauling	0.000383539	2.591170334	0.00214107	2.33546E-07	3.28727E-07	3.02252E-07	0.02362391	5.62127E-08	4.65545E-06
2029	2029Vendor	Vendor	0.069289941	1.883995908	0.51714657	4.94212E-05	5.46034E-05	5.02058E-05	4.99909929	0.004852786	0.003548842
2029	2029Worker	Worker	0.945798618	0.229251267	2.69630558	0.000660221	0.001832244	0.00168468	66.7833	0.059077063	0.029313823
2030	2030Hauling	Hauling	0.00027279	2.546881303	0.00161285	1.92445E-07	2.06187E-07	1.89581E-07	0.01946637	4.71315E-08	4.0595E-06
2030	2030Vendor	Vendor	0.063656597	1.839529651	0.47865041	4.67001E-05	5.18671E-05	4.76899E-05	4.72385215	0.004565454	0.003322989
2030	2030Worker	Worker	0.901632052	0.219772527	2.55165593	0.00064583	0.001725708	0.001586724	65.3276344	0.055883281	0.028658371
2031	2031Hauling	Hauling	0.000210057	2.503276097	0.00139863	1.66951E-07	1.58801E-07	1.46012E-07	0.01688763	4.13015E-08	2.64568E-06
2031	2031Vendor	Vendor	0.059141215	1.792713918	0.44197461	4.38654E-05	4.91716E-05	4.52115E-05	4.43711805	0.004280254	0.003105544
2031	2031Worker	Worker	0.857879142	0.211029605	2.41545051	0.000632455	0.001621689	0.001491083	63.974738	0.052892816	0.028060877
	GWP			N/A					1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Demolition NB Road/Bridg	2028													
Total Haul Trips	270													
Hauling	8	42	8	36.5	0.00	0.05	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.09	0.02	0.25	0.00	0.00	0.00	0.16	0.00	0.00	0.19
Construct NB Road/Bridge	2028													
Total Haul Trips	3700													
Hauling	86	43	8	36.5	0.00	0.50	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.24
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.09	0.02	0.25	0.00	0.00	0.00	0.17	0.00	0.00	0.19
Construct NB Road/Bridge	2028													
Total Haul Trips	834													
Hauling	6	154	8	36.5	0.00	0.03	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.05
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.09	0.02	0.25	0.00	0.00	0.00	0.58	0.00	0.00	0.67
Construct NB Road/Bridge	2028													
Total Haul Trips	0													
Hauling	0	21	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.09	0.02	0.25	0.00	0.00	0.00	0.08	0.00	0.00	0.10
Demolition SB Road/Bridge	2029													
Total Haul Trips	270													
Hauling	8	43	8	36.5	0.00	0.05	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.08	0.02	0.24	0.00	0.00	0.00	0.16	0.00	0.00	0.18
Construct SB Road/Bridge	2029													
Total Haul Trips	3460													
Hauling	82	43	8	36.5	0.00	0.47	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.19
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.08	0.02	0.24	0.00	0.00	0.00	0.16	0.00	0.00	0.19
Construct SB Road/Bridge	2029													
Total Haul Trips	834													
Hauling	6	154	8	36.5	0.00	0.03	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.05
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.08	0.02	0.24	0.00	0.00	0.00	0.57	0.00	0.00	0.66
Construct SB Road/Bridge	2029													
Total Haul Trips	0													
Hauling	0	21	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.08	0.02	0.24	0.00	0.00	0.00	0.08	0.00	0.00	0.10
Construct NB Road/Bridge	2028													
Total Haul Trips	2400													
Hauling	56	43	8	20	0.00	0.33	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.15
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct SB Road/Bridge	2029													
Total Haul Trips	2400													
Hauling	56	43	8	20	0.00	0.32	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.13
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - NB/SB Bridge
Idling Emissions

			Idling Emissions Factor (grams/minute)						Idling Emissions Factor (grams/minute)		
			ROG_IDLEX	NOx_IDLEX	CO_IDLEX	SOx_IDLEX	PM10_IDLEX	PM2.5_IDLEX	CO2_IDLEX	CH4_IDLEX	N2O_IDLEX
2027	2027Hauling	Hauling	0.07592279	0.881696127	1.19921987	0.00159973	0.00047074	0.00044926	181.442358	0.03427011	0.02916541
2027	2027Vendor	Vendor	0.05529965	0.899602458	1.04932075	0.00167506	0.00086494	0.00082645	186.589554	0.03155173	0.02918792
2027	2027Worker	Worker	0	0	0	0	0	0	0	0	0
2028	2028Hauling	Hauling	0.07529788	0.857767875	1.19214339	0.00156045	0.00045204	0.00043133	177.300744	0.03377364	0.02851321
2028	2028Vendor	Vendor	0.05432839	0.863093228	1.0395891	0.00163993	0.00074988	0.00071632	182.978932	0.03134729	0.02865517
2028	2028Worker	Worker	0	0	0	0	0	0	0	0	0
2029	2029Hauling	Hauling	0.07461794	0.835480721	1.18399992	0.00152188	0.00043143	0.00041158	173.194944	0.03323976	0.02786481
2029	2029Vendor	Vendor	0.05333308	0.827999465	1.02749811	0.0016013	0.00065239	0.00062302	178.951612	0.03104801	0.02805443
2029	2029Worker	Worker	0	0	0	0	0	0	0	0	0
2030	2030Hauling	Hauling	0.07391144	0.816007794	1.17493744	0.0014846	0.00041331	0.00039421	169.186161	0.03269373	0.0272299
2030	2030Vendor	Vendor	0.05232472	0.795299763	1.01321823	0.00155966	0.00057171	0.0005458	174.561724	0.03067462	0.02739395
2030	2030Worker	Worker	0	0	0	0	0	0	0	0	0
2031	2031Hauling	Hauling	0.0732853	0.799579641	1.1664382	0.00145061	0.00039768	0.00037924	165.457521	0.03205186	0.02663599
2031	2031Vendor	Vendor	0.05130878	0.763402339	0.99683404	0.00151522	0.00050437	0.00048136	169.805962	0.03011968	0.02667472
2031	2031Worker	Worker	0	0	0	0	0	0	0	0	0
	GWP		N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	Idling minutes per Day	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Demolition NB Road/Bridge	2028													
Total Haul Trips	270													
Hauling	8	42	8	15	0.02	0.23	0.32	0.00	0.00	0.00	0.72	0.00	0.03	0.76
Vendor	0	60	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2028													
Total Haul Trips	3700													
Hauling	86	43	8	15	0.21	2.44	3.39	0.00	0.00	0.00	9.84	0.05	0.47	10.36
Vendor	0	61	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2028													
Total Haul Trips	834													
Hauling	6	154	8	15	0.01	0.17	0.24	0.00	0.00	0.00	2.22	0.01	0.11	2.33
Vendor	0	214	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2028													
Total Haul Trips	0													
Hauling	0	21	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition SB Road/Bridge	2029													
Total Haul Trips	270													
Hauling	8	43	8	15	0.02	0.22	0.31	0.00	0.00	0.00	0.70	0.00	0.03	0.74
Vendor	0	59	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct SB Road/Bridge	2029													
Total Haul Trips	3460													
Hauling	82	43	8	15	0.20	2.27	3.21	0.00	0.00	0.00	8.99	0.04	0.43	9.46
Vendor	0	61	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct SB Road/Bridge	2029													
Total Haul Trips	834													
Hauling	6	154	8	15	0.01	0.17	0.23	0.00	0.00	0.00	2.17	0.01	0.10	2.28
Vendor	0	214	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct SB Road/Bridge	2029													
Total Haul Trips	0													
Hauling	0	21	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2028													
Total Haul Trips	2400													
Hauling	56	43	8	15	0.14	1.59	2.21	0.00	0.00	0.00	6.38	0.03	0.31	6.72
Vendor	0	61	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct SB Road/Bridge	2029													
Total Haul Trips	2400													
Hauling	56	43	8	15	0.14	1.55	2.19	0.00	0.00	0.00	6.24	0.03	0.30	6.56
Vendor	0	61	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - NB/SB Bridge
Road Dust, Break Wear, and Tire wear Emissions

		Emission Factors (grams/mile)					
		PM10			PM2.5		
		RD	PM10_PMBW	PM10_PMTW	RD	PM2.5_PMBW	PM2.5_PMTW
2027	2027Hauling Hauling	0.29984991	0.084297987	0.03545106	0.07359952	0.0295043	0.00886277
2027	2027Vendor Vendor	0.29984991	0.063623189	0.02372553	0.07359952	0.02226812	0.00593138
2027	2027Worker Worker	0.29984991	0.009305649	0.008	0.07359952	0.00325698	0.002
2028	2028Hauling Hauling	0.29984991	0.084486989	0.03545475	0.07359952	0.02957045	0.00886369
2028	2028Vendor Vendor	0.29984991	0.063544145	0.02372738	0.07359952	0.02224045	0.00593184
2028	2028Worker Worker	0.29984991	0.009284129	0.008	0.07359952	0.00324945	0.002
2029	2029Hauling Hauling	0.29984991	0.084584422	0.03545835	0.07359952	0.02960455	0.00886459
2029	2029Vendor Vendor	0.29984991	0.063359545	0.02372918	0.07359952	0.02217584	0.00593229
2029	2029Worker Worker	0.29984991	0.00926272	0.008	0.07359952	0.00324195	0.002
2030	2030Hauling Hauling	0.29984991	0.08460378	0.03546191	0.07359952	0.02961132	0.00886548
2030	2030Vendor Vendor	0.29984991	0.063078834	0.02373095	0.07359952	0.02207759	0.00593274
2030	2030Worker Worker	0.29984991	0.00924132	0.008	0.07359952	0.00323446	0.002
2031	2031Hauling Hauling	0.29984991	0.084504548	0.03546578	0.07359952	0.02957659	0.00886644
2031	2031Vendor Vendor	0.29984991	0.062682863	0.02373289	0.07359952	0.021939	0.00593322
2031	2031Worker Worker	0.29984991	0.009221285	0.008	0.07359952	0.00322745	0.002

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day)					
					PM10			PM2.5		
					RD	BW	TW	RD	BW	TW
Demolition NB Road/Bridge	2028									
Total Haul Trips	270									
Hauling	8	42	8	36.5	0.19	0.05	0.02	0.05	0.02	0.01
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2028									
Total Haul Trips	3700									
Hauling	86	43	8	36.5	2.08	0.58	0.25	0.51	0.20	0.06
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2028									
Total Haul Trips	834									
Hauling	6	154	8	36.5	0.14	0.04	0.02	0.04	0.01	0.00
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2028									
Total Haul Trips	0									
Hauling	0	21	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Demolition SB Road/Bridge	2029									
Total Haul Trips	270									
Hauling	8	43	8	36.5	0.19	0.05	0.02	0.05	0.02	0.01
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct SB Road/Bridge	2029									
Total Haul Trips	3460									
Hauling	82	43	8	36.5	1.98	0.56	0.23	0.49	0.20	0.06
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct SB Road/Bridge	2029									
Total Haul Trips	834									
Hauling	6	154	8	36.5	0.14	0.04	0.02	0.04	0.01	0.00
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct SB Road/Bridge	2029									
Total Haul Trips	0									
Hauling	0	21	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2028									
Total Haul Trips	2400									
Hauling	56	43	8	20	0.74	0.21	0.09	0.18	0.07	0.02
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00
Construct SB Road/Bridge	2029									
Total Haul Trips	2400									
Hauling	56	43	8	20	0.74	0.21	0.09	0.18	0.07	0.02
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - NB/SB Bridge
Road Dust

Paved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,P} = (k\ (sL)^{0.91} \times (W)^{1.02})$

Where:

$EF_{Dust,P}$ =	Paved Road Dust Emission Factor (having the same units as k)
k =	particle size multiplier
sL =	road surface silt loading (g/m^2)
W =	average fleet vehicle weight (tons) (CARB uses 2.4 tons as a fleet average vehicle weight factor)

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	0.9979	0.2449
sL	0.1	0.1
W	2.4	2.4
$EF_{Dust,P}$	3.00E-01	7.36E-02

Unpaved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,U} = (k\ (\ s / 12)^{1} \times (Sp / 30)^{0.5} / (M / 0.5)^{0.2}) - C)$

Where:

$EF_{Dust,U}$ =	Unpaved Road Dust Emission Factor (having the same units as k)
k =	particle size multiplier
s =	surface material silt content (%)
Sp =	mean vehicle speed (mph)
M =	surface material moisture content (%)
C =	Emission Factor for 1980s vehicle fleet exhaust, brake wear, and tire wear

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	816.47	81.65
s	4.3%	4.3%
Sp	15	15
M	0.5%	0.5%
C	0.00047	0.00036
$EF_{Dust,U}$	5.20E+00	5.19E-01

Sources:

SCAQMD, CalEEMod, Version 2022.1.

CARB, *Entrained Dust from Paved Road Travel: Emission Estimation Methodology Background Document* , (1997).

USEPA, *AP-42* , Fifth Edition, Volume I, Chapter 13.2.1 - Paved Roads, (2011).

ESA, 2023.

Topanga Canyon - VS
Total Emissions

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Idling per Day (minutes)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10 Dust	PM10 Exh	Total PM10	PM2.5 Dust	PM2.5 Exh	Total PM2.5	(MT/yr) Total CO2e
Site Preparation	2027															
Total Haul Trips	0															
Hauling	0	1	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	1	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	1	8	18.5	0	0.03	0.03	0.43	0.00	0.13	0.00	0.13	0.03	0.00	0.03	0.05
					Total	0.03	0.03	0.43	0.00	0.13	0.00	0.13	0.03	0.00	0.03	0.05
Grading	2027				Workers+Ver	0.03	0.03	0.43	0.00	0.13	0.00	0.13	0.03	0.00	0.03	
Total Haul Trips	0															
Hauling	0	4	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	4	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	16	4	8	18.5	0	0.05	0.05	0.70	0.00	0.21	0.00	0.21	0.05	0.00	0.05	0.34
					Total	0.05	0.05	0.70	0.00	0.21	0.00	0.21	0.05	0.00	0.05	0.34
Building Construction	2027				Workers+Ver	0.05	0.05	0.70	0.00	0.21	0.00	0.21	0.05	0.00	0.05	
Total Haul Trips	0															
Hauling	0	140	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	6	140	8	10.2	15	0.01	0.35	0.27	0.00	0.05	0.00	0.05	0.01	0.00	0.02	14.19
Worker	14	140	8	18.5	0	0.04	0.04	0.61	0.00	0.18	0.00	0.18	0.05	0.00	0.05	10.53
					Total	0.05	0.40	0.87	0.00	0.23	0.00	0.24	0.06	0.00	0.06	24.72
Paving	2027				Workers+Ver	0.05	0.40	0.87	0.00	0.23	0.00	0.24	0.06	0.00	0.06	
Total Haul Trips	0															
Hauling	0	7	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	36	7	8	18.5	0	0.10	0.11	1.56	0.00	0.47	0.00	0.47	0.12	0.00	0.12	1.35
					Total	0.10	0.11	1.56	0.00	0.47	0.00	0.47	0.12	0.00	0.12	1.35
Architectural Coating	2027				Workers+Ver	0.10	0.11	1.56	0.00	0.47	0.00	0.47	0.12	0.00	0.12	
Total Haul Trips	0															
Hauling	0	7	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	2	7	8	18.5	0	0.01	0.01	0.09	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.08
					Total	0.01	0.01	0.09	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.08
					Workers+Ver	0.01	0.01	0.09	0.00	0.03	0.00	0.03	0.01	0.00	0.01	

Topanga Canyon - VS
Running Emissions

		Running Emissions Factor (grams/mile)						Running Emissions Factor (grams/mile)		
		ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX
2027	2027Hauling Hauling	0.013128	1.553518611	0.45473657	0.01336714	0.02273486	0.02174732	1471.80075	0.0608523	0.23462364
2027	2027Vendor Vendor	0.01570588	1.102331968	0.36327753	0.01214871	0.01475662	0.01411185	1311.1435	0.03509759	0.18307889
2027	2027Worker Worker	0.01447264	0.062492418	0.90233334	0.00281062	0.00150729	0.0013867	284.320587	0.00354266	0.00566149
2028	2028Hauling Hauling	0.01261339	1.493718015	0.43877031	0.01305596	0.02247317	0.02149714	1438.29866	0.05768159	0.22931835
2028	2028Vendor Vendor	0.01417298	1.038868065	0.3360531	0.01185313	0.01426835	0.01364491	1280.01295	0.03342244	0.17922194
2028	2028Worker Worker	0.01314756	0.057035459	0.85167037	0.00274948	0.00140448	0.00129194	278.134904	0.00325313	0.00533773
2029	2029Hauling Hauling	0.01213472	1.434866903	0.4224926	0.01273534	0.0221686	0.0212059	1403.60667	0.05465536	0.22381566
2029	2029Vendor Vendor	0.0128196	0.978781777	0.31101237	0.01152628	0.01380314	0.01320005	1245.46404	0.03180989	0.17489835
2029	2029Worker Worker	0.01192021	0.051957034	0.80464317	0.00269297	0.00130724	0.00120239	272.417637	0.00298654	0.00503952
2030	2030Hauling Hauling	0.01169729	1.381905725	0.40596438	0.01241489	0.02183595	0.02088778	1368.72007	0.05170538	0.2182712
2030	2030Vendor Vendor	0.01168751	0.9252091	0.28941545	0.01117412	0.01336285	0.01277903	1208.11234	0.03023265	0.17022289
2030	2030Worker Worker	0.01081241	0.047255061	0.76242747	0.00264062	0.00121547	0.00111789	267.121939	0.00274623	0.00476556
2031	2031Hauling Hauling	0.01126827	1.331771303	0.38663416	0.01209496	0.02148002	0.02054741	1333.31591	0.04842446	0.21262163
2031	2031Vendor Vendor	0.01070694	0.874998281	0.26868024	0.01079467	0.01293916	0.01237394	1167.57711	0.02847022	0.16520071
2031	2031Worker Worker	0.00977403	0.042746598	0.72305591	0.00259298	0.00112929	0.00103861	262.302837	0.0025216	0.00450761
0	GWP	N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Site Preparation	2027													
Total Haul Trips	0													
Hauling	0	1	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	1	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	1	8	18.5	0.01	0.03	0.37	0.00	0.00	0.00	0.05	0.00	0.00	0.05
Grading	2027													
Total Haul Trips	0													
Hauling	0	4	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	4	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	16	4	8	18.5	0.01	0.04	0.59	0.00	0.00	0.00	0.34	0.00	0.00	0.34
Building Construction	2027													
Total Haul Trips	0													
Hauling	0	140	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	6	140	8	10.2	0.00	0.15	0.05	0.00	0.00	0.00	11.23	0.01	0.47	11.71
Worker	14	140	8	18.5	0.01	0.04	0.52	0.00	0.00	0.00	10.31	0.00	0.06	10.37
Paving	2027													
Total Haul Trips	0													
Hauling	0	7	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	36	7	8	18.5	0.02	0.09	1.32	0.00	0.00	0.00	1.33	0.00	0.01	1.33
Architectural Coating	2027													
Total Haul Trips	0													
Hauling	0	7	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	2	7	8	18.5	0.00	0.01	0.07	0.00	0.00	0.00	0.07	0.00	0.00	0.07

Topanga Canyon - VS
Start Emissions

			Start Emissions Factor (grams/trip)						Start Emissions Factor (grams/trip)		
			ROG_STREX	NOX_STREX	CO_STREX	SOx_STREX	PM10_STREX	PM2.5_STREX	CO2_STREX	CH4_STREX	N2O_STREX
2027	2027Hauling	Hauling	0.00060894	2.672142352	0.00302137	3.16557E-07	5.30481E-07	4.87758E-07	0.03202066	7.5498E-08	7.36611E-06
2027	2027Vendor	Vendor	0.080213538	1.961946447	0.60365405	5.50826E-05	6.07836E-05	5.58883E-05	5.57177064	0.005494835	0.004037678
2027	2027Worker	Worker	1.038950633	0.251050817	3.01934346	0.000691936	0.002053348	0.001887978	69.9913431	0.06616369	0.030829475
2028	2028Hauling	Hauling	0.000490696	2.636914961	0.00257595	2.71845E-07	4.29594E-07	3.94995E-07	0.02749789	6.56178E-08	5.97594E-06
2028	2028Vendor	Vendor	0.075419112	1.927915654	0.55968909	5.22383E-05	5.76932E-05	5.30468E-05	5.28405692	0.005169504	0.003780947
2028	2028Worker	Worker	0.997046953	0.239560346	2.85187017	0.000675557	0.001941969	0.001785569	68.3345653	0.062483886	0.030029939
2029	2029Hauling	Hauling	0.000383539	2.591170334	0.00214107	2.33546E-07	3.28727E-07	3.02252E-07	0.02362391	5.62127E-08	4.65545E-06
2029	2029Vendor	Vendor	0.069289941	1.883995908	0.51714657	4.94212E-05	5.46034E-05	5.02058E-05	4.99909929	0.004852786	0.003548842
2029	2029Worker	Worker	0.945798618	0.229251267	2.69630558	0.000660221	0.001832244	0.00168468	66.7833	0.059077063	0.029313823
2030	2030Hauling	Hauling	0.00027279	2.546881303	0.00161285	1.92445E-07	2.06187E-07	1.89581E-07	0.01946637	4.71315E-08	4.0595E-06
2030	2030Vendor	Vendor	0.063656597	1.839529651	0.47865041	4.67001E-05	5.18671E-05	4.76899E-05	4.72385215	0.004565454	0.003322989
2030	2030Worker	Worker	0.901632052	0.219772527	2.55165593	0.00064583	0.001725708	0.001586724	65.3276344	0.055883281	0.028658371
2031	2031Hauling	Hauling	0.000210057	2.503276097	0.00139863	1.66951E-07	1.58801E-07	1.46012E-07	0.01688763	4.13015E-08	2.64568E-06
2031	2031Vendor	Vendor	0.059141215	1.792713918	0.44197461	4.38654E-05	4.91716E-05	4.52115E-05	4.43711805	0.004280254	0.003105544
2031	2031Worker	Worker	0.857879142	0.211029605	2.41545051	0.000632455	0.001621689	0.001491083	63.974738	0.052892816	0.028060877
	GWP			N/A					1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Site Preparation	2027													
Total Haul Trips	0													
Hauling	0	1	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	1	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	1	8	18.5	0.02	0.01	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading	2027													
Total Haul Trips	0													
Hauling	0	4	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	4	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	16	4	8	18.5	0.04	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Building Construction	2027													
Total Haul Trips	0													
Hauling	0	140	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	6	140	8	10.2	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Worker	14	140	8	18.5	0.03	0.01	0.09	0.00	0.00	0.00	0.14	0.00	0.00	0.16
Paving	2027													
Total Haul Trips	0													
Hauling	0	7	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	36	7	8	18.5	0.08	0.02	0.24	0.00	0.00	0.00	0.02	0.00	0.00	0.02
Architectural Coating	2027													
Total Haul Trips	0													
Hauling	0	7	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	2	7	8	18.5	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - VS
Idling Emissions

			Idling Emissions Factor (grams/minute)						Idling Emissions Factor (grams/minute)		
			ROG_IDLEX	NOx_IDLEX	CO_IDLEX	SOx_IDLEX	PM10_IDLEX	PM2.5_IDLEX	CO2_IDLEX	CH4_IDLEX	N2O_IDLEX
2027	2027Hauling	Hauling	0.07592279	0.881696127	1.19921987	0.00159973	0.00047074	0.00044926	181.442358	0.03427011	0.02916541
2027	2027Vendor	Vendor	0.05529965	0.899602458	1.04932075	0.00167506	0.00086494	0.00082645	186.589554	0.03155173	0.02918792
2027	2027Worker	Worker	0	0	0	0	0	0	0	0	0
2028	2028Hauling	Hauling	0.07529788	0.857767875	1.19214339	0.00156045	0.00045204	0.00043133	177.300744	0.03377364	0.02851321
2028	2028Vendor	Vendor	0.05432839	0.863093228	1.0395891	0.00163993	0.00074988	0.00071632	182.978932	0.03134729	0.02865517
2028	2028Worker	Worker	0	0	0	0	0	0	0	0	0
2029	2029Hauling	Hauling	0.07461794	0.835480721	1.18399992	0.00152188	0.00043143	0.00041158	173.194944	0.03323976	0.02786481
2029	2029Vendor	Vendor	0.05333308	0.827999465	1.02749811	0.0016013	0.00065239	0.00062302	178.951612	0.03104801	0.02805443
2029	2029Worker	Worker	0	0	0	0	0	0	0	0	0
2030	2030Hauling	Hauling	0.07391144	0.816007794	1.17493744	0.0014846	0.00041331	0.00039421	169.186161	0.03269373	0.0272299
2030	2030Vendor	Vendor	0.05232472	0.795299763	1.01321823	0.00155966	0.00057171	0.0005458	174.561724	0.03067462	0.02739395
2030	2030Worker	Worker	0	0	0	0	0	0	0	0	0
2031	2031Hauling	Hauling	0.0732853	0.799579641	1.1664382	0.00145061	0.00039768	0.00037924	165.457521	0.03205186	0.02663599
2031	2031Vendor	Vendor	0.05130878	0.763402339	0.99683404	0.00151522	0.00050437	0.00048136	169.805962	0.03011968	0.02667472
2031	2031Worker	Worker	0	0	0	0	0	0	0	0	0
		GWP	N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	Idling minutes per Day	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Site Preparation	2027													
Total Haul Trips	0													
Hauling	0	1	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	1	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	1	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading	2027													
Total Haul Trips	0													
Hauling	0	4	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	4	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	16	4	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	2027													
Total Haul Trips	0													
Hauling	0	140	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	6	140	8	15	0.01	0.18	0.21	0.00	0.00	0.00	2.35	0.01	0.11	2.47
Worker	14	140	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	2027													
Total Haul Trips	0													
Hauling	0	7	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	36	7	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	2027													
Total Haul Trips	0													
Hauling	0	7	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	2	7	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - VS
Road Dust, Break Wear, and Tire wear Emissions

		Emission Factors (grams/mile)					
			PM10			PM2.5	
		RD	PM10_PMBW	PM10_PMTW	RD	PM2.5_PMBW	PM2.5_PMTW
2027	2027Hauling Hauling	0.29984991	0.084297987	0.03545106	0.07359952	0.0295043	0.00886277
2027	2027Vendor Vendor	0.29984991	0.063623189	0.02372553	0.07359952	0.02226812	0.00593138
2027	2027Worker Worker	0.29984991	0.009305649	0.008	0.07359952	0.00325698	0.002
2028	2028Hauling Hauling	0.29984991	0.084486989	0.03545475	0.07359952	0.02957045	0.00886369
2028	2028Vendor Vendor	0.29984991	0.063544145	0.02372738	0.07359952	0.02224045	0.00593184
2028	2028Worker Worker	0.29984991	0.009284129	0.008	0.07359952	0.00324945	0.002
2029	2029Hauling Hauling	0.29984991	0.084584422	0.03545835	0.07359952	0.02960455	0.00886459
2029	2029Vendor Vendor	0.29984991	0.063359545	0.02372918	0.07359952	0.02217584	0.00593229
2029	2029Worker Worker	0.29984991	0.00926272	0.008	0.07359952	0.00324195	0.002
2030	2030Hauling Hauling	0.29984991	0.08460378	0.03546191	0.07359952	0.02961132	0.00886548
2030	2030Vendor Vendor	0.29984991	0.063078834	0.02373095	0.07359952	0.02207759	0.00593274
2030	2030Worker Worker	0.29984991	0.00924132	0.008	0.07359952	0.00323446	0.002
2031	2031Hauling Hauling	0.29984991	0.084504548	0.03546578	0.07359952	0.02957659	0.00886644
2031	2031Vendor Vendor	0.29984991	0.062682863	0.02373289	0.07359952	0.021939	0.00593322
2031	2031Worker Worker	0.29984991	0.009221285	0.008	0.07359952	0.00322745	0.002

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day)					
						PM10			PM2.5	
					RD	BW	TW	RD	BW	TW
Site Preparation	2027									
Total Haul Trips	0									
Hauling	0	1	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	1	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	1	8	18.5	0.12	0.00	0.00	0.03	0.00	0.00
Grading	2027									
Total Haul Trips	0									
Hauling	0	4	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	4	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	16	4	8	18.5	0.20	0.01	0.01	0.05	0.00	0.00
Building Construction	2027									
Total Haul Trips	0									
Hauling	0	140	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	6	140	8	10.2	0.04	0.01	0.00	0.01	0.00	0.00
Worker	14	140	8	18.5	0.17	0.01	0.00	0.04	0.00	0.00
Paving	2027									
Total Haul Trips	0									
Hauling	0	7	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	36	7	8	18.5	0.44	0.01	0.01	0.11	0.00	0.00
Architectural Coating	2027									
Total Haul Trips	0									
Hauling	0	7	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	2	7	8	18.5	0.02	0.00	0.00	0.01	0.00	0.00

Topanga Canyon - VS
Road Dust

Paved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,P} = (k\ (sL)^{0.91} \times (W)^{1.02})$

Where:

$EF_{Dust,P}$ =	Paved Road Dust Emission Factor (having the same units as k)
k =	particle size multiplier
sL =	road surface silt loading (g/m^2)
W =	average fleet vehicle weight (tons) (CARB uses 2.4 tons as a fleet average vehicle weight factor)

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	0.9979	0.2449
sL	0.1	0.1
W	2.4	2.4
$EF_{Dust,P}$	3.00E-01	7.36E-02

Unpaved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,U} = (k\ (\ s / 12)^{1} \times (Sp / 30)^{0.5} / (M / 0.5)^{0.2}) - C)$

Where:

$EF_{Dust,U}$ =	Unpaved Road Dust Emission Factor (having the same units as k)
k =	particle size multiplier
s =	surface material silt content (%)
Sp =	mean vehicle speed (mph)
M =	surface material moisture content (%)
C =	Emission Factor for 1980s vehicle fleet exhaust, brake wear, and tire wear

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	816.47	81.65
s	4.3%	4.3%
Sp	15	15
M	0.5%	0.5%
C	0.00047	0.00036
$EF_{Dust,U}$	5.20E+00	5.19E-01

Sources:

SCAQMD, CalEEMod, Version 2022.1.
CARB, *Entrained Dust from Paved Road Travel: Emission Estimation Methodology Background Document* , (1997).
USEPA, *AP-42* , Fifth Edition, Volume I, Chapter 13.2.1 - Paved Roads, (2011).
ESA, 2023.

N.2-3 Project Construction Modeling

Topanga-Temp Bridge-Con Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Topanga-Temp Bridge-Con
Construction Start Date	1/1/2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	4.60
Location	18711 Pacific Coast Hwy, Malibu, CA 90265, USA
County	Los Angeles-South Coast
City	Unincorporated
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3802
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Asphalt Surfaces	13.5	1000sqft	0.31	0.00	0.00	—	—	—

General Office Building	1.50	1000sqft	0.03	1,500	0.00	—	—	—
Other Non-Asphalt Surfaces	2.30	1000sqft	0.05	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.41	2.03	16.5	19.4	0.04	0.68	2.76	3.44	0.62	1.34	1.96	—	4,145	4,145	0.17	0.03	0.00	4,159
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.64	3.90	32.7	37.9	0.07	1.38	4.03	5.41	1.27	1.53	2.79	—	7,265	7,265	0.29	0.06	0.01	7,289
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.63	1.37	11.6	13.3	0.02	0.51	0.91	1.42	0.47	0.37	0.83	—	2,602	2,602	0.10	0.02	0.03	2,611
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.30	0.25	2.12	2.42	< 0.005	0.09	0.17	0.26	0.08	0.07	0.15	—	431	431	0.02	< 0.005	< 0.005	432

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	2.41	2.03	16.5	19.4	0.04	0.68	2.76	3.44	0.62	1.34	1.96	—	4,145	4,145	0.17	0.03	0.00	4,159
2030	0.93	0.78	4.64	7.57	0.02	0.19	0.23	0.43	0.18	0.03	0.20	—	2,045	2,045	0.08	0.02	0.00	2,052
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	4.64	3.90	32.7	37.9	0.07	1.38	4.03	5.41	1.27	1.53	2.79	—	7,265	7,265	0.29	0.06	0.01	7,289
2030	0.93	0.78	5.87	7.57	0.02	0.27	0.23	0.43	0.24	0.03	0.24	—	2,045	2,045	0.08	0.02	0.00	2,052
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.63	1.37	11.6	13.3	0.02	0.51	0.91	1.42	0.47	0.37	0.83	—	2,602	2,602	0.10	0.02	0.03	2,611
2030	0.73	0.62	4.10	6.60	0.01	0.16	0.19	0.35	0.15	0.02	0.17	—	1,570	1,570	0.06	0.01	0.00	1,576
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.30	0.25	2.12	2.42	< 0.005	0.09	0.17	0.26	0.08	0.07	0.15	—	431	431	0.02	< 0.005	< 0.005	432
2030	0.13	0.11	0.75	1.20	< 0.005	0.03	0.03	0.06	0.03	< 0.005	0.03	—	260	260	0.01	< 0.005	0.00	261

3. Construction Emissions Details

3.1. Demo + Parking Provisions (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.23	1.88	16.3	18.5	0.03	0.70	—	0.70	0.65	—	0.65	—	3,120	3,120	0.13	0.03	—	3,131
Demolition	—	—	—	—	—	—	1.25	1.25	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	2.67	3.04	< 0.005	0.12	—	0.12	0.11	—	0.11	—	513	513	0.02	< 0.005	—	515
Demolition	—	—	—	—	—	—	0.21	0.21	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.49	0.56	< 0.005	0.02	—	0.02	0.02	—	0.02	—	84.9	84.9	< 0.005	< 0.005	—	85.2
Demolition	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Demo Temp Bridge (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	2.51	3.94	0.01	0.05	—	0.05	0.05	—	0.05	—	574	574	0.02	< 0.005	—	576
Demolition	—	—	—	—	—	—	0.11	0.11	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.41	0.64	< 0.005	0.01	—	0.01	0.01	—	0.01	—	92.8	92.8	< 0.005	< 0.005	—	93.1

Demolitio	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.4	15.4	< 0.005	< 0.005	—	15.4
Demolitio n	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Restore Beach Area (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.36	2.81	5.58	0.01	0.13	—	0.13	0.12	—	0.12	—	858	858	0.03	0.01	—	861
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.47	0.93	< 0.005	0.02	—	0.02	0.02	—	0.02	—	143	143	0.01	< 0.005	—	144
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.17	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	23.8	23.8	< 0.005	< 0.005	—	23.8

Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Unsuitable Material Replacement (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	14.7	16.4	0.03	0.62	—	0.62	0.57	—	0.57	—	3,713	3,713	0.15	0.03	—	3,725
Dust From Material Movement	—	—	—	—	—	—	2.78	2.78	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.30	2.41	2.70	0.01	0.10	—	0.10	0.09	—	0.09	—	610	610	0.02	< 0.005	—	612
Dust From Material Movement	—	—	—	—	—	—	0.46	0.46	—	0.22	0.22	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.44	0.49	< 0.005	0.02	—	0.02	0.02	—	0.02	—	101	101	< 0.005	< 0.005	—	101
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Construct Temp Bridge - Grading (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	14.7	16.4	0.03	0.62	—	0.62	0.57	—	0.57	—	3,713	3,713	0.15	0.03	—	3,725

Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	1.21	1.35	< 0.005	0.05	—	0.05	0.05	—	0.05	—	305	305	0.01	< 0.005	—	306
Dust From Material Movement	—	—	—	—	—	—	0.23	0.23	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.22	0.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	50.5	50.5	< 0.005	< 0.005	—	50.7
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Lagoon Grading (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.93	0.78	4.64	7.57	0.02	0.19	—	0.19	0.18	—	0.18	—	2,045	2,045	0.08	0.02	—	2,052
Dust From Material Movement	—	—	—	—	—	—	0.23	0.23	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.93	0.78	4.64	7.57	0.02	0.19	—	0.19	0.18	—	0.18	—	2,045	2,045	0.08	0.02	—	2,052
Dust From Material Movement	—	—	—	—	—	—	0.23	0.23	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.46	2.72	4.44	0.01	0.11	—	0.11	0.10	—	0.10	—	1,199	1,199	0.05	0.01	—	1,203
Dust From Material Movement	—	—	—	—	—	—	0.14	0.14	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.50	0.81	< 0.005	0.02	—	0.02	0.02	—	0.02	—	198	198	0.01	< 0.005	—	199
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Construct Temp Bridge - BC (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.92	0.78	6.87	7.04	0.02	0.33	—	0.33	0.31	—	0.31	—	1,595	1,595	0.06	0.01	—	1,601
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.92	0.78	6.87	7.04	0.02	0.33	—	0.33	0.31	—	0.31	—	1,595	1,595	0.06	0.01	—	1,601
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	0.26	2.34	2.39	0.01	0.11	—	0.11	0.10	—	0.10	—	542	542	0.02	< 0.005	—	544
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.43	0.44	< 0.005	0.02	—	0.02	0.02	—	0.02	—	89.7	89.7	< 0.005	< 0.005	—	90.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Construct DBH Facilities (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	5.87	6.97	0.02	0.27	—	0.27	0.24	—	0.24	—	1,596	1,596	0.06	0.01	—	1,601
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.50	0.59	< 0.005	0.02	—	0.02	0.02	—	0.02	—	136	136	0.01	< 0.005	—	136
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.4	22.4	< 0.005	< 0.005	—	22.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.17. Construct Temp Bridge - Paving (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.75	1.47	12.8	13.6	0.02	0.59	—	0.59	0.55	—	0.55	—	2,405	2,405	0.10	0.02	—	2,413
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.24	2.10	2.23	< 0.005	0.10	—	0.10	0.09	—	0.09	—	395	395	0.02	< 0.005	—	397
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.38	0.41	< 0.005	0.02	—	0.02	0.02	—	0.02	—	65.4	65.4	< 0.005	< 0.005	—	65.7
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.51	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	126	126	< 0.005	< 0.005	0.01	127
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	21.0	21.0	< 0.005	< 0.005	0.03	21.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.48	3.48	< 0.005	< 0.005	< 0.005	3.52
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.19. Relocate Utilities (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.19	1.80	2.93	< 0.005	0.05	—	0.05	0.05	—	0.05	—	432	432	0.02	< 0.005	—	434
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.19	1.80	2.93	< 0.005	0.05	—	0.05	0.05	—	0.05	—	432	432	0.02	< 0.005	—	434
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.90	1.46	< 0.005	0.03	—	0.03	0.02	—	0.02	—	215	215	0.01	< 0.005	—	216
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.02	0.16	0.27	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	35.7	35.7	< 0.005	< 0.005	—	35.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demo + Parking Provisions	Demolition	1/1/2027	3/1/2027	7.00	60.0	—
Demo Temp Bridge	Demolition	1/1/2030	2/28/2030	7.00	59.0	—
Restore Beach Area	Site Preparation	11/1/2030	12/31/2030	7.00	61.0	—
Unsuitable Material Replacement	Grading	1/1/2027	3/1/2027	7.00	60.0	—
Construct Temp Bridge - Grading	Grading	6/1/2027	6/30/2027	7.00	30.0	—
Lagoon Grading	Grading	4/1/2030	10/31/2030	7.00	214	—
Construct Temp Bridge - BC	Building Construction	7/1/2027	11/1/2027	7.00	124	—
Construct DBH Facilities	Building Construction	3/1/2030	3/31/2030	7.00	31.0	—
Construct Temp Bridge - Paving	Paving	11/2/2027	12/31/2027	7.00	60.0	—
Relocate Utilities	Trenching	2/1/2027	8/1/2027	7.00	182	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demo + Parking Provisions	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Demo + Parking Provisions	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demo + Parking Provisions	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Demo + Parking Provisions	Graders	Diesel	Average	1.00	8.00	148	0.41
Demo + Parking Provisions	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Demo + Parking Provisions	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Demo Temp Bridge	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Demo Temp Bridge	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Restore Beach Area	Graders	Diesel	Average	1.00	8.00	148	0.41
Restore Beach Area	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Unsuitable Material Replacement	Graders	Diesel	Average	1.00	8.00	148	0.41
Unsuitable Material Replacement	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Unsuitable Material Replacement	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Unsuitable Material Replacement	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Unsuitable Material Replacement	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Construct Temp Bridge - Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Construct Temp Bridge - Grading	Graders	Diesel	Average	1.00	8.00	148	0.41

Construct Temp Bridge - Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Construct Temp Bridge - Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Construct Temp Bridge - Grading	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Lagoon Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Lagoon Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Lagoon Grading	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Construct Temp Bridge - BC	Cranes	Diesel	Average	1.00	8.00	367	0.29
Construct Temp Bridge - BC	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Construct Temp Bridge - BC	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Construct Temp Bridge - BC	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Construct DBH Facilities	Cranes	Diesel	Average	1.00	8.00	367	0.29
Construct DBH Facilities	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Construct DBH Facilities	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Construct DBH Facilities	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Construct Temp Bridge - Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Construct Temp Bridge - Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Construct Temp Bridge - Paving	Graders	Diesel	Average	1.00	8.00	148	0.41
Construct Temp Bridge - Paving	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40

Relocate Utilities	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Relocate Utilities	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demo + Parking Provisions	—	—	—	—
Demo + Parking Provisions	Worker	0.00	18.5	LDA,LDT1,LDT2
Demo + Parking Provisions	Vendor	—	10.2	HHDT,MHDT
Demo + Parking Provisions	Hauling	0.00	20.0	HHDT
Demo + Parking Provisions	Onsite truck	—	—	HHDT
Unsuitable Material Replacement	—	—	—	—
Unsuitable Material Replacement	Worker	0.00	18.5	LDA,LDT1,LDT2
Unsuitable Material Replacement	Vendor	—	10.2	HHDT,MHDT
Unsuitable Material Replacement	Hauling	0.00	20.0	HHDT
Unsuitable Material Replacement	Onsite truck	—	—	HHDT
Relocate Utilities	—	—	—	—
Relocate Utilities	Worker	0.00	18.5	LDA,LDT1,LDT2
Relocate Utilities	Vendor	—	10.2	HHDT,MHDT
Relocate Utilities	Hauling	0.00	20.0	HHDT
Relocate Utilities	Onsite truck	—	—	HHDT
Construct Temp Bridge - Grading	—	—	—	—
Construct Temp Bridge - Grading	Worker	0.00	18.5	LDA,LDT1,LDT2
Construct Temp Bridge - Grading	Vendor	—	10.2	HHDT,MHDT
Construct Temp Bridge - Grading	Hauling	0.00	20.0	HHDT
Construct Temp Bridge - Grading	Onsite truck	—	—	HHDT

Construct Temp Bridge - BC	—	—	—	—
Construct Temp Bridge - BC	Worker	0.00	18.5	LDA,LDT1,LDT2
Construct Temp Bridge - BC	Vendor	0.00	10.2	HHDT,MHDT
Construct Temp Bridge - BC	Hauling	0.00	20.0	HHDT
Construct Temp Bridge - BC	Onsite truck	—	—	HHDT
Demo Temp Bridge	—	—	—	—
Demo Temp Bridge	Worker	0.00	18.5	LDA,LDT1,LDT2
Demo Temp Bridge	Vendor	—	10.2	HHDT,MHDT
Demo Temp Bridge	Hauling	0.00	20.0	HHDT
Demo Temp Bridge	Onsite truck	—	—	HHDT
Restore Beach Area	—	—	—	—
Restore Beach Area	Worker	0.00	18.5	LDA,LDT1,LDT2
Restore Beach Area	Vendor	—	10.2	HHDT,MHDT
Restore Beach Area	Hauling	0.00	20.0	HHDT
Restore Beach Area	Onsite truck	—	—	HHDT
Lagoon Grading	—	—	—	—
Lagoon Grading	Worker	0.00	18.5	LDA,LDT1,LDT2
Lagoon Grading	Vendor	—	10.2	HHDT,MHDT
Lagoon Grading	Hauling	0.00	20.0	HHDT
Lagoon Grading	Onsite truck	—	—	HHDT
Construct DBH Facilities	—	—	—	—
Construct DBH Facilities	Worker	0.00	18.5	LDA,LDT1,LDT2
Construct DBH Facilities	Vendor	0.00	10.2	HHDT,MHDT
Construct DBH Facilities	Hauling	0.00	20.0	HHDT
Construct DBH Facilities	Onsite truck	—	—	HHDT
Construct Temp Bridge - Paving	—	—	—	—
Construct Temp Bridge - Paving	Worker	10.0	18.5	LDA,LDT1,LDT2

Construct Temp Bridge - Paving	Vendor	—	10.2	HHDT,MHDT
Construct Temp Bridge - Paving	Hauling	0.00	20.0	HHDT
Construct Temp Bridge - Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demo + Parking Provisions	0.00	0.00	0.00	5,405	—
Demo Temp Bridge	0.00	0.00	0.00	465	—
Restore Beach Area	0.00	0.00	21.5	0.00	—
Unsuitable Material Replacement	12,600	26,000	42.0	0.00	—
Construct Temp Bridge - Grading	1,600	0.00	22.0	0.00	—
Lagoon Grading	0.00	256,000	77.0	0.00	—
Construct Temp Bridge - Paving	0.00	0.00	0.00	0.00	0.36

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Asphalt Surfaces	0.31	100%
General Office Building	0.00	0%
Other Non-Asphalt Surfaces	0.05	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00	532	0.03	< 0.005
2030	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.96	annual days of extreme heat
Extreme Precipitation	5.90	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	20.5	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A

Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	—
AQ-PM	—
AQ-DPM	—
Drinking Water	—
Lead Risk Housing	—
Pesticides	—
Toxic Releases	—
Traffic	—
Effect Indicators	—
CleanUp Sites	—
Groundwater	—
Haz Waste Facilities/Generators	—
Impaired Water Bodies	—
Solid Waste	—
Sensitive Population	—
Asthma	—
Cardio-vascular	—
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	—
Housing	—

Linguistic	—
Poverty	—
Unemployment	—

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	89.34941614
Employed	19.02989863
Median HI	97.69023483
Education	—
Bachelor's or higher	88.59232645
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	93.63531374
Active commuting	12.16476325
Social	—
2-parent households	42.29436674
Voting	82.35596048
Neighborhood	—
Alcohol availability	89.4649044
Park access	38.81688695
Retail density	42.06339022
Supermarket access	2.399589375
Tree canopy	71.42307199

Housing	—
Homeownership	65.75131528
Housing habitability	87.501604
Low-inc homeowner severe housing cost burden	64.24996792
Low-inc renter severe housing cost burden	88.91312717
Uncrowded housing	62.10701912
Health Outcomes	—
Insured adults	89.59322469
Arthritis	0.0
Asthma ER Admissions	99.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	77.8
Cognitively Disabled	87.2
Physically Disabled	55.6
Heart Attack ER Admissions	99.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	93.4
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—

Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	99.5
SLR Inundation Area	38.8
Children	43.1
Elderly	11.5
English Speaking	77.4
Foreign-born	54.6
Outdoor Workers	85.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	79.5
Traffic Density	81.9
Traffic Access	23.0
Other Indices	—
Hardship	5.4
Other Decision Support	—
2016 Voting	60.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	—
Healthy Places Index Score for Project Location (b)	90.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	see construction assumptions
Construction: Off-Road Equipment	see construction assumptions
Construction: Trips and VMT	construction mobile emissions calculated outside of CalEEMod
Construction: Dust From Material Movement	see construction assumptions

Topanga-NB Bridge-Con Detailed Report

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5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Topanga-NB Bridge-Con
Construction Start Date	1/1/2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	4.60
Location	18711 Pacific Coast Hwy, Malibu, CA 90265, USA
County	Los Angeles-South Coast
City	Unincorporated
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3802
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Asphalt Surfaces	78.4	1000sqft	1.80	78,408	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.15	1.81	14.1	16.4	0.03	0.60	2.77	3.37	0.55	1.34	1.88	—	3,714	3,714	0.15	0.08	2.20	3,727
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.15	1.81	14.1	16.4	0.03	0.60	2.77	3.37	0.55	1.34	1.88	—	3,714	3,714	0.15	0.08	0.06	3,727
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.16	0.98	7.90	9.75	0.02	0.34	0.81	1.14	0.31	0.30	0.61	—	2,322	2,322	0.09	0.06	0.56	2,342
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.21	0.18	1.44	1.78	< 0.005	0.06	0.15	0.21	0.06	0.06	0.11	—	384	384	0.01	0.01	0.09	388

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2028	2.15	1.81	14.1	16.4	0.03	0.60	2.77	3.37	0.55	1.34	1.88	—	3,714	3,714	0.15	0.08	2.20	3,727
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	2.15	1.81	14.1	16.4	0.03	0.60	2.77	3.37	0.55	1.34	1.88	—	3,714	3,714	0.15	0.08	0.06	3,727
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	1.16	0.98	7.90	9.75	0.02	0.34	0.81	1.14	0.31	0.30	0.61	—	2,322	2,322	0.09	0.06	0.56	2,342
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.21	0.18	1.44	1.78	< 0.005	0.06	0.15	0.21	0.06	0.06	0.11	—	384	384	0.01	0.01	0.09	388

3. Construction Emissions Details

3.1. NB Road/Bridge - Demo (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.57	3.95	0.01	0.07	—	0.07	0.06	—	0.06	—	574	574	0.02	< 0.005	—	576
Demolition	—	—	—	—	—	—	0.16	0.16	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.05	0.04	0.42	0.65	< 0.005	0.01	—	0.01	0.01	—	0.01	—	94.3	94.3	< 0.005	< 0.005	—	94.6
Demolition	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.6	15.6	< 0.005	< 0.005	—	15.7
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. NB Road/Bridge - Grading (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.15	1.81	14.1	16.4	0.03	0.60	—	0.60	0.55	—	0.55	—	3,714	3,714	0.15	0.03	—	3,727
Dust From Material Movement	—	—	—	—	—	—	2.77	2.77	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.15	1.81	14.1	16.4	0.03	0.60	—	0.60	0.55	—	0.55	—	3,714	3,714	0.15	0.03	—	3,727
Dust From Material Movement	—	—	—	—	—	—	2.77	2.77	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.30	2.36	2.75	0.01	0.10	—	0.10	0.09	—	0.09	—	621	621	0.03	0.01	—	623
Dust From Material Movement	—	—	—	—	—	—	0.46	0.46	—	0.22	0.22	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.43	0.50	< 0.005	0.02	—	0.02	0.02	—	0.02	—	103	103	< 0.005	< 0.005	—	103
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. NB Road/Bridge - BC (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.40	7.03	0.02	0.30	—	0.30	0.28	—	0.28	—	1,596	1,596	0.06	0.01	—	1,601
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.40	7.03	0.02	0.30	—	0.30	0.28	—	0.28	—	1,596	1,596	0.06	0.01	—	1,601
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.43	3.75	4.12	0.01	0.18	—	0.18	0.16	—	0.16	—	936	936	0.04	0.01	—	939
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.68	0.75	< 0.005	0.03	—	0.03	0.03	—	0.03	—	155	155	0.01	< 0.005	—	155
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.11	1.86	0.00	0.00	0.43	0.43	0.00	0.10	0.10	—	430	430	< 0.005	0.02	1.23	436
Vendor	0.03	0.01	0.40	0.19	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	384	384	0.01	0.05	0.97	401
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.13	1.58	0.00	0.00	0.43	0.43	0.00	0.10	0.10	—	408	408	0.01	0.02	0.03	412
Vendor	0.03	0.01	0.42	0.20	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	384	384	0.01	0.05	0.03	401
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.07	0.97	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	242	242	< 0.005	0.01	0.31	246
Vendor	0.01	0.01	0.25	0.11	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	225	225	0.01	0.03	0.24	235
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.18	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	40.1	40.1	< 0.005	< 0.005	0.05	40.7
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	37.3	37.3	< 0.005	0.01	0.04	38.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. NB Road/Bridge - Paving (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.71	1.44	12.4	13.6	0.02	0.56	—	0.56	0.52	—	0.52	—	2,405	2,405	0.10	0.02	—	2,414
Paving	—	0.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	1.05	1.16	< 0.005	0.05	—	0.05	0.04	—	0.04	—	204	204	0.01	< 0.005	—	205
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.19	0.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	33.8	33.8	< 0.005	< 0.005	—	33.9
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
NB Road/Bridge - Demo	Demolition	1/1/2028	2/29/2028	7.00	60.0	—
NB Road/Bridge - Grading	Grading	3/1/2028	4/30/2028	7.00	61.0	—
NB Road/Bridge - BC	Building Construction	5/1/2028	11/30/2028	7.00	214	—
NB Road/Bridge - Paving	Paving	12/1/2028	12/31/2028	7.00	31.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
NB Road/Bridge - Demo	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
NB Road/Bridge - Demo	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
NB Road/Bridge - Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
NB Road/Bridge - Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
NB Road/Bridge - Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
NB Road/Bridge - Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
NB Road/Bridge - Grading	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
NB Road/Bridge - BC	Cranes	Diesel	Average	1.00	8.00	367	0.29
NB Road/Bridge - BC	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
NB Road/Bridge - BC	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
NB Road/Bridge - BC	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
NB Road/Bridge - Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
NB Road/Bridge - Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
NB Road/Bridge - Paving	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
NB Road/Bridge - Paving	Graders	Diesel	Average	1.00	8.00	148	0.41

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
NB Road/Bridge - Demo	—	—	—	—
NB Road/Bridge - Demo	Worker	0.00	18.5	LDA,LDT1,LDT2
NB Road/Bridge - Demo	Vendor	—	10.2	HHDT,MHDT
NB Road/Bridge - Demo	Hauling	0.00	20.0	HHDT
NB Road/Bridge - Demo	Onsite truck	—	—	HHDT
NB Road/Bridge - Grading	—	—	—	—
NB Road/Bridge - Grading	Worker	0.00	18.5	LDA,LDT1,LDT2
NB Road/Bridge - Grading	Vendor	—	10.2	HHDT,MHDT
NB Road/Bridge - Grading	Hauling	0.00	20.0	HHDT
NB Road/Bridge - Grading	Onsite truck	—	—	HHDT
NB Road/Bridge - BC	—	—	—	—
NB Road/Bridge - BC	Worker	32.9	18.5	LDA,LDT1,LDT2
NB Road/Bridge - BC	Vendor	12.9	10.2	HHDT,MHDT
NB Road/Bridge - BC	Hauling	0.00	20.0	HHDT
NB Road/Bridge - BC	Onsite truck	—	—	HHDT
NB Road/Bridge - Paving	—	—	—	—
NB Road/Bridge - Paving	Worker	0.00	18.5	LDA,LDT1,LDT2
NB Road/Bridge - Paving	Vendor	—	10.2	HHDT,MHDT
NB Road/Bridge - Paving	Hauling	0.00	20.0	HHDT
NB Road/Bridge - Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
NB Road/Bridge - Demo	0.00	0.00	0.00	675	—
NB Road/Bridge - Grading	12,000	18,500	43.0	0.00	—
NB Road/Bridge - Paving	0.00	0.00	0.00	0.00	1.80

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Asphalt Surfaces	1.80	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2028	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.96	annual days of extreme heat
Extreme Precipitation	5.90	annual days with precipitation above 20 mm

Sea Level Rise	—	meters of inundation depth
Wildfire	20.5	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score

Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	—
AQ-PM	—
AQ-DPM	—
Drinking Water	—
Lead Risk Housing	—
Pesticides	—
Toxic Releases	—

Traffic	—
Effect Indicators	—
CleanUp Sites	—
Groundwater	—
Haz Waste Facilities/Generators	—
Impaired Water Bodies	—
Solid Waste	—
Sensitive Population	—
Asthma	—
Cardio-vascular	—
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	—
Housing	—
Linguistic	—
Poverty	—
Unemployment	—

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	89.34941614
Employed	19.02989863
Median HI	97.69023483
Education	—
Bachelor's or higher	88.59232645

High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	93.63531374
Active commuting	12.16476325
Social	—
2-parent households	42.29436674
Voting	82.35596048
Neighborhood	—
Alcohol availability	89.4649044
Park access	38.81688695
Retail density	42.06339022
Supermarket access	2.399589375
Tree canopy	71.42307199
Housing	—
Homeownership	65.75131528
Housing habitability	87.501604
Low-inc homeowner severe housing cost burden	64.24996792
Low-inc renter severe housing cost burden	88.91312717
Uncrowded housing	62.10701912
Health Outcomes	—
Insured adults	89.59322469
Arthritis	0.0
Asthma ER Admissions	99.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0

Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	77.8
Cognitively Disabled	87.2
Physically Disabled	55.6
Heart Attack ER Admissions	99.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	93.4
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	99.5
SLR Inundation Area	38.8
Children	43.1
Elderly	11.5
English Speaking	77.4
Foreign-born	54.6
Outdoor Workers	85.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	79.5

Traffic Density	81.9
Traffic Access	23.0
Other Indices	—
Hardship	5.4
Other Decision Support	—
2016 Voting	60.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	—
Healthy Places Index Score for Project Location (b)	90.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	see construction assumptions

Construction: Off-Road Equipment	see construction assumptions
Construction: Trips and VMT	construction mobile emissions calculated outside of CalEEMod.
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Topanga-SB Bridge-Con Detailed Report

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5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Topanga-SB Bridge-Con
Construction Start Date	1/1/2029
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	4.60
Location	18711 Pacific Coast Hwy, Malibu, CA 90265, USA
County	Los Angeles-South Coast
City	Unincorporated
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3802
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Asphalt Surfaces	78.4	1000sqft	1.80	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.10	1.76	13.2	16.3	0.03	0.56	2.77	3.33	0.51	1.34	1.85	—	3,713	3,713	0.15	0.03	0.00	3,726
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.10	1.76	13.2	16.3	0.03	0.56	2.77	3.33	0.51	1.34	1.85	—	3,713	3,713	0.15	0.03	0.00	3,726
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.04	0.89	7.16	8.61	0.02	0.31	0.49	0.80	0.29	0.23	0.51	—	1,853	1,853	0.08	0.02	0.00	1,859
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.19	0.16	1.31	1.57	< 0.005	0.06	0.09	0.15	0.05	0.04	0.09	—	307	307	0.01	< 0.005	0.00	308

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2029	2.10	1.76	13.2	16.3	0.03	0.56	2.77	3.33	0.51	1.34	1.85	—	3,713	3,713	0.15	0.03	0.00	3,726
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	2.10	1.76	13.2	16.3	0.03	0.56	2.77	3.33	0.51	1.34	1.85	—	3,713	3,713	0.15	0.03	0.00	3,726
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	1.04	0.89	7.16	8.61	0.02	0.31	0.49	0.80	0.29	0.23	0.51	—	1,853	1,853	0.08	0.02	0.00	1,859
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.19	0.16	1.31	1.57	< 0.005	0.06	0.09	0.15	0.05	0.04	0.09	—	307	307	0.01	< 0.005	0.00	308

3. Construction Emissions Details

3.1. SB Road/Bridge - Demo (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.53	3.96	0.01	0.06	—	0.06	0.05	—	0.05	—	574	574	0.02	< 0.005	—	576
Demolition	—	—	—	—	—	—	0.16	0.16	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.05	0.04	0.41	0.64	< 0.005	0.01	—	0.01	0.01	—	0.01	—	92.8	92.8	< 0.005	< 0.005	—	93.1
Demolition	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.4	15.4	< 0.005	< 0.005	—	15.4
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. SB Road/Bridge - Grading (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.10	1.76	13.2	16.3	0.03	0.56	—	0.56	0.51	—	0.51	—	3,713	3,713	0.15	0.03	—	3,726
Dust From Material Movement	—	—	—	—	—	—	2.77	2.77	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.10	1.76	13.2	16.3	0.03	0.56	—	0.56	0.51	—	0.51	—	3,713	3,713	0.15	0.03	—	3,726
Dust From Material Movement	—	—	—	—	—	—	2.77	2.77	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.29	2.21	2.73	0.01	0.09	—	0.09	0.09	—	0.09	—	621	621	0.03	0.01	—	623
Dust From Material Movement	—	—	—	—	—	—	0.46	0.46	—	0.22	0.22	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.40	0.50	< 0.005	0.02	—	0.02	0.02	—	0.02	—	103	103	< 0.005	< 0.005	—	103
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. SB Road/Bridge - BC (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	0.71	6.06	6.99	0.02	0.28	—	0.28	0.26	—	0.26	—	1,596	1,596	0.06	0.01	—	1,601
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	0.71	6.06	6.99	0.02	0.28	—	0.28	0.26	—	0.26	—	1,596	1,596	0.06	0.01	—	1,601
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.42	3.55	4.10	0.01	0.16	—	0.16	0.15	—	0.15	—	936	936	0.04	0.01	—	939
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.65	0.75	< 0.005	0.03	—	0.03	0.03	—	0.03	—	155	155	0.01	< 0.005	—	155
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. SB Road/Bridge - Paving (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.66	1.39	11.6	13.5	0.02	0.53	—	0.53	0.49	—	0.49	—	2,404	2,404	0.10	0.02	—	2,412
Paving	—	0.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	0.99	1.15	< 0.005	0.05	—	0.05	0.04	—	0.04	—	204	204	0.01	< 0.005	—	205
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.18	0.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	33.8	33.8	< 0.005	< 0.005	—	33.9
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
SB Road/Bridge - Demo	Demolition	1/1/2029	2/28/2029	7.00	59.0	—
SB Road/Bridge - Grading	Grading	3/1/2029	4/30/2029	7.00	61.0	—
SB Road/Bridge - BC	Building Construction	5/1/2029	11/30/2029	7.00	214	—
SB Road/Bridge - Paving	Paving	12/1/2029	12/31/2029	7.00	31.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
SB Road/Bridge - Demo	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
SB Road/Bridge - Demo	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
SB Road/Bridge - Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
SB Road/Bridge - Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
SB Road/Bridge - Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
SB Road/Bridge - Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
SB Road/Bridge - Grading	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
SB Road/Bridge - BC	Cranes	Diesel	Average	1.00	8.00	367	0.29
SB Road/Bridge - BC	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
SB Road/Bridge - BC	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
SB Road/Bridge - BC	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
SB Road/Bridge - Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
SB Road/Bridge - Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
SB Road/Bridge - Paving	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
SB Road/Bridge - Paving	Graders	Diesel	Average	1.00	8.00	148	0.41

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
SB Road/Bridge - Demo	—	—	—	—
SB Road/Bridge - Demo	Worker	0.00	18.5	LDA,LDT1,LDT2
SB Road/Bridge - Demo	Vendor	—	10.2	HHDT,MHDT
SB Road/Bridge - Demo	Hauling	0.00	20.0	HHDT
SB Road/Bridge - Demo	Onsite truck	—	—	HHDT
SB Road/Bridge - Grading	—	—	—	—
SB Road/Bridge - Grading	Worker	0.00	18.5	LDA,LDT1,LDT2
SB Road/Bridge - Grading	Vendor	—	10.2	HHDT,MHDT
SB Road/Bridge - Grading	Hauling	0.00	20.0	HHDT
SB Road/Bridge - Grading	Onsite truck	—	—	HHDT
SB Road/Bridge - BC	—	—	—	—
SB Road/Bridge - BC	Worker	0.00	18.5	LDA,LDT1,LDT2
SB Road/Bridge - BC	Vendor	0.00	10.2	HHDT,MHDT
SB Road/Bridge - BC	Hauling	0.00	20.0	HHDT
SB Road/Bridge - BC	Onsite truck	—	—	HHDT
SB Road/Bridge - Paving	—	—	—	—
SB Road/Bridge - Paving	Worker	0.00	18.5	LDA,LDT1,LDT2
SB Road/Bridge - Paving	Vendor	—	10.2	HHDT,MHDT
SB Road/Bridge - Paving	Hauling	0.00	20.0	HHDT
SB Road/Bridge - Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
SB Road/Bridge - Demo	0.00	0.00	0.00	675	—
SB Road/Bridge - Grading	12,000	17,300	43.0	0.00	—
SB Road/Bridge - Paving	0.00	0.00	0.00	0.00	1.80

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Asphalt Surfaces	1.80	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2029	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.96	annual days of extreme heat
Extreme Precipitation	5.90	annual days with precipitation above 20 mm

Sea Level Rise	—	meters of inundation depth
Wildfire	20.5	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score

Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	—
AQ-PM	—
AQ-DPM	—
Drinking Water	—
Lead Risk Housing	—
Pesticides	—
Toxic Releases	—

Traffic	—
Effect Indicators	—
CleanUp Sites	—
Groundwater	—
Haz Waste Facilities/Generators	—
Impaired Water Bodies	—
Solid Waste	—
Sensitive Population	—
Asthma	—
Cardio-vascular	—
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	—
Housing	—
Linguistic	—
Poverty	—
Unemployment	—

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	89.34941614
Employed	19.02989863
Median HI	97.69023483
Education	—
Bachelor's or higher	88.59232645

High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	93.63531374
Active commuting	12.16476325
Social	—
2-parent households	42.29436674
Voting	82.35596048
Neighborhood	—
Alcohol availability	89.4649044
Park access	38.81688695
Retail density	42.06339022
Supermarket access	2.399589375
Tree canopy	71.42307199
Housing	—
Homeownership	65.75131528
Housing habitability	87.501604
Low-inc homeowner severe housing cost burden	64.24996792
Low-inc renter severe housing cost burden	88.91312717
Uncrowded housing	62.10701912
Health Outcomes	—
Insured adults	89.59322469
Arthritis	0.0
Asthma ER Admissions	99.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0

Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	77.8
Cognitively Disabled	87.2
Physically Disabled	55.6
Heart Attack ER Admissions	99.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	93.4
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	99.5
SLR Inundation Area	38.8
Children	43.1
Elderly	11.5
English Speaking	77.4
Foreign-born	54.6
Outdoor Workers	85.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	79.5

Traffic Density	81.9
Traffic Access	23.0
Other Indices	—
Hardship	5.4
Other Decision Support	—
2016 Voting	60.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	—
Healthy Places Index Score for Project Location (b)	90.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

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Construction: Construction Phases	see construction assumptions

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5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Topanga-VS-Con
Construction Start Date	1/1/2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	4.60
Location	18711 Pacific Coast Hwy, Malibu, CA 90265, USA
County	Los Angeles-South Coast
City	Unincorporated
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3802
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Office Building	5.50	1000sqft	0.13	5,500	0.00	—	—	—

Parking Lot	75.0	Space	0.67	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.70	10.1	12.6	16.7	0.03	0.47	0.00	0.47	0.44	0.00	0.44	—	3,026	3,026	0.12	0.02	0.00	3,037
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.55	1.30	11.4	12.4	0.02	0.52	2.76	3.28	0.48	1.34	1.81	—	2,238	2,238	0.09	0.02	0.00	2,245
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.35	0.46	2.75	3.73	0.01	0.11	0.03	0.14	0.10	0.01	0.11	—	768	768	0.03	0.01	0.00	771
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.06	0.08	0.50	0.68	< 0.005	0.02	0.01	0.02	0.02	< 0.005	0.02	—	127	127	0.01	< 0.005	0.00	128

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.70	10.1	12.6	16.7	0.03	0.47	0.00	0.47	0.44	0.00	0.44	—	3,026	3,026	0.12	0.02	0.00	3,037
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.55	1.30	11.4	12.4	0.02	0.52	2.76	3.28	0.48	1.34	1.81	—	2,238	2,238	0.09	0.02	0.00	2,245
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.35	0.46	2.75	3.73	0.01	0.11	0.03	0.14	0.10	0.01	0.11	—	768	768	0.03	0.01	0.00	771
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.06	0.08	0.50	0.68	< 0.005	0.02	0.01	0.02	0.02	< 0.005	0.02	—	127	127	0.01	< 0.005	0.00	128

3. Construction Emissions Details

3.1. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	0.41	3.44	5.56	0.01	0.17	—	0.17	0.15	—	0.15	—	859	859	0.03	0.01	—	862
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.02	0.02	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.35	2.35	< 0.005	< 0.005	—	2.36
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.39	0.39	< 0.005	< 0.005	—	0.39
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.55	1.30	11.4	12.4	0.02	0.52	—	0.52	0.48	—	0.48	—	2,238	2,238	0.09	0.02	—	2,245
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.13	0.14	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.5	24.5	< 0.005	< 0.005	—	24.6

Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.06	4.06	< 0.005	< 0.005	—	4.07
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.51	8.94	0.02	0.25	—	0.25	0.23	—	0.23	—	1,876	1,876	0.08	0.02	—	1,882
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.51	8.94	0.02	0.25	—	0.25	0.23	—	0.23	—	1,876	1,876	0.08	0.02	—	1,882
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.50	3.43	0.01	0.10	—	0.10	0.09	—	0.09	—	719	719	0.03	0.01	—	722
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.46	0.63	< 0.005	0.02	—	0.02	0.02	—	0.02	—	119	119	< 0.005	< 0.005	—	120
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Paving (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.70	0.58	4.98	6.25	0.01	0.20	—	0.20	0.19	—	0.19	—	973	973	0.04	0.01	—	976
Paving	—	0.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.7	18.7	< 0.005	< 0.005	—	18.7
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.09	3.09	< 0.005	< 0.005	—	3.10
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Architectural Coating (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	1.11	1.50	< 0.005	0.03	—	0.03	0.02	—	0.02	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	—	8.45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.41	3.41	< 0.005	< 0.005	—	3.43
Architectural Coatings	—	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.57	0.57	< 0.005	< 0.005	—	0.57
Architectural Coatings	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/1/2027	1/1/2027	7.00	1.00	—
Grading	Grading	1/2/2027	1/5/2027	7.00	4.00	—
Building Construction	Building Construction	1/6/2027	5/25/2027	7.00	140	—
Paving	Paving	5/19/2027	5/25/2027	7.00	7.00	—
Architectural Coating	Architectural Coating	5/19/2027	5/25/2027	7.00	7.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	8.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	8.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	0.00	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	0.00	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT

Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	0.00	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	0.00	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.00	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	8,250	2,750	1,764

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	0.50	0.00	—
Grading	—	—	4.00	0.00	—
Paving	0.00	0.00	0.00	0.00	0.67

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Office Building	0.00	0%
Parking Lot	0.67	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.96	annual days of extreme heat
Extreme Precipitation	5.90	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	20.5	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	—
AQ-PM	—
AQ-DPM	—
Drinking Water	—
Lead Risk Housing	—
Pesticides	—
Toxic Releases	—
Traffic	—
Effect Indicators	—
CleanUp Sites	—
Groundwater	—
Haz Waste Facilities/Generators	—
Impaired Water Bodies	—
Solid Waste	—
Sensitive Population	—
Asthma	—
Cardio-vascular	—

Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	—
Housing	—
Linguistic	—
Poverty	—
Unemployment	—

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	89.34941614
Employed	19.02989863
Median HI	97.69023483
Education	—
Bachelor's or higher	88.59232645
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	93.63531374
Active commuting	12.16476325
Social	—
2-parent households	42.29436674
Voting	82.35596048
Neighborhood	—
Alcohol availability	89.4649044

Park access	38.81688695
Retail density	42.06339022
Supermarket access	2.399589375
Tree canopy	71.42307199
Housing	—
Homeownership	65.75131528
Housing habitability	87.501604
Low-inc homeowner severe housing cost burden	64.24996792
Low-inc renter severe housing cost burden	88.91312717
Uncrowded housing	62.10701912
Health Outcomes	—
Insured adults	89.59322469
Arthritis	0.0
Asthma ER Admissions	99.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	77.8
Cognitively Disabled	87.2
Physically Disabled	55.6
Heart Attack ER Admissions	99.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0

Pedestrian Injuries	93.4
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	99.5
SLR Inundation Area	38.8
Children	43.1
Elderly	11.5
English Speaking	77.4
Foreign-born	54.6
Outdoor Workers	85.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	79.5
Traffic Density	81.9
Traffic Access	23.0
Other Indices	—
Hardship	5.4
Other Decision Support	—
2016 Voting	60.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	—

Healthy Places Index Score for Project Location (b)	90.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	see construction assumptions
Construction: Construction Phases	see construction assumptions
Construction: Off-Road Equipment	see construction assumptions
Construction: Trips and VMT	construction mobile emissions calculated outside of CalEEMod.

Construction: Off-Road Equipment	see construction assumptions
Construction: Trips and VMT	construction mobile emissions calculated outside of CalEEMod.
Construction: Dust From Material Movement	see construction assumptions

N.3-1 Option 2 Construction Air Quality Emissions Calculations

Topanga Lagoon Option 2
Air Quality Construction Analysis

Regional Maximums Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
					lb/day					
Grading - 2029	0.55	4.25	7.00	0.018	0.93	0.16	1.08	0.21	0.15	0.35
Project Daily Maximum Emissions	**0.55**	**4.25**	**7.00**	**0.018**	**0.93**	**0.16**	**1.08**	**0.21**	**0.15**	**0.35**

Localized Maximum Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
					lb/day					
Grading - 2029	0.43	3.29	5.10	0.008	0.21	0.14	0.35	0.02	0.13	0.16
Project Daily Maximum Emissions	**0.43**	**3.29**	**5.10**	**0.008**	**0.21**	**0.14**	**0.35**	**0.02**	**0.13**	**0.16**

Topanga Lagoon Option 2

Air Quality Construction Analysis

Summer	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
Grading - 2029	0.43	3.29	5.10	0.008	0.21	0.14	0.35	0.02	0.13	0.16	0.12	0.96	1.90	0.011	0.72	0.01	0.73	0.18	0.01	0.19

Note: Offsite emissions pasted over from EMFAC2021 analysis

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Grading - 2029	0.55	4.25	7.00	0.018	0.93	0.16	1.08	0.21	0.15	0.35
Project Daily Maximum Emissions	**0.55**	**4.25**	**7.00**	**0.018**	**0.93**	**0.16**	**1.08**	**0.21**	**0.15**	**0.35**

Topanga Lagoon Option 2

Air Quality Construction Analysis

Winter	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
Grading - 2029	0.43	3.29	5.10	0.008	0.21	0.14	0.35	0.02	0.13	0.16	0.12	0.96	1.90	0.011	0.72	0.01	0.73	0.18	0.01	0.19

Note: Offsite emissions pasted over from EMFAC2021 analysis

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Grading - 2029	0.55	4.25	7.00	0.018	0.93	0.16	1.08	0.21	0.15	0.35
Project Daily Maximum Emissions	**0.55**	**4.25**	**7.00**	**0.018**	**0.93**	**0.16**	**1.08**	**0.21**	**0.15**	**0.35**

Topanga Lagoon Option 2
Air Quality Construction Analysis
Mitigated Emissions

Regional Maximums Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
					lb/day					
Grading - 2029	0.33	2.64	7.30	0.018	0.93	0.06	0.99	0.21	0.06	0.26
Project Daily Maximum Emissions	**0.33**	**2.64**	**7.30**	**0.018**	**0.93**	**0.06**	**0.99**	**0.21**	**0.06**	**0.26**

Localized Maximum Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
					lb/day					
Grading - 2029	0.21	1.68	5.40	0.008	0.21	0.05	0.26	0.02	0.05	0.07
Project Daily Maximum Emissions	**0.21**	**1.68**	**5.40**	**0.008**	**0.21**	**0.05**	**0.26**	**0.02**	**0.05**	**0.07**

Topanga Lagoon Option 2

Air Quality Construction Analysis

Mitigated Emissions

Summer	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
Grading - 2029	0.21	1.68	5.40	0.008	0.21	0.05	0.26	0.02	0.05	0.07	0.12	0.96	1.90	0.011	0.72	0.01	0.73	0.18	0.01	0.19

Note: Offsite emissions pasted over from EMFAC2021 analysis

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Grading - 2029	0.33	2.64	7.30	0.018	0.93	0.06	0.99	0.21	0.06	0.26
Project Daily Maximum Emissions	**0.33**	**2.64**	**7.30**	**0.018**	**0.93**	**0.06**	**0.99**	**0.21**	**0.06**	**0.26**

Topanga Lagoon Option 2
Air Quality Construction Analysis
Mitigated Emissions

Winter	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
Grading - 2029	0.21	1.68	5.40	0.008	0.21	0.05	0.26	0.02	0.05	0.07	0.12	0.96	1.90	0.011	0.72	0.01	0.73	0.18	0.01	0.19

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Grading - 2029	0.33	2.64	7.30	0.018	0.93	0.06	0.99	0.21	0.06	0.26
Project Daily Maximum Emissions	**0.33**	**2.64**	**7.30**	**0.018**	**0.93**	**0.06**	**0.99**	**0.21**	**0.06**	**0.26**

Note: Offsite emissions pasted over from EMFAC2021 analysis

N.3-2 Option 2 Construction Air Quality Mobile Emissions

Topanga Canyon - Op2 and 3
Total Emissions

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Idling per Day (minutes)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10 Dust	PM10 Exh	Total PM10	PM2.5 Dust	PM2.5 Exh	Total PM2.5	(MT/yr) Total CO2e
Grading/Excavation	2030															
Total Haul Trips	200															
Hauling	6	43	8	36.5	15	0.02	0.86	0.43	0.01	0.20	0.01	0.21	0.05	0.01	0.06	11.02
Vendor	0	214	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	43.18
					Total	0.12	0.96	1.90	0.01	0.72	0.01	0.73	0.18	0.01	0.19	54.20
Demolition NB Road/Bridge	2031				Workers+Ver	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	43	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	11.69
					Total	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	11.69
Construct NB Road/Bridge	2031	Grading/Excavation			Workers+Ver	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	200															
Hauling	6	43	8	36.5	15	0.02	0.83	0.42	0.01	0.20	0.01	0.21	0.05	0.01	0.06	10.73
Vendor	0	61	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.08
					Total	0.11	0.92	1.81	0.01	0.72	0.01	0.73	0.18	0.01	0.19	22.82
Construct NB Road/Bridge	2031	Building Construction			Workers+Ver	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	330															
Hauling	4	152	8	36.5	15	0.01	0.56	0.28	0.00	0.14	0.01	0.14	0.04	0.01	0.04	17.71
Vendor	0	214	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	42.39
					Total	0.10	0.64	1.67	0.01	0.65	0.01	0.66	0.16	0.01	0.17	60.10
Construct NB Road/Bridge	2031	Paving			Workers+Ver	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	23	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.14
					Total	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.14
					Workers+Ver	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	

Topanga Canyon - Op2 and 3
Running Emissions

		Running Emissions Factor (grams/mile)						Running Emissions Factor (grams/mile)		
		ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX
2027	2027Hauling Hauling	0.013128	1.553518611	0.45473657	0.01336714	0.02273486	0.02174732	1471.80075	0.0608523	0.23462364
2027	2027Vendor Vendor	0.01570588	1.102331968	0.36327753	0.01214871	0.01475662	0.01411185	1311.1435	0.03509759	0.18307889
2027	2027Worker Worker	0.01447264	0.062492418	0.90233334	0.00281062	0.00150729	0.0013867	284.320587	0.00354266	0.00566149
2028	2028Hauling Hauling	0.01261339	1.493718015	0.43877031	0.01305596	0.02247317	0.02149714	1438.29866	0.05768159	0.22931835
2028	2028Vendor Vendor	0.01417298	1.038868065	0.3360531	0.01185313	0.01426835	0.01364491	1280.01295	0.03342244	0.17922194
2028	2028Worker Worker	0.01314756	0.057035459	0.85167037	0.00274948	0.00140448	0.00129194	278.134904	0.00325313	0.00533773
2029	2029Hauling Hauling	0.01213472	1.434866903	0.4224926	0.01273534	0.0221686	0.0212059	1403.60667	0.05465536	0.22381566
2029	2029Vendor Vendor	0.0128196	0.978781777	0.31101237	0.01152628	0.01380314	0.01320005	1245.46404	0.03180989	0.17489835
2029	2029Worker Worker	0.01192021	0.051957034	0.80464317	0.00269297	0.00130724	0.00120239	272.417637	0.00298654	0.00503952
2030	2030Hauling Hauling	0.01169729	1.381905725	0.40596438	0.01241489	0.02183595	0.02088778	1368.72007	0.05170538	0.2182712
2030	2030Vendor Vendor	0.01168751	0.9252091	0.28941545	0.01117412	0.01336285	0.01277903	1208.11234	0.03023265	0.17022289
2030	2030Worker Worker	0.01081241	0.047255061	0.76242747	0.00264062	0.00121547	0.00111789	267.121939	0.00274623	0.00476556
2031	2031Hauling Hauling	0.01126827	1.331771303	0.38663416	0.01209496	0.02148002	0.02054741	1333.31591	0.04842446	0.21262163
2031	2031Vendor Vendor	0.01070694	0.874998281	0.26868024	0.01079467	0.01293916	0.01237394	1167.57711	0.02847022	0.16520071
2031	2031Worker Worker	0.00977403	0.042746598	0.72305591	0.00259298	0.00112929	0.00103861	262.302837	0.0025216	0.00450761
0	GWP	N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Grading/Excavation	2030													
Total Haul Trips	200													
Hauling	6	43	8	36.5	0.01	0.67	0.20	0.01	0.01	0.01	9.99	0.01	0.47	10.48
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.02	0.08	1.24	0.00	0.00	0.00	42.30	0.01	0.22	42.54
Demolition NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.02	0.07	1.18	0.00	0.00	0.00	11.45	0.00	0.06	11.51
Construct NB Road/Bridge	2031													
Total Haul Trips	200													
Hauling	6	43	8	36.5	0.01	0.64	0.19	0.01	0.01	0.01	9.73	0.01	0.46	10.20
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.02	0.07	1.18	0.00	0.00	0.00	11.84	0.00	0.06	11.90
Construct NB Road/Bridge	2031													
Total Haul Trips	330													
Hauling	4	152	8	36.5	0.00	0.43	0.12	0.00	0.01	0.01	16.06	0.01	0.76	16.84
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.02	0.07	1.18	0.00	0.00	0.00	41.54	0.01	0.21	41.76
Construct NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	23	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.02	0.07	1.18	0.00	0.00	0.00	6.02	0.00	0.03	6.05

Topanga Canyon - Op2 and 3
Start Emissions

			Start Emissions Factor (grams/trip)						Start Emissions Factor (grams/trip)		
			ROG_STREX	NOX_STREX	CO_STREX	SOx_STREX	PM10_STREX	PM2.5_STREX	CO2_STREX	CH4_STREX	N2O_STREX
2027	2027Hauling	Hauling	0.00060894	2.672142352	0.00302137	3.16557E-07	5.30481E-07	4.87758E-07	0.03202066	7.5498E-08	7.36611E-06
2027	2027Vendor	Vendor	0.080213538	1.961946447	0.60365405	5.50826E-05	6.07836E-05	5.58883E-05	5.57177064	0.005494835	0.004037678
2027	2027Worker	Worker	1.038950633	0.251050817	3.01934346	0.000691936	0.002053348	0.001887978	69.9913431	0.06616369	0.030829475
2028	2028Hauling	Hauling	0.000490696	2.636914961	0.00257595	2.71845E-07	4.29594E-07	3.94995E-07	0.02749789	6.56178E-08	5.97594E-06
2028	2028Vendor	Vendor	0.075419112	1.927915654	0.55968909	5.22383E-05	5.76932E-05	5.30468E-05	5.28405692	0.005169504	0.003780947
2028	2028Worker	Worker	0.997046953	0.239560346	2.85187017	0.000675557	0.001941969	0.001785569	68.3345653	0.062483886	0.030029939
2029	2029Hauling	Hauling	0.000383539	2.591170334	0.00214107	2.33546E-07	3.28727E-07	3.02252E-07	0.02362391	5.62127E-08	4.65545E-06
2029	2029Vendor	Vendor	0.069289941	1.883995908	0.51714657	4.94212E-05	5.46034E-05	5.02058E-05	4.99909929	0.004852786	0.003548842
2029	2029Worker	Worker	0.945798618	0.229251267	2.69630558	0.000660221	0.001832244	0.00168468	66.7833	0.059077063	0.029313823
2030	2030Hauling	Hauling	0.00027279	2.546881303	0.00161285	1.92445E-07	2.06187E-07	1.89581E-07	0.01946637	4.71315E-08	4.0595E-06
2030	2030Vendor	Vendor	0.063656597	1.839529651	0.47865041	4.67001E-05	5.18671E-05	4.76899E-05	4.72385215	0.004565454	0.003322989
2030	2030Worker	Worker	0.901632052	0.219772527	2.55165593	0.00064583	0.001725708	0.001586724	65.3276344	0.055883281	0.028658371
2031	2031Hauling	Hauling	0.000210057	2.503276097	0.00139863	1.66951E-07	1.58801E-07	1.46012E-07	0.01688763	4.13015E-08	2.64568E-06
2031	2031Vendor	Vendor	0.059141215	1.792713918	0.44197461	4.38654E-05	4.91716E-05	4.52115E-05	4.43711805	0.004280254	0.003105544
2031	2031Worker	Worker	0.857879142	0.211029605	2.41545051	0.000632455	0.001621689	0.001491083	63.974738	0.052892816	0.028060877
	GWP			N/A					1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Grading/Excavation	2030													
Total Haul Trips	200													
Hauling	6	43	8	36.5	0.00	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.08	0.02	0.23	0.00	0.00	0.00	0.56	0.00	0.00	0.64
Demolition NB Road/Bridg	2031													
Total Haul Trips	0													
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.08	0.02	0.21	0.00	0.00	0.00	0.15	0.00	0.00	0.17
Construct NB Road/Bridge	2031													
Total Haul Trips	200													
Hauling	6	43	8	36.5	0.00	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.08	0.02	0.21	0.00	0.00	0.00	0.16	0.00	0.00	0.18
Construct NB Road/Bridge	2031													
Total Haul Trips	330													
Hauling	4	152	8	36.5	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.08	0.02	0.21	0.00	0.00	0.00	0.55	0.00	0.00	0.63
Construct NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	23	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.08	0.02	0.21	0.00	0.00	0.00	0.08	0.00	0.00	0.09

Topanga Canyon - Op2 and 3
Idling Emissions

			Idling Emissions Factor (grams/minute)						Idling Emissions Factor (grams/minute)		
			ROG_IDLEX	NOx_IDLEX	CO_IDLEX	SOx_IDLEX	PM10_IDLEX	PM2.5_IDLEX	CO2_IDLEX	CH4_IDLEX	N2O_IDLEX
2027	2027Hauling	Hauling	0.07592279	0.881696127	1.19921987	0.00159973	0.00047074	0.00044926	181.442358	0.03427011	0.02916541
2027	2027Vendor	Vendor	0.05529965	0.899602458	1.04932075	0.00167506	0.00086494	0.00082645	186.589554	0.03155173	0.02918792
2027	2027Worker	Worker	0	0	0	0	0	0	0	0	0
2028	2028Hauling	Hauling	0.07529788	0.857767875	1.19214339	0.00156045	0.00045204	0.00043133	177.300744	0.03377364	0.02851321
2028	2028Vendor	Vendor	0.05432839	0.863093228	1.0395891	0.00163993	0.00074988	0.00071632	182.978932	0.03134729	0.02865517
2028	2028Worker	Worker	0	0	0	0	0	0	0	0	0
2029	2029Hauling	Hauling	0.07461794	0.835480721	1.18399992	0.00152188	0.00043143	0.00041158	173.194944	0.03323976	0.02786481
2029	2029Vendor	Vendor	0.05333308	0.827999465	1.02749811	0.0016013	0.00065239	0.00062302	178.951612	0.03104801	0.02805443
2029	2029Worker	Worker	0	0	0	0	0	0	0	0	0
2030	2030Hauling	Hauling	0.07391144	0.816007794	1.17493744	0.0014846	0.00041331	0.00039421	169.186161	0.03269373	0.0272299
2030	2030Vendor	Vendor	0.05232472	0.795299763	1.01321823	0.00155966	0.00057171	0.0005458	174.561724	0.03067462	0.02739395
2030	2030Worker	Worker	0	0	0	0	0	0	0	0	0
2031	2031Hauling	Hauling	0.0732853	0.799579641	1.1664382	0.00145061	0.00039768	0.00037924	165.457521	0.03205186	0.02663599
2031	2031Vendor	Vendor	0.05130878	0.763402339	0.99683404	0.00151522	0.00050437	0.00048136	169.805962	0.03011968	0.02667472
2031	2031Worker	Worker	0	0	0	0	0	0	0	0	0
		GWP	N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	Idling minutes per Day	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Grading/Excavation	2030													
Total Haul Trips	200													
Hauling	6	43	8	15	0.01	0.16	0.23	0.00	0.00	0.00	0.51	0.00	0.02	0.53
Vendor	0	214	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	43	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2031													
Total Haul Trips	200													
Hauling	6	43	8	15	0.01	0.16	0.23	0.00	0.00	0.00	0.50	0.00	0.02	0.52
Vendor	0	61	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2031													
Total Haul Trips	330													
Hauling	4	152	8	15	0.01	0.11	0.15	0.00	0.00	0.00	0.82	0.00	0.04	0.86
Vendor	0	214	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	23	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - Op2 and 3
Road Dust, Break Wear, and Tire wear Emissions

			Emission Factors (grams/mile)					
			PM10			PM2.5		
			RD	PM10_PMBW	PM10_PMTW	RD	PM2.5_PMBW	PM2.5_PMTW
2027	2027Hauling	Hauling	0.29984991	0.084297987	0.03545106	0.07359952	0.0295043	0.00886277
2027	2027Vendor	Vendor	0.29984991	0.063623189	0.02372553	0.07359952	0.02226812	0.00593138
2027	2027Worker	Worker	0.29984991	0.009305649	0.008	0.07359952	0.00325698	0.002
2028	2028Hauling	Hauling	0.29984991	0.084486989	0.03545475	0.07359952	0.02957045	0.00886369
2028	2028Vendor	Vendor	0.29984991	0.063544145	0.02372738	0.07359952	0.02224045	0.00593184
2028	2028Worker	Worker	0.29984991	0.009284129	0.008	0.07359952	0.00324945	0.002
2029	2029Hauling	Hauling	0.29984991	0.084584422	0.03545835	0.07359952	0.02960455	0.00886459
2029	2029Vendor	Vendor	0.29984991	0.063359545	0.02372918	0.07359952	0.02217584	0.00593229
2029	2029Worker	Worker	0.29984991	0.00926272	0.008	0.07359952	0.00324195	0.002
2030	2030Hauling	Hauling	0.29984991	0.08460378	0.03546191	0.07359952	0.02961132	0.00886548
2030	2030Vendor	Vendor	0.29984991	0.063078834	0.02373095	0.07359952	0.02207759	0.00593274
2030	2030Worker	Worker	0.29984991	0.00924132	0.008	0.07359952	0.00323446	0.002
2031	2031Hauling	Hauling	0.29984991	0.084504548	0.03546578	0.07359952	0.02957659	0.00886644
2031	2031Vendor	Vendor	0.29984991	0.062682863	0.02373289	0.07359952	0.021939	0.00593322
2031	2031Worker	Worker	0.29984991	0.009221285	0.008	0.07359952	0.00322745	0.002

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day)					
					PM10			PM2.5		
					RD	BW	TW	RD	BW	TW
Grading/Excavation	2030									
Total Haul Trips	200									
Hauling	6	43	8	36.5	0.14	0.04	0.02	0.04	0.01	0.00
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Demolition NB Road/Bridge	2031									
Total Haul Trips	0									
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2031									
Total Haul Trips	200									
Hauling	6	43	8	36.5	0.14	0.04	0.02	0.04	0.01	0.00
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2031									
Total Haul Trips	330									
Hauling	4	152	8	36.5	0.10	0.03	0.01	0.02	0.01	0.00
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2031									
Total Haul Trips	0									
Hauling	0	23	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00

Topanga Canyon - Op2 and 3
Road Dust

Paved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,P} = (k\ (sL)^{0.91} \times (W)^{1.02})$

Where:

$EF_{Dust,P}$ =	Paved Road Dust Emission Factor (having the same units as k)
k =	particle size multiplier
sL =	road surface silt loading (g/m^2)
W =	average fleet vehicle weight (tons) (CARB uses 2.4 tons as a fleet average vehicle weight factor)

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	0.9979	0.2449
sL	0.1	0.1
W	2.4	2.4
$EF_{Dust,P}$	3.00E-01	7.36E-02

Unpaved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,U} = (k\ (\ s / 12)^{1} \times (Sp / 30)^{0.5} / (M / 0.5)^{0.2}) - C)$

Where:

$EF_{Dust,U}$ =	Unpaved Road Dust Emission Factor (having the same units as k)
k =	particle size multiplier
s =	surface material silt content (%)
Sp =	mean vehicle speed (mph)
M =	surface material moisture content (%)
C =	Emission Factor for 1980s vehicle fleet exhaust, brake wear, and tire wear

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	816.47	81.65
s	4.3%	4.3%
Sp	15	15
M	0.5%	0.5%
C	0.00047	0.00036
$EF_{Dust,U}$	5.20E+00	5.19E-01

Sources:

SCAQMD, CalEEMod, Version 2022.1.

CARB, *Entrained Dust from Paved Road Travel: Emission Estimation Methodology Background Document* , (1997).

USEPA, *AP-42* , Fifth Edition, Volume I, Chapter 13.2.1 - Paved Roads, (2011).

ESA, 2023.

N.3-3 Option 2 Construction Modeling

Topanga-Op2-Con Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Topanga-Op2-Con
Construction Start Date	4/1/2030
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	4.60
Location	18711 Pacific Coast Hwy, Malibu, CA 90265, USA
County	Los Angeles-South Coast
City	Unincorporated
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3802
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	8.00	1000sqft	0.18	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.52	0.43	3.29	5.10	0.01	0.14	0.21	0.35	0.13	0.02	0.16	—	792	792	0.03	0.01	0.00	795
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.52	0.43	3.29	5.10	0.01	0.14	0.21	0.35	0.13	0.02	0.16	—	792	792	0.03	0.01	0.00	795
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.30	0.25	1.93	2.99	< 0.005	0.08	0.12	0.21	0.08	0.01	0.09	—	464	464	0.02	< 0.005	0.00	466
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.06	0.05	0.35	0.55	< 0.005	0.02	0.02	0.04	0.01	< 0.005	0.02	—	76.9	76.9	< 0.005	< 0.005	0.00	77.1

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2030	0.52	0.43	3.29	5.10	0.01	0.14	0.21	0.35	0.13	0.02	0.16	—	792	792	0.03	0.01	0.00	795
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	0.52	0.43	3.29	5.10	0.01	0.14	0.21	0.35	0.13	0.02	0.16	—	792	792	0.03	0.01	0.00	795
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	0.30	0.25	1.93	2.99	< 0.005	0.08	0.12	0.21	0.08	0.01	0.09	—	464	464	0.02	< 0.005	0.00	466
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	0.06	0.05	0.35	0.55	< 0.005	0.02	0.02	0.04	0.01	< 0.005	0.02	—	76.9	76.9	< 0.005	< 0.005	0.00	77.1

3. Construction Emissions Details

3.1. Grading (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.43	3.29	5.10	0.01	0.14	—	0.14	0.13	—	0.13	—	792	792	0.03	0.01	—	795
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.52	0.43	3.29	5.10	0.01	0.14	—	0.14	0.13	—	0.13	—	792	792	0.03	0.01	—	795
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	1.93	2.99	< 0.005	0.08	—	0.08	0.08	—	0.08	—	464	464	0.02	< 0.005	—	466
Dust From Material Movement	—	—	—	—	—	—	0.12	0.12	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.35	0.55	< 0.005	0.02	—	0.02	0.01	—	0.01	—	76.9	76.9	< 0.005	< 0.005	—	77.1
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	4/1/2030	10/31/2030	7.00	214	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Pumps	Diesel	Average	1.00	8.00	11.0	0.74

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	0.00	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	—	1,000	77.0	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	0.18	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2030	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.96	annual days of extreme heat
Extreme Precipitation	5.90	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	20.5	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2

Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	—
AQ-PM	—
AQ-DPM	—
Drinking Water	—
Lead Risk Housing	—
Pesticides	—
Toxic Releases	—
Traffic	—
Effect Indicators	—
CleanUp Sites	—

Groundwater	—
Haz Waste Facilities/Generators	—
Impaired Water Bodies	—
Solid Waste	—
Sensitive Population	—
Asthma	—
Cardio-vascular	—
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	—
Housing	—
Linguistic	—
Poverty	—
Unemployment	—

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	89.34941614
Employed	19.02989863
Median HI	97.69023483
Education	—
Bachelor's or higher	88.59232645
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—

Auto Access	93.63531374
Active commuting	12.16476325
Social	—
2-parent households	42.29436674
Voting	82.35596048
Neighborhood	—
Alcohol availability	89.4649044
Park access	38.81688695
Retail density	42.06339022
Supermarket access	2.399589375
Tree canopy	71.42307199
Housing	—
Homeownership	65.75131528
Housing habitability	87.501604
Low-inc homeowner severe housing cost burden	64.24996792
Low-inc renter severe housing cost burden	88.91312717
Uncrowded housing	62.10701912
Health Outcomes	—
Insured adults	89.59322469
Arthritis	0.0
Asthma ER Admissions	99.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0

Life Expectancy at Birth	77.8
Cognitively Disabled	87.2
Physically Disabled	55.6
Heart Attack ER Admissions	99.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	93.4
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	99.5
SLR Inundation Area	38.8
Children	43.1
Elderly	11.5
English Speaking	77.4
Foreign-born	54.6
Outdoor Workers	85.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	79.5
Traffic Density	81.9
Traffic Access	23.0
Other Indices	—

Hardship	5.4
Other Decision Support	—
2016 Voting	60.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	—
Healthy Places Index Score for Project Location (b)	90.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	see construction assumptions
Construction: Off-Road Equipment	see construction assumptions
Construction: Trips and VMT	construction mobile emissions calculated outside of CalEEMod.
Construction: Dust From Material Movement	see construction assumptions

N.4-1 Option 3 Construction Air Quality Emissions Calculations

Topanga Lagoon Option 3

Air Quality Construction Analysis

Regional Maximums Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
					lb/day					
Demolition - 2030	0.33	2.57	5.32	0.010	0.52	0.05	0.57	0.13	0.05	0.17
Grading - 2030	1.80	13.15	18.02	0.045	3.48	0.54	4.02	1.52	0.50	2.02
Building Construction - 2030	0.78	6.28	8.61	0.024	0.65	0.26	0.92	0.16	0.24	0.41
Paving - 2030	1.50	10.87	14.82	0.026	0.52	0.50	1.02	0.13	0.46	0.59
Project Daily Maximum Emissions	**1.80**	**13.15**	**18.02**	**0.045**	**3.48**	**0.54**	**4.02**	**1.52**	**0.50**	**2.02**

Localized Maximum Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
					lb/day					
Demolition - 2030	0.24	2.48	3.93	0.005	0.00	0.05	0.05	0.00	0.04	0.04
Grading - 2030	1.69	12.23	16.21	0.034	2.76	0.53	3.29	1.34	0.49	1.82
Building Construction - 2030	0.68	5.63	6.94	0.015	0.00	0.25	0.25	0.00	0.23	0.23
Paving - 2030	1.41	10.78	13.42	0.022	0.00	0.50	0.50	0.00	0.46	0.46
Project Daily Maximum Emissions	**1.69**	**12.23**	**16.21**	**0.034**	**2.76**	**0.53**	**3.29**	**1.34**	**0.49**	**1.82**

Topanga Lagoon Option 3

Air Quality Construction Analysis

Summer	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
Demolition - 2030	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Grading - 2030	1.69	12.23	16.21	0.0343	2.76	0.53	3.29	1.34	0.49	1.82	0.11	0.92	1.81	0.010	0.72	0.01	0.73	0.18	0.01	0.19
Building Construction - 2030	0.68	5.63	6.94	0.0152	0.00	0.25	0.25	0.00	0.23	0.23	0.10	0.64	1.67	0.008	0.65	0.01	0.66	0.16	0.01	0.17
Paving - 2030	0.00	0.00	0.00	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Demolition - 2030	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Grading - 2030	1.80	13.15	18.02	0.045	3.48	0.54	4.02	1.52	0.50	2.02
Building Construction - 2030	0.78	6.28	8.61	0.024	0.65	0.26	0.92	0.16	0.24	0.41
Paving - 2030	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
Project Daily Maximum Emissions	**1.80**	**13.15**	**18.02**	**0.045**	**3.48**	**0.54**	**4.02**	**1.52**	**0.50**	**2.02**

Note: Offsite emissions pasted over from EMFAC2021 analysis

Topanga Lagoon Option 3

Air Quality Construction Analysis

Winter	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
Demolition - 2030	0.24	2.48	3.93	0.0053	0.00	0.05	0.05	0.00	0.04	0.04	0.09	0.09	1.39	0.004	0.52	0.00	0.52	0.13	0.00	0.13
Grading - 2030	1.69	12.23	16.21	0.0343	2.76	0.53	3.29	1.34	0.49	1.82	0.11	0.92	1.81	0.010	0.72	0.01	0.73	0.18	0.01	0.19
Building Construction - 2030	0.68	5.63	6.94	0.0152	0.00	0.25	0.25	0.00	0.23	0.23	0.10	0.64	1.67	0.008	0.65	0.01	0.66	0.16	0.01	0.17
Paving - 2030	1.41	10.78	13.42	0.0222	0.00	0.50	0.50	0.00	0.46	0.46	0.09	0.09	1.39	0.004	0.52	0.00	0.52	0.13	0.00	0.13

Note: Offsite emissions pasted over from EMFAC2021 analysis

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Demolition - 2030	0.33	2.57	5.32	0.010	0.52	0.05	0.57	0.13	0.05	0.17
Grading - 2030	1.80	13.15	18.02	0.045	3.48	0.54	4.02	1.52	0.50	2.02
Building Construction - 2030	0.78	6.28	8.61	0.024	0.65	0.26	0.92	0.16	0.24	0.41
Paving - 2030	1.50	10.87	14.82	0.026	0.52	0.50	1.02	0.13	0.46	0.59
Project Daily Maximum Emissions	**1.80**	**13.15**	**18.02**	**0.045**	**3.48**	**0.54**	**4.02**	**1.52**	**0.50**	**2.02**

Topanga Lagoon Option 2
Air Quality Construction Analysis
Mitigated Emissions

Regional Maximums Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
					lb/day					
Grading - 2029	0.33	2.64	7.30	0.018	0.93	0.06	0.99	0.21	0.06	0.26
Project Daily Maximum Emissions	**0.33**	**2.64**	**7.30**	**0.018**	**0.93**	**0.06**	**0.99**	**0.21**	**0.06**	**0.26**

Localized Maximum Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
					lb/day					
Grading - 2029	0.21	1.68	5.40	0.008	0.21	0.05	0.26	0.02	0.05	0.07
Project Daily Maximum Emissions	**0.21**	**1.68**	**5.40**	**0.008**	**0.21**	**0.05**	**0.26**	**0.02**	**0.05**	**0.07**

Topanga Lagoon Option 2

Air Quality Construction Analysis

Mitigated Emissions

Summer	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
Grading - 2029	0.21	1.68	5.40	0.008	0.21	0.05	0.26	0.02	0.05	0.07	0.12	0.96	1.90	0.011	0.72	0.01	0.73	0.18	0.01	0.19

Note: Offsite emissions pasted over from EMFAC2021 analysis

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Grading - 2029	0.33	2.64	7.30	0.018	0.93	0.06	0.99	0.21	0.06	0.26
Project Daily Maximum Emissions	**0.33**	**2.64**	**7.30**	**0.018**	**0.93**	**0.06**	**0.99**	**0.21**	**0.06**	**0.26**

Topanga Lagoon Option 2
Air Quality Construction Analysis
Mitigated Emissions

Winter	Onsite Emissions										Offsite Emissions									
Source	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
	lb/day										lb/day									
Grading - 2029	0.21	1.68	5.40	0.008	0.21	0.05	0.26	0.02	0.05	0.07	0.12	0.96	1.90	0.011	0.72	0.01	0.73	0.18	0.01	0.19

Regional Emissions	ROG	NOX	CO	SO2	Fugitive PM10	Exhaust PM10	Total PM10	Fugitive PM2.5	Exhaust PM2.5	Total PM2.5
Grading - 2029	0.33	2.64	7.30	0.018	0.93	0.06	0.99	0.21	0.06	0.26
Project Daily Maximum Emissions	**0.33**	**2.64**	**7.30**	**0.018**	**0.93**	**0.06**	**0.99**	**0.21**	**0.06**	**0.26**

Note: Offsite emissions pasted over from EMFAC2021 analysis

N.4-2 Option 3 Construction Air Quality Mobile Emissions

Topanga Canyon - Op2 and 3
Total Emissions

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Idling per Day (minutes)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10 Dust	PM10 Exh	Total PM10	PM2.5 Dust	PM2.5 Exh	Total PM2.5	(MT/yr) Total CO2e
Grading/Excavation	2030															
Total Haul Trips	200															
Hauling	6	43	8	36.5	15	0.02	0.86	0.43	0.01	0.20	0.01	0.21	0.05	0.01	0.06	11.02
Vendor	0	214	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	43.18
					Total	0.12	0.96	1.90	0.01	0.72	0.01	0.73	0.18	0.01	0.19	54.20
Demolition NB Road/Bridge	2031				Workers+Ver	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	43	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	11.69
					Total	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	11.69
Construct NB Road/Bridge	2031	Grading/Excavation			Workers+Ver	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	200															
Hauling	6	43	8	36.5	15	0.02	0.83	0.42	0.01	0.20	0.01	0.21	0.05	0.01	0.06	10.73
Vendor	0	61	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.08
					Total	0.11	0.92	1.81	0.01	0.72	0.01	0.73	0.18	0.01	0.19	22.82
Construct NB Road/Bridge	2031	Building Construction			Workers+Ver	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	330															
Hauling	4	152	8	36.5	15	0.01	0.56	0.28	0.00	0.14	0.01	0.14	0.04	0.01	0.04	17.71
Vendor	0	214	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	42.39
					Total	0.10	0.64	1.67	0.01	0.65	0.01	0.66	0.16	0.01	0.17	60.10
Construct NB Road/Bridge	2031	Paving			Workers+Ver	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	23	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.14
					Total	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.14
					Workers+Ver	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	

Topanga Canyon - Op2 and 3
Running Emissions

			Running Emissions Factor (grams/mile)						Running Emissions Factor (grams/mile)		
			ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX
2027	2027Hauling	Hauling	0.013128	1.553518611	0.45473657	0.01336714	0.02273486	0.02174732	1471.80075	0.0608523	0.23462364
2027	2027Vendor	Vendor	0.01570588	1.102331968	0.36327753	0.01214871	0.01475662	0.01411185	1311.1435	0.03509759	0.18307889
2027	2027Worker	Worker	0.01447264	0.062492418	0.90233334	0.00281062	0.00150729	0.0013867	284.320587	0.00354266	0.00566149
2028	2028Hauling	Hauling	0.01261339	1.493718015	0.43877031	0.01305596	0.02247317	0.02149714	1438.29866	0.05768159	0.22931835
2028	2028Vendor	Vendor	0.01417298	1.038868065	0.3360531	0.01185313	0.01426835	0.01364491	1280.01295	0.03342244	0.17922194
2028	2028Worker	Worker	0.01314756	0.057035459	0.85167037	0.00274948	0.00140448	0.00129194	278.134904	0.00325313	0.00533773
2029	2029Hauling	Hauling	0.01213472	1.434866903	0.4224926	0.01273534	0.0221686	0.0212059	1403.60667	0.05465536	0.22381566
2029	2029Vendor	Vendor	0.0128196	0.978781777	0.31101237	0.01152628	0.01380314	0.01320005	1245.46404	0.03180989	0.17489835
2029	2029Worker	Worker	0.01192021	0.051957034	0.80464317	0.00269297	0.00130724	0.00120239	272.417637	0.00298654	0.00503952
2030	2030Hauling	Hauling	0.01169729	1.381905725	0.40596438	0.01241489	0.02183595	0.02088778	1368.72007	0.05170538	0.2182712
2030	2030Vendor	Vendor	0.01168751	0.9252091	0.28941545	0.01117412	0.01336285	0.01277903	1208.11234	0.03023265	0.17022289
2030	2030Worker	Worker	0.01081241	0.047255061	0.76242747	0.00264062	0.00121547	0.00111789	267.121939	0.00274623	0.00476556
2031	2031Hauling	Hauling	0.01126827	1.331771303	0.38663416	0.01209496	0.02148002	0.02054741	1333.31591	0.04842446	0.21262163
2031	2031Vendor	Vendor	0.01070694	0.874998281	0.26868024	0.01079467	0.01293916	0.01237394	1167.57711	0.02847022	0.16520071
2031	2031Worker	Worker	0.00977403	0.042746598	0.72305591	0.00259298	0.00112929	0.00103861	262.302837	0.0025216	0.00450761
0	GWP		N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Grading/Excavation	2030													
Total Haul Trips	200													
Hauling	6	43	8	36.5	0.01	0.67	0.20	0.01	0.01	0.01	9.99	0.01	0.47	10.48
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.02	0.08	1.24	0.00	0.00	0.00	42.30	0.01	0.22	42.54
Demolition NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.02	0.07	1.18	0.00	0.00	0.00	11.45	0.00	0.06	11.51
Construct NB Road/Bridge	2031													
Total Haul Trips	200													
Hauling	6	43	8	36.5	0.01	0.64	0.19	0.01	0.01	0.01	9.73	0.01	0.46	10.20
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.02	0.07	1.18	0.00	0.00	0.00	11.84	0.00	0.06	11.90
Construct NB Road/Bridge	2031													
Total Haul Trips	330													
Hauling	4	152	8	36.5	0.00	0.43	0.12	0.00	0.01	0.01	16.06	0.01	0.76	16.84
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.02	0.07	1.18	0.00	0.00	0.00	41.54	0.01	0.21	41.76
Construct NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	23	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.02	0.07	1.18	0.00	0.00	0.00	6.02	0.00	0.03	6.05

Topanga Canyon - Op2 and 3
Start Emissions

			Start Emissions Factor (grams/trip)						Start Emissions Factor (grams/trip)		
			ROG_STREX	NOX_STREX	CO_STREX	SOx_STREX	PM10_STREX	PM2.5_STREX	CO2_STREX	CH4_STREX	N2O_STREX
2027	2027Hauling	Hauling	0.00060894	2.672142352	0.00302137	3.16557E-07	5.30481E-07	4.87758E-07	0.03202066	7.5498E-08	7.36611E-06
2027	2027Vendor	Vendor	0.080213538	1.961946447	0.60365405	5.50826E-05	6.07836E-05	5.58883E-05	5.57177064	0.005494835	0.004037678
2027	2027Worker	Worker	1.038950633	0.251050817	3.01934346	0.000691936	0.002053348	0.001887978	69.9913431	0.06616369	0.030829475
2028	2028Hauling	Hauling	0.000490696	2.636914961	0.00257595	2.71845E-07	4.29594E-07	3.94995E-07	0.02749789	6.56178E-08	5.97594E-06
2028	2028Vendor	Vendor	0.075419112	1.927915654	0.55968909	5.22383E-05	5.76932E-05	5.30468E-05	5.28405692	0.005169504	0.003780947
2028	2028Worker	Worker	0.997046953	0.239560346	2.85187017	0.000675557	0.001941969	0.001785569	68.3345653	0.062483886	0.030029939
2029	2029Hauling	Hauling	0.000383539	2.591170334	0.00214107	2.33546E-07	3.28727E-07	3.02252E-07	0.02362391	5.62127E-08	4.65545E-06
2029	2029Vendor	Vendor	0.069289941	1.883995908	0.51714657	4.94212E-05	5.46034E-05	5.02058E-05	4.99909929	0.004852786	0.003548842
2029	2029Worker	Worker	0.945798618	0.229251267	2.69630558	0.000660221	0.001832244	0.00168468	66.7833	0.059077063	0.029313823
2030	2030Hauling	Hauling	0.00027279	2.546881303	0.00161285	1.92445E-07	2.06187E-07	1.89581E-07	0.01946637	4.71315E-08	4.0595E-06
2030	2030Vendor	Vendor	0.063656597	1.839529651	0.47865041	4.67001E-05	5.18671E-05	4.76899E-05	4.72385215	0.004565454	0.003322989
2030	2030Worker	Worker	0.901632052	0.219772527	2.55165593	0.00064583	0.001725708	0.001586724	65.3276344	0.055883281	0.028658371
2031	2031Hauling	Hauling	0.000210057	2.503276097	0.00139863	1.66951E-07	1.58801E-07	1.46012E-07	0.01688763	4.13015E-08	2.64568E-06
2031	2031Vendor	Vendor	0.059141215	1.792713918	0.44197461	4.38654E-05	4.91716E-05	4.52115E-05	4.43711805	0.004280254	0.003105544
2031	2031Worker	Worker	0.857879142	0.211029605	2.41545051	0.000632455	0.001621689	0.001491083	63.974738	0.052892816	0.028060877
	GWP			N/A					1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Grading/Excavation	2030													
Total Haul Trips	200													
Hauling	6	43	8	36.5	0.00	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.08	0.02	0.23	0.00	0.00	0.00	0.56	0.00	0.00	0.64
Demolition NB Road/Bridg	2031													
Total Haul Trips	0													
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.08	0.02	0.21	0.00	0.00	0.00	0.15	0.00	0.00	0.17
Construct NB Road/Bridge	2031													
Total Haul Trips	200													
Hauling	6	43	8	36.5	0.00	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.08	0.02	0.21	0.00	0.00	0.00	0.16	0.00	0.00	0.18
Construct NB Road/Bridge	2031													
Total Haul Trips	330													
Hauling	4	152	8	36.5	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.08	0.02	0.21	0.00	0.00	0.00	0.55	0.00	0.00	0.63
Construct NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	23	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.08	0.02	0.21	0.00	0.00	0.00	0.08	0.00	0.00	0.09

Topanga Canyon - Op2 and 3
Idling Emissions

			Idling Emissions Factor (grams/minute)						Idling Emissions Factor (grams/minute)		
			ROG_IDLEX	NOx_IDLEX	CO_IDLEX	SOx_IDLEX	PM10_IDLEX	PM2.5_IDLEX	CO2_IDLEX	CH4_IDLEX	N2O_IDLEX
2027	2027Hauling	Hauling	0.07592279	0.881696127	1.19921987	0.00159973	0.00047074	0.00044926	181.442358	0.03427011	0.02916541
2027	2027Vendor	Vendor	0.05529965	0.899602458	1.04932075	0.00167506	0.00086494	0.00082645	186.589554	0.03155173	0.02918792
2027	2027Worker	Worker	0	0	0	0	0	0	0	0	0
2028	2028Hauling	Hauling	0.07529788	0.857767875	1.19214339	0.00156045	0.00045204	0.00043133	177.300744	0.03377364	0.02851321
2028	2028Vendor	Vendor	0.05432839	0.863093228	1.0395891	0.00163993	0.00074988	0.00071632	182.978932	0.03134729	0.02865517
2028	2028Worker	Worker	0	0	0	0	0	0	0	0	0
2029	2029Hauling	Hauling	0.07461794	0.835480721	1.18399992	0.00152188	0.00043143	0.00041158	173.194944	0.03323976	0.02786481
2029	2029Vendor	Vendor	0.05333308	0.827999465	1.02749811	0.0016013	0.00065239	0.00062302	178.951612	0.03104801	0.02805443
2029	2029Worker	Worker	0	0	0	0	0	0	0	0	0
2030	2030Hauling	Hauling	0.07391144	0.816007794	1.17493744	0.0014846	0.00041331	0.00039421	169.186161	0.03269373	0.0272299
2030	2030Vendor	Vendor	0.05232472	0.795299763	1.01321823	0.00155966	0.00057171	0.0005458	174.561724	0.03067462	0.02739395
2030	2030Worker	Worker	0	0	0	0	0	0	0	0	0
2031	2031Hauling	Hauling	0.0732853	0.799579641	1.1664382	0.00145061	0.00039768	0.00037924	165.457521	0.03205186	0.02663599
2031	2031Vendor	Vendor	0.05130878	0.763402339	0.99683404	0.00151522	0.00050437	0.00048136	169.805962	0.03011968	0.02667472
2031	2031Worker	Worker	0	0	0	0	0	0	0	0	0
		GWP	N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	Idling minutes per Day	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Grading/Excavation	2030													
Total Haul Trips	200													
Hauling	6	43	8	15	0.01	0.16	0.23	0.00	0.00	0.00	0.51	0.00	0.02	0.53
Vendor	0	214	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	43	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2031													
Total Haul Trips	200													
Hauling	6	43	8	15	0.01	0.16	0.23	0.00	0.00	0.00	0.50	0.00	0.02	0.52
Vendor	0	61	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2031													
Total Haul Trips	330													
Hauling	4	152	8	15	0.01	0.11	0.15	0.00	0.00	0.00	0.82	0.00	0.04	0.86
Vendor	0	214	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	23	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - Op2 and 3
Road Dust, Break Wear, and Tire wear Emissions

			Emission Factors (grams/mile)					
			PM10			PM2.5		
			RD	PM10_PMBW	PM10_PMTW	RD	PM2.5_PMBW	PM2.5_PMTW
2027	2027Hauling	Hauling	0.29984991	0.084297987	0.03545106	0.07359952	0.0295043	0.00886277
2027	2027Vendor	Vendor	0.29984991	0.063623189	0.02372553	0.07359952	0.02226812	0.00593138
2027	2027Worker	Worker	0.29984991	0.009305649	0.008	0.07359952	0.00325698	0.002
2028	2028Hauling	Hauling	0.29984991	0.084486989	0.03545475	0.07359952	0.02957045	0.00886369
2028	2028Vendor	Vendor	0.29984991	0.063544145	0.02372738	0.07359952	0.02224045	0.00593184
2028	2028Worker	Worker	0.29984991	0.009284129	0.008	0.07359952	0.00324945	0.002
2029	2029Hauling	Hauling	0.29984991	0.084584422	0.03545835	0.07359952	0.02960455	0.00886459
2029	2029Vendor	Vendor	0.29984991	0.063359545	0.02372918	0.07359952	0.02217584	0.00593229
2029	2029Worker	Worker	0.29984991	0.00926272	0.008	0.07359952	0.00324195	0.002
2030	2030Hauling	Hauling	0.29984991	0.08460378	0.03546191	0.07359952	0.02961132	0.00886548
2030	2030Vendor	Vendor	0.29984991	0.063078834	0.02373095	0.07359952	0.02207759	0.00593274
2030	2030Worker	Worker	0.29984991	0.00924132	0.008	0.07359952	0.00323446	0.002
2031	2031Hauling	Hauling	0.29984991	0.084504548	0.03546578	0.07359952	0.02957659	0.00886644
2031	2031Vendor	Vendor	0.29984991	0.062682863	0.02373289	0.07359952	0.021939	0.00593322
2031	2031Worker	Worker	0.29984991	0.009221285	0.008	0.07359952	0.00322745	0.002

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day)					
					PM10			PM2.5		
					RD	BW	TW	RD	BW	TW
Grading/Excavation	2030									
Total Haul Trips	200									
Hauling	6	43	8	36.5	0.14	0.04	0.02	0.04	0.01	0.00
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Demolition NB Road/Bridge	2031									
Total Haul Trips	0									
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2031									
Total Haul Trips	200									
Hauling	6	43	8	36.5	0.14	0.04	0.02	0.04	0.01	0.00
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2031									
Total Haul Trips	330									
Hauling	4	152	8	36.5	0.10	0.03	0.01	0.02	0.01	0.00
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2031									
Total Haul Trips	0									
Hauling	0	23	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00

Topanga Canyon - Op2 and 3
Road Dust

Paved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,P} = (k\ (sL)^{0.91} \times (W)^{1.02})$

Where:

$EF_{Dust,P}$ =	Paved Road Dust Emission Factor (having the same units as k)
k =	particle size multiplier
sL =	road surface silt loading (g/m^2)
W =	average fleet vehicle weight (tons) (CARB uses 2.4 tons as a fleet average vehicle weight factor)

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	0.9979	0.2449
sL	0.1	0.1
W	2.4	2.4
$EF_{Dust,P}$	3.00E-01	7.36E-02

Unpaved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,U} = (k\ (\ s / 12)^{1} \times (Sp / 30)^{0.5} / (M / 0.5)^{0.2}) - C)$

Where:

$EF_{Dust,U}$ =	Unpaved Road Dust Emission Factor (having the same units as k)
k =	particle size multiplier
s =	surface material silt content (%)
Sp =	mean vehicle speed (mph)
M =	surface material moisture content (%)
C =	Emission Factor for 1980s vehicle fleet exhaust, brake wear, and tire wear

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	816.47	81.65
s	4.3%	4.3%
Sp	15	15
M	0.5%	0.5%
C	0.00047	0.00036
$EF_{Dust,U}$	5.20E+00	5.19E-01

Sources:

SCAQMD, CalEEMod, Version 2022.1.

CARB, *Entrained Dust from Paved Road Travel: Emission Estimation Methodology Background Document* , (1997).

USEPA, *AP-42* , Fifth Edition, Volume I, Chapter 13.2.1 - Paved Roads, (2011).

ESA, 2023.

N.4-3 Option 3 Construction Modeling

Topanga-Op3-Con Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Topanga-Op3-Con
Construction Start Date	1/1/2031
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	4.60
Location	18711 Pacific Coast Hwy, Malibu, CA 90265, USA
County	Los Angeles-South Coast
City	Unincorporated
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3802
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Asphalt Surfaces	40.0	1000sqft	0.92	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.01	1.69	12.2	16.2	0.03	0.53	2.76	3.29	0.49	1.34	1.82	—	3,713	3,713	0.15	0.03	0.00	3,726
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.01	1.69	12.2	16.2	0.03	0.53	2.76	3.29	0.49	1.34	1.82	—	3,713	3,713	0.15	0.03	0.00	3,726
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.99	0.84	6.66	8.55	0.02	0.29	0.46	0.75	0.26	0.22	0.49	—	1,853	1,853	0.08	0.02	0.00	1,859
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18	0.15	1.22	1.56	< 0.005	0.05	0.08	0.14	0.05	0.04	0.09	—	307	307	0.01	< 0.005	0.00	308

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2031	2.01	1.69	12.2	16.2	0.03	0.53	2.76	3.29	0.49	1.34	1.82	—	3,713	3,713	0.15	0.03	0.00	3,726
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	2.01	1.69	12.2	16.2	0.03	0.53	2.76	3.29	0.49	1.34	1.82	—	3,713	3,713	0.15	0.03	0.00	3,726
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	0.99	0.84	6.66	8.55	0.02	0.29	0.46	0.75	0.26	0.22	0.49	—	1,853	1,853	0.08	0.02	0.00	1,859
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	0.18	0.15	1.22	1.56	< 0.005	0.05	0.08	0.14	0.05	0.04	0.09	—	307	307	0.01	< 0.005	0.00	308

3. Construction Emissions Details

3.1. Demolition (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	2.48	3.93	0.01	0.05	—	0.05	0.04	—	0.04	—	574	574	0.02	< 0.005	—	576
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.05	0.04	0.40	0.63	< 0.005	0.01	—	0.01	0.01	—	0.01	—	92.8	92.8	< 0.005	< 0.005	—	93.1
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.4	15.4	< 0.005	< 0.005	—	15.4
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.01	1.69	12.2	16.2	0.03	0.53	—	0.53	0.49	—	0.49	—	3,713	3,713	0.15	0.03	—	3,726
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.01	1.69	12.2	16.2	0.03	0.53	—	0.53	0.49	—	0.49	—	3,713	3,713	0.15	0.03	—	3,726
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34	0.28	2.04	2.71	0.01	0.09	—	0.09	0.08	—	0.08	—	621	621	0.03	0.01	—	623
Dust From Material Movement	—	—	—	—	—	—	0.46	0.46	—	0.22	0.22	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.37	0.49	< 0.005	0.02	—	0.02	0.01	—	0.01	—	103	103	< 0.005	< 0.005	—	103
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.68	5.63	6.94	0.02	0.25	—	0.25	0.23	—	0.23	—	1,596	1,596	0.06	0.01	—	1,601
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.68	5.63	6.94	0.02	0.25	—	0.25	0.23	—	0.23	—	1,596	1,596	0.06	0.01	—	1,601
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.40	3.30	4.07	0.01	0.15	—	0.15	0.14	—	0.14	—	936	936	0.04	0.01	—	939
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.60	0.74	< 0.005	0.03	—	0.03	0.03	—	0.03	—	155	155	0.01	< 0.005	—	155
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Paving (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.58	1.33	10.8	13.4	0.02	0.50	—	0.50	0.46	—	0.46	—	2,404	2,404	0.10	0.02	—	2,412
Paving	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.92	1.14	< 0.005	0.04	—	0.04	0.04	—	0.04	—	204	204	0.01	< 0.005	—	205
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	33.8	33.8	< 0.005	< 0.005	—	33.9
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/1/2031	2/28/2031	7.00	59.0	—
Grading	Grading	3/1/2031	4/30/2031	7.00	61.0	—
Building Construction	Building Construction	5/1/2031	11/30/2031	7.00	214	—
Paving	Paving	12/1/2031	12/31/2031	7.00	31.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Demolition	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Building Construction	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Paving	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Paving	Graders	Diesel	Average	1.00	8.00	148	0.41

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	0.00	18.5	LDA,LDT1,LDT2

Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	0.00	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	0.00	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	0.00	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	—	—
Grading	0.00	1,000	43.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.92

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Asphalt Surfaces	0.92	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2031	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.96	annual days of extreme heat
Extreme Precipitation	5.90	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	20.5	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	—
AQ-PM	—
AQ-DPM	—
Drinking Water	—
Lead Risk Housing	—
Pesticides	—
Toxic Releases	—
Traffic	—
Effect Indicators	—
CleanUp Sites	—
Groundwater	—
Haz Waste Facilities/Generators	—
Impaired Water Bodies	—

Solid Waste	—
Sensitive Population	—
Asthma	—
Cardio-vascular	—
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	—
Housing	—
Linguistic	—
Poverty	—
Unemployment	—

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	89.34941614
Employed	19.02989863
Median HI	97.69023483
Education	—
Bachelor's or higher	88.59232645
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	93.63531374
Active commuting	12.16476325
Social	—

2-parent households	42.29436674
Voting	82.35596048
Neighborhood	—
Alcohol availability	89.4649044
Park access	38.81688695
Retail density	42.06339022
Supermarket access	2.399589375
Tree canopy	71.42307199
Housing	—
Homeownership	65.75131528
Housing habitability	87.501604
Low-inc homeowner severe housing cost burden	64.24996792
Low-inc renter severe housing cost burden	88.91312717
Uncrowded housing	62.10701912
Health Outcomes	—
Insured adults	89.59322469
Arthritis	0.0
Asthma ER Admissions	99.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	77.8
Cognitively Disabled	87.2
Physically Disabled	55.6

Heart Attack ER Admissions	99.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	93.4
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	99.5
SLR Inundation Area	38.8
Children	43.1
Elderly	11.5
English Speaking	77.4
Foreign-born	54.6
Outdoor Workers	85.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	79.5
Traffic Density	81.9
Traffic Access	23.0
Other Indices	—
Hardship	5.4
Other Decision Support	—
2016 Voting	60.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	—
Healthy Places Index Score for Project Location (b)	90.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	see construction assumptions
Construction: Off-Road Equipment	see construction assumptions
Construction: Trips and VMT	construction mobile calculated outside of CalEEMod.
Construction: Dust From Material Movement	see construction assumptions

Appendix N-2
Energy Calculations

ESA

N-2.2-1 Construction Energy Consumption Summary and Calculations

Topanga Restoration Lagoon
Construction Energy Analysis
Option 1
Annual Fuel Summary

	Heavy-Duty Construction Equipment
142,736	Total Project Consumption
35,684	Annual Consumption
	Haul Trucks
582,670	Total Project Consumption
145,668	Annual Consumption
	Vendor Trucks
1,153	Total Project Consumption
288	Annual Consumption
	Workers
43,596	Total Project Consumption
10,899	Annual Consumption
583,824	Project Consumption of diesel for Haul Trucks and Vendors
145,956	Annual Consumption
726,560	Total Gallons Diesel
43,596	Total Gallons Gasoline

4.00	Estimated Project Construction Duration (years)
181,640	Annual Average Gallons Diesel
10,899	Annual Average Gallons Gasoline

Los Angeles County			**Percent of Annual Project Compared to Los Angeles Count**
Source	**Fuel Type**	**Gallons**	
Workers	Gasoline	3,559,000,000	0.0003%
Off-Road/Vendor/Haul Trucks	Diesel	610,204,082	0.030%

Notes:

1 Gasoline and diesel amounts from CEC, 2019. Available: https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-retail-fuel-outlet-annual-reporting

Topanga Restoration Lagoon
Construction Energy Analysis
Option 2
Annual Fuel Summary

	Heavy-Duty Construction Equipment		
7,507	Total Project Consumption		
7,507	Annual Consumption		
	Haul Trucks		
1,601	Total Project Consumption		
1,601	Annual Consumption		
	Vendor Trucks		
-	Total Project Consumption		
-	Annual Consumption		
	Workers		
6,293	Total Project Consumption		
6,293	Annual Consumption		
1,601	Project Consumption of diesel for Haul Trucks and Vendors		
1,601	Annual Consumption		
9,108	Total Gallons Diesel	735,668	Total with Option1
6,293	Total Gallons Gasoline	49,889	Total with Option1
1.00	Estimated Project Construction Duration (years)		
9,108	Annual Average Gallons Diesel	190,748	Total with Option1
6,293	Annual Average Gallons Gasoline	17,192	Total with Option1

Topanga Restoration Lagoon
Construction Energy Analysis
Option 3
Annual Fuel Summary

	Heavy-Duty Construction Equipment		
30,710	Total Project Consumption		
30,710	Annual Consumption		
	Haul Trucks		
4,708	Total Project Consumption		
4,708	Annual Consumption		
	Vendor Trucks		
-	Total Project Consumption		
-	Annual Consumption		
	Workers		
9,052	Total Project Consumption		
9,052	Annual Consumption		
4,708	Project Consumption of diesel for Haul Trucks and Vendors		
4,708	Annual Consumption		
35,419	Total Gallons Diesel	761,978	Total with Option1
9,052	Total Gallons Gasoline	52,648	Total with Option1

1.0	Estimated Project Construction Duration (years)		
35,419	Annual Average Gallons Diesel	217,059	Total with Option1
9,052	Annual Average Gallons Gasoline	19,951	Total with Option1

Topanga Restoration Lagoon
Construction Energy

Construction Water Energy Estimates

Source	Acreage/Day	Number of Days	Total Construction Water Use (Mgal)	Electricity Demand from Water Conveyance (MWh)	Annual Electricity Demand from Water Conveyance (MWh)
Site Preparation (VS)	0.5	1	0.002	0.0	0.0
Grading (VS)	1.0	4	0.012	0.1	0.0
Demolition (TB)	1.0	60	0.180	1.2	0.3
Grading (TB)	1.0	60	0.180	1.2	0.3
Grading (TB)-TR	1.0	30	0.090	0.6	0.2
Demolition (TB)-TB	0.0	59	0.000	0.0	0.0
Grading (TB)-Lagoon	0.5	214	0.321	2.2	0.5
Site Preparation (TB)	0.5	61	0.092	0.6	0.2
Demolition (Bridge)-NB	0.0	60	0.000	0.0	0.0
Grading (Bridge)-NB	1.0	61	0.183	1.2	0.3
Demolition (Bridge)-SB	0.0	59	0.000	0.0	0.0
Grading (Bridge)-SB	1.0	61	0.183	1.2	0.3
Subtotal - Project			**1.242**	**8.5**	**2.1**
Seepage Pit	**0.5**	**214**	**0.321**	**2.2**	**2.2**
Sewer Connection - Demolition	0.0	59	0.000	0.0	0.0
Sewer Connection - Grading	1.0	61	0.183	1.2	1.2
Subtotal - Option 3			**0.183**	**1.2**	**1.2**
Total			**1.563**	**10.6**	**4.3**

CalEEMod Water Electricity Factors	Electricity Intensity Factor To Supply (kWh/Mgal)	Electricity Intensity Factor To Treat (kWh/Mgal)	Electricity Intensity Factor To Distribute (kWh/Mgal)	Electricity Intensity Factor For Wastewater Treatment (kWh/Mgal)
	3044	725	1537	1501

Construction Water GHG	Electricity Emission (MT CO2e/MWh)	Electricity Emission (lbs CO2e/MWh)
1.68	0.16	348.21

Project	MWh/year	GHG (MT/year)
2027	3.2	0.50
2028	1.2	0.20
2029	1.2	0.20
2030	2.8	0.44
Op2	2.2	0.35
Op3	1.2	0.20

Sources and Assumptions:

CalEEMod Appendix G, Default data tables, G-14 Daily Acres Graded by Equipment Type

-Electricity Intensity Factors - California Emissions Estimator Model (CalEEMod).

-Estimated construction water use assumed to be generally equivalent to landscape irrigation, based on a factor of 20.94 gallons per year per square foot of landscaped area within the Los Angeles area (Mediterranean climate), which assumes high water demand landscaping materials and an irrigation system efficiency of 85%. Factor is therefore (20.94 GAL/SF/year) x (43,560 SF/acre) / (365 days/year) / (0.85) = 2,940 gallons/acre/day, rounded up to 3,000 gallons/acre/day. (U.S. Department of Energy, Energy Efficiency & Renewable Energy, Federal Energy Management Program. "Guidelines for Estimating Unmetered Landscaping Water Use." July 2010. Page 12, Table 4 - Annual Irrigation Factor – Landscaped Areas with High Water Requirements).

MT CO2e/MWh based on CO2, CH4 and N2O factors projected by CalEEMod for utility provider for year 2027

Topanga Restoration Lagoon
Construction Energy Analysis

Temporary Construction Trailer - Electricity

Land Use	Square Feet	Energy Use per year (kWh)	Total Energy Use (kWh)	GHG Emissions/year (MTCO2e)	Total GHG Emissions for Construction Duration	Energy Use per SF	
General Office	2,000	40,936	163,745	6.5	25.9	20.5	Option 1 (Includes O
General Office	2,000	40,936	40,936	6.5	6.5	20.5	Option 3
Note: CalEEMod 2022.1 used to estimate energy use for temporary construction office							
Note: Energy use per sf is derived from CalEEMod User Guide, Appendix G, Table G-28 for the Statewide average for General Office Building land use							

Topanga Restoration Lagoon
Construction Energy Analysis

Off-Road Equipment

Equipment ≤ 100 hp		
pounds diesel fuel/hp-hr (lb/hp-hr):[1]	0.408	lb/hp-hr
diesel density (lb/gal):[1]	7.11	lb/gal
diesel gallons/hp-hr:	0.0574	gal/hp-hr
Total <100	780,519	hp-hr
Total diesel gallons:	44,796	gal
Equipment > 100 hp		
pounds diesel fuel/hp-hr (lb/hp-hr):[1]	0.367	lb/hp-hr
diesel density (lb/gal):[1]	7.11	lb/gal
diesel gallons/hp-hr:	0.0516	gal/hp-hr
Total >100	1,897,124	hp-hr
Total diesel gallons:	97,940	gal
Total diesel gallons (off-road equipment):	**142,736**	**gal**

1. OFFROAD2017 Emission Factor Documentation

Construction Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Demolition (TB)	Tractors/Loaders/Backhoes	1	8	84	0.37	60	14,918
Demolition (TB)	Rubber Tired Dozers	1	8	367	0.4	60	70,464
Demolition (TB)	Excavators	2	8	36	0.38	60	13,133
Demolition (TB)	Graders	1	8	148	0.41	60	29,126
Demolition (TB)	Pavers	1	8	81	0.42	60	16,330
Demolition (TB)	Rollers	2	8	36	0.38	60	13,133
Demolition (TB)-TB	Tractors/Loaders/Backhoes	1	8	84	0.37	59	14,670
Demolition (TB)-TB	Excavators	2	8	36	0.38	59	12,914
Site Preparation (TB)	Graders	1	8	148	0.41	61	29,612
Site Preparation (TB)	Tractors/Loaders/Backhoes	1	8	84	0.37	61	15,167
Grading (TB)	Graders	1	8	148	0.41	60	29,126
Grading (TB)	Tractors/Loaders/Backhoes	1	8	84	0.37	60	14,918
Grading (TB)	Rubber Tired Dozers	1	8	367	0.4	60	70,464
Grading (TB)	Excavators	1	8	36	0.38	60	6,566
Grading (TB)	Off-Highway Trucks	1	8	376	0.38	60	68,582
Grading (TB)-TR	Tractors/Loaders/Backhoes	1	8	84	0.37	30	7,459
Grading (TB)-TR	Graders	1	8	148	0.41	30	14,563
Grading (TB)-TR	Rubber Tired Dozers	1	8	367	0.4	30	35,232
Grading (TB)-TR	Excavators	1	8	36	0.38	30	3,283
Grading (TB)-TR	Off-Highway Trucks	1	8	376	0.38	30	34,291
Grading (TB)-Lagoon	Graders	1	8	148	0.41	214	103,884
Grading (TB)-Lagoon	Excavators	1	8	36	0.38	214	23,420
Grading (TB)-Lagoon	Off-Highway Trucks	1	8	376	0.38	214	244,611
Building Construction (TB)	Cranes	1	8	367	0.29	124	105,579
Building Construction (TB)	Forklifts	1	8	82	0.2	124	16,269
Building Construction (TB)	Crawler Tractors	1	8	87	0.43	124	37,111
Building Construction (TB)	Generator Sets	1	8	14	0.74	124	10,277
Building Construction (TB)-DBH	Cranes	1	8	367	0.29	31	26,395
Building Construction (TB)-DBH	Forklifts	1	8	82	0.2	31	4,067
Building Construction (TB)-DBH	Generator Sets	1	8	14	0.74	31	2,569
Building Construction (TB)-DBH	Crawler Tractors	1	8	87	0.43	31	9,278
Paving (TB)	Pavers	1	8	81	0.42	60	16,330
Paving (TB)	Rollers	1	8	36	0.38	60	6,566
Paving (TB)	Graders	1	8	148	0.41	60	29,126
Paving (TB)	Rubber Tired Dozers	1	8	367	0.4	60	70,464
Trenching (TB)	Excavators	1	8	36	0.38	182	19,918
Trenching (TB)	Tractors/Loaders/Backhoes	1	8	84	0.37	182	45,252
Demolition (Bridge)-NB	Tractors/Loaders/Backhoes	1	8	84	0.37	60	14,918
Demolition (Bridge)-NB	Excavators	2	8	36	0.38	60	13,133
Grading (Bridge)-NB	Graders	1	8	148	0.41	61	29,612
Grading (Bridge)-NB	Tractors/Loaders/Backhoes	1	8	84	0.37	61	15,167
Grading (Bridge)-NB	Rubber Tired Dozers	1	8	367	0.4	61	71,638

Grading (Bridge)-NB	Excavators	1	8	36	0.38	61	6,676
Grading (Bridge)-NB	Off-Highway Trucks	1	8	376	0.38	61	69,725
Building Construction (Bridge)-NB	Cranes	1	8	367	0.29	214	182,208
Building Construction (Bridge)-NB	Forklifts	1	8	82	0.2	214	28,077
Building Construction (Bridge)-NB	Generator Sets	1	8	14	0.74	214	17,736
Building Construction (Bridge)-NB	Crawler Tractors	1	8	87	0.43	214	64,046
Paving (Bridge)-NB	Rollers	1	8	36	0.38	31	3,393
Paving (Bridge)-NB	Pavers	1	8	81	0.42	31	8,437
Paving (Bridge)-NB	Rubber Tired Dozers	1	8	367	0.4	31	36,406
Paving (Bridge)-NB	Graders	1	8	148	0.41	31	15,049
Demolition (Bridge)-SB	Tractors/Loaders/Backhoes	1	8	84	0.37	59	14,670
Demolition (Bridge)-SB	Excavators	2	8	36	0.38	59	12,914
Grading (Bridge)-SB	Graders	1	8	148	0.41	61	29,612
Grading (Bridge)-SB	Tractors/Loaders/Backhoes	1	8	84	0.37	61	15,167
Grading (Bridge)-SB	Rubber Tired Dozers	1	8	367	0.4	61	71,638
Grading (Bridge)-SB	Excavators	1	8	36	0.38	61	6,676
Grading (Bridge)-SB	Off-Highway Trucks	1	8	376	0.38	61	69,725
Building Construction (Bridge)-SB	Cranes	1	8	367	0.29	214	182,208
Building Construction (Bridge)-SB	Forklifts	1	8	82	0.2	214	28,077
Building Construction (Bridge)-SB	Generator Sets	1	8	14	0.74	214	17,736
Building Construction (Bridge)-SB	Crawler Tractors	1	8	87	0.43	214	64,046
Paving (Bridge)-SB	Pavers	1	8	81	0.42	31	8,437
Paving (Bridge)-SB	Rollers	1	8	36	0.38	31	3,393
Paving (Bridge)-SB	Rubber Tired Dozers	1	8	367	0.4	31	36,406
Paving (Bridge)-SB	Graders	1	8	148	0.41	31	15,049
Site Preparation (VS)	Graders	1	8	148	0.41	1	485
Site Preparation (VS)	Tractors/Loaders/Backhoes	1	8	84	0.37	1	249
Grading (VS)	Graders	1	8	148	0.41	4	1,942
Grading (VS)	Rubber Tired Dozers	1	8	367	0.4	4	4,698
Grading (VS)	Tractors/Loaders/Backhoes	1	8	84	0.37	4	995
Building Construction (VS)	Cranes	1	8	367	0.29	140	119,202
Building Construction (VS)	Forklifts	2	8	82	0.2	140	36,736
Building Construction (VS)	Tractors/Loaders/Backhoes	2	8	84	0.37	140	69,619
Paving (VS)	Tractors/Loaders/Backhoes	1	8	84	0.37	7	1,740
Paving (VS)	Cement and Mortar Mixers	4	8	10	0.56	7	1,254
Paving (VS)	Pavers	1	8	81	0.42	7	1,905
Paving (VS)	Rollers	1	8	36	0.38	7	766
Architectural Coating (VS)	Air Compressors	1	8	37	0.48	7	995

Total >100	1,897,124
Total <100	780,519

Topanga Restoration Lagoon
Construction Energy Analysis
Off-Road Equipment - Wastewater Option 2

Equipment ≤ 100 hp		
pounds diesel fuel/hp-hr (lb/hp-hr):[1]	0.408	lb/hp-hr
diesel density (lb/gal):[1]	7.11	lb/gal
diesel gallons/hp-hr:	0.0574	gal/hp-hr
Total <100	37,356	hp-hr
Total diesel gallons:	2,144	gal
Equipment > 100 hp		
pounds diesel fuel/hp-hr (lb/hp-hr):[1]	0.367	lb/hp-hr
diesel density (lb/gal):[1]	7.11	lb/gal
diesel gallons/hp-hr:	0.0516	gal/hp-hr
Total >100	103,884	hp-hr
Total diesel gallons:	5,363	gal
Total diesel gallons (off-road equipment):	**7,507**	**gal**

1. OFFROAD2017 Emission Factor Documentation

Construction Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Seepage Pit	Graders	1	8	148	0.41	214	103,884
Seepage Pit	Excavators	1	8	36	0.38	214	23,420
Seepage Pit	Pumps	1	8	11	0.74	214	13,936
						Total >100	103,884
						Total <100	37,356

Topanga Restoration Lagoon
Construction Energy Analysis
Off-Road Equipment - Wastewater Option 3

Equipment ≤ 100 hp		
pounds diesel fuel/hp-hr (lb/hp-hr):[1]	0.408	lb/hp-hr
diesel density (lb/gal):[1]	7.11	lb/gal
diesel gallons/hp-hr:	0.0574	gal/hp-hr
Total <100	171,115	hp-hr
Total diesel gallons:	9,821	gal
Equipment > 100 hp		
pounds diesel fuel/hp-hr (lb/hp-hr):[1]	0.367	lb/hp-hr
diesel density (lb/gal):[1]	7.11	lb/gal
diesel gallons/hp-hr:	0.0516	gal/hp-hr
Total >100	404,639	hp-hr
Total diesel gallons:	20,890	gal
Total diesel gallons (off-road equipment):	**30,710**	**gal**

1. OFFROAD2017 Emission Factor Documentation

Construction Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Sewer Connection - Demolition	Tractors/Loaders/Backhoes	1	8	84	0.37	59	14,670
Sewer Connection - Demolition	Excavators	2	8	36	0.38	59	12,914
Sewer Connection - Grading	Graders	1	8	148	0.41	61	29,612
Sewer Connection - Grading	Rubber Tired Dozers	1	8	367	0.4	61	71,638
Sewer Connection - Grading	Tractors/Loaders/Backhoes	1	8	84	0.37	61	15,167
Sewer Connection - Grading	Excavators	1	8	36	0.38	61	6,676
Sewer Connection - Grading	Off-Highway Trucks	1	8	376	0.38	61	69,725
Sewer Connection - Building Construc	Cranes	1	8	367	0.29	214	182,208
Sewer Connection - Building Construc	Forklifts	1	8	82	0.2	214	28,077
Sewer Connection - Building Construc	Crawler Tractors	1	8	87	0.43	214	64,046
Sewer Connection - Building Construc	Generator Sets	1	8	14	0.74	214	17,736
Sewer Connection - Paving	Pavers	1	8	81	0.42	31	8,437
Sewer Connection - Paving	Rollers	1	8	36	0.38	31	3,393
Sewer Connection - Paving	Rubber Tired Dozers	1	8	367	0.4	31	36,406
Sewer Connection - Paving	Graders	1	8	148	0.41	31	15,049
						Total >100	404,639
						Total <100	171,115

Topanga Canyon - Temporary Bridge
Total On-Road Fuel Consumption

		gal/mile
2022	Hauling Hauling	0.17004641
2022	Vendor Vendor	0.14160709
2022	Worker Worker	0.03974021
2023	Hauling Hauling	0.16744049
2023	Vendor Vendor	0.1400083
2023	Worker Worker	0.03894266
2024	Hauling Hauling	0.16534457
2024	Vendor Vendor	0.13876713
2024	Worker Worker	0.03808277
2025	Hauling Hauling	0.16305171
2025	Vendor Vendor	0.13736272
2025	Worker Worker	0.03726591
2026	Hauling Hauling	0.16075668
2026	Vendor Vendor	0.1359573
2026	Worker Worker	0.0364859
2027	Hauling Hauling	0.15844728
2027	Vendor Vendor	0.13458703
2027	Worker Worker	0.03577571
2028	Hauling Hauling	0.15595442
2028	Vendor Vendor	0.13307229
2028	Worker Worker	0.03513338
2029	Hauling Hauling	0.15353145
2029	Vendor Vendor	0.13159181
2029	Worker Worker	0.03454545
2030	Hauling Hauling	0.15123834
2030	Vendor Vendor	0.13016679
2030	Worker Worker	0.03400797
2031	Hauling Hauling	0.1489532
2031	Vendor Vendor	0.12871224
2031	Worker Worker	0.03351506

Topanga Canyon - Temporary Bridge
Total On-Road Fuel Consumption

Source	Fuel Type	Total Fuel Use (gal)
Hauling	Diesel	512,505
Vendor	Diesel	0
Worker	Gasoline	23,022

Fuel Type	Total Fuel Use
Diesel	512,505
Gasoline	23,022

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Idling per Day (minutes)	Regional Emissions (gallons) gal/mile	gal/min	gal/day	Total Gallons/yr
Demolition &Temp Parking Prov	2022								
Total Haul Trips	2162								
Hauling	52	42	8	77	15	0.17	0.00E+00	681	28,596
Vendor	0	60	8	10.2	15	0.14	0.00E+00	0	0
Worker	40	60	8	18.5	0	0.04	0.00E+00	29	1,764
Unsuitable Material Replacemer	2027								
Total Haul Trips	5200								
Hauling	124	42	8	77	15	0.16	0.00E+00	1,513	63,540
Vendor	0	60	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	60	8	18.5	0	0.04	0.00E+00	26	1,588
Relocate Utilities	2027								
Total Haul Trips	260								
Hauling	2	130	8	36.5	15	0.16	0.00E+00	12	1,504
Vendor	0	182	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	182	8	18.5	0	0.04	0.00E+00	26	4,818
Construct Temporary Road/Brid	2027								
Total Haul Trips	320								
Hauling	16	22	8	36.5	15	0.16	0.00E+00	93	2,036
Vendor	0	30	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	30	8	18.5	0	0.04	0.00E+00	26	794
Construct Temporary Road/Brid	2027								
Total Haul Trips	208								
Hauling	4	88	8	36.5	15	0.16	0.00E+00	23	2,036
Vendor	0	124	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	124	8	18.5	0	0.04	0.00E+00	26	3,283
Construct Temporary Road/Brid	2027								
Total Haul Trips	0								
Hauling	0	44	8	36.5	15	0.16	0.00E+00	0	0
Vendor	0	60	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	60	8	18.5	0	0.04	0.00E+00	26	1,588
Demolition Temporary Bridge	2030								
Total Haul Trips	0								
Hauling	0	43	8	36.5	15	0.15	0.00E+00	0	0
Vendor	0	59	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	59	8	18.5	0	0.03	0.00E+00	25	1,485
Construct DBH Facilities(Lifeguar	2030								
Total Haul Trips	0								
Hauling	0	21	8	36.5	15	0.15	0.00E+00	0	0
Vendor	0	31	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	31	8	18.5	0	0.03	0.00E+00	25	780
Lagoon Grading	2030								
Total Haul Trips	51200								
Hauling	502	102	8	36.5	15	0.15	0.00E+00	2,771	282,656
Vendor	0	214	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	214	8	18.5	0	0.03	0.00E+00	25	5,386
Restore Beach Area	2030								
Total Haul Trips	0								
Hauling	0	43	8	36.5	15	0.15	0.00E+00	0	0
Vendor	0	61	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	61	8	18.5	0	0.03	0.00E+00	25	1,535
Unsuitable Material Replacemer	2027								
Total Haul Trips	5200								
Hauling	124	42	8	106	15	0.16	0.00E+00	2,083	87,471
Vendor	0	60	8	10.2	15	0.13	0.00E+00	0	0
Worker	0	60	8	18.5	0	0.04	0.00E+00	0	0
Unsuitable Material Replacemer	2027								
Total Haul Trips	2520								
Hauling	60	42	8	20	15	0.16	0.00E+00	190	7,986
Vendor	0	60	8	10.2	15	0.13	0.00E+00	0	0
Worker	0	60	8	18.5	0	0.04	0.00E+00	0	0
Demolition &Temp Parking Prov	2027								
Total Haul Trips	2162								
Hauling	52	42	8	106	15	0.16	0.00E+00	873	36,681
Vendor	0	60	8	10.2	15	0.13	0.00E+00	0	0
Worker	0	60	8	18.5	0	0.04	0.00E+00	0	0

Topanga Canyon - NB/SB Bridge
Total On-Road Fuel Consumption

		gal/mile
2022	Hauling	0.17004641
2022	Vendor	0.14160709
2022	Worker	0.03974021
2023	Hauling	0.16744049
2023	Vendor	0.1400083
2023	Worker	0.03894266
2024	Hauling	0.16534457
2024	Vendor	0.13876713
2024	Worker	0.03808277
2025	Hauling	0.16305171
2025	Vendor	0.13736272
2025	Worker	0.03726591
2026	Hauling	0.16075668
2026	Vendor	0.1359573
2026	Worker	0.0364859
2027	Hauling	0.15844728
2027	Vendor	0.13458703
2027	Worker	0.03577571
2028	Hauling	0.15595442
2028	Vendor	0.13307229
2028	Worker	0.03513338
2029	Hauling	0.15353145
2029	Vendor	0.13159181
2029	Worker	0.03454545
2030	Hauling	0.15123834
2030	Vendor	0.13016679
2030	Worker	0.03400797
2031	Hauling	0.1489532
2031	Vendor	0.12871224
2031	Worker	0.03351506

Topanga Canyon - NB/SB Bridge
Total On-Road Fuel Consumption

Source	Fuel Type	Total Fuel Use (gal)
Hauling	Diesel	70,165
Vendor	Diesel	0
Worker	Gasoline	19,051

Fuel Type	Total Fuel Use
Diesel	70,165
Gasoline	19,051

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Idling per Day (minutes)	Regional Emissions (gallons) gal/mile	gal/min	gal/day	Total Gallons/yr
Demolition NB Road/Bridge	2022								
Total Haul Trips	270								
Hauling	8	42	8	36.5	15	0.17	0.00E+00	50	2,085
Vendor	0	60	8	10.2	15	0.14	0.00E+00	0	0
Worker	40	60	8	18.5	0	0.04	0.00E+00	29	1,764
Construct NB Road/Bridge	2028								
Total Haul Trips	3700								
Hauling	86	43	8	36.5	15	0.16	0.00E+00	490	21,050
Vendor	0	61	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	61	8	18.5	0	0.04	0.00E+00	26	1,586
Construct NB Road/Bridge	2028								
Total Haul Trips	834								
Hauling	6	154	8	36.5	15	0.16	0.00E+00	34	5,260
Vendor	0	214	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	214	8	18.5	0	0.04	0.00E+00	26	5,564
Construct NB Road/Bridge	2028								
Total Haul Trips	0								
Hauling	0	21	8	36.5	15	0.16	0.00E+00	0	0
Vendor	0	31	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	31	8	18.5	0	0.04	0.00E+00	26	806
Demolition SB Road/Bridge	2029								
Total Haul Trips	270								
Hauling	8	43	8	36.5	15	0.15	0.00E+00	45	1,928
Vendor	0	59	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	59	8	18.5	0	0.03	0.00E+00	26	1,508
Construct SB Road/Bridge	2029								
Total Haul Trips	3460								
Hauling	82	43	8	36.5	15	0.15	0.00E+00	460	19,759
Vendor	0	61	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	61	8	18.5	0	0.03	0.00E+00	26	1,559
Construct SB Road/Bridge	2029								
Total Haul Trips	834								
Hauling	6	154	8	36.5	15	0.15	0.00E+00	34	5,178
Vendor	0	214	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	214	8	18.5	0	0.03	0.00E+00	26	5,471
Construct SB Road/Bridge	2029								
Total Haul Trips	0								
Hauling	0	21	8	36.5	15	0.15	0.00E+00	0	0
Vendor	0	31	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	31	8	18.5	0	0.03	0.00E+00	26	792
Construct NB Road/Bridge	2028								
Total Haul Trips	2400								
Hauling	56	43	8	20	15	0.16	0.00E+00	175	7,511
Vendor	0	61	8	10.2	15	0.13	0.00E+00	0	0
Worker	0	61	8	18.5	0	0.04	0.00E+00	0	0
Construct SB Road/Bridge	2029								
Total Haul Trips	2400								
Hauling	56	43	8	20	15	0.15	0.00E+00	172	7,394
Vendor	0	61	8	10.2	15	0.13	0.00E+00	0	0
Worker	0	61	8	18.5	0	0.03	0.00E+00	0	0

Topanga Canyon - VS

Total On-Road Fuel Consumption

		gal/mile
2022	Hauling	0.17004641
2022	Vendor	0.14160709
2022	Worker	0.03974021
2023	Hauling	0.16744049
2023	Vendor	0.1400083
2023	Worker	0.03894266
2024	Hauling	0.16534457
2024	Vendor	0.13876713
2024	Worker	0.03808277
2025	Hauling	0.16305171
2025	Vendor	0.13736272
2025	Worker	0.03726591
2026	Hauling	0.16075668
2026	Vendor	0.1359573
2026	Worker	0.0364859
2027	Hauling	0.15844728
2027	Vendor	0.13458703
2027	Worker	0.03577571
2028	Hauling	0.15595442
2028	Vendor	0.13307229
2028	Worker	0.03513338
2029	Hauling	0.15353145
2029	Vendor	0.13159181
2029	Worker	0.03454545
2030	Hauling	0.15123834
2030	Vendor	0.13016679
2030	Worker	0.03400797
2031	Hauling	0.1489532
2031	Vendor	0.12871224
2031	Worker	0.03351506

Topanga Canyon - VS

Total On-Road Fuel Consumption

Source	Fuel Type	Total Fuel Use (gal)
Hauling	Diesel	0
Vendor	Diesel	1,153
Worker	Gasoline	1,523

Fuel Type	Total Fuel Use
Diesel	1,153
Gasoline	1,523

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Idling per Day (minutes)	Regional Emissions (gallons) gal/mile	gal/min	gal/day	Total Gallons/yr
Site Preparation	2022								
Total Haul Trips	0								
Hauling	0	1	8	36.5	15	0.17	0.00E+00	0	0
Vendor	0	1	8	10.2	15	0.14	0.00E+00	0	0
Worker	10	1	8	18.5	0	0.04	0.00E+00	7	7
Grading	2027								
Total Haul Trips	0								
Hauling	0	4	8	36.5	15	0.16	0.00E+00	0	0
Vendor	0	4	8	10.2	15	0.13	0.00E+00	0	0
Worker	16	4	8	18.5	0	0.04	0.00E+00	11	42
Building Construction	2027								
Total Haul Trips	0								
Hauling	0	140	8	36.5	15	0.16	0.00E+00	0	0
Vendor	6	140	8	10.2	15	0.13	0.00E+00	8	1,153
Worker	14	140	8	18.5	0	0.04	0.00E+00	9	1,297
Paving	2027								
Total Haul Trips	0								
Hauling	0	7	8	36.5	15	0.16	0.00E+00	0	0
Vendor	0	7	8	10.2	15	0.13	0.00E+00	0	0
Worker	36	7	8	18.5	0	0.04	0.00E+00	24	167
Architectural Coating	2027								
Total Haul Trips	0								
Hauling	0	7	8	36.5	15	0.16	0.00E+00	0	0
Vendor	0	7	8	10.2	15	0.13	0.00E+00	0	0
Worker	2	7	8	18.5	0	0.04	0.00E+00	1	9

Topanga Canyon - Op2 and 3

Total On-Road Fuel Consumption

		gal/mile
2022	Hauling Hauling	0.17004641
2022	Vendor Vendor	0.14160709
2022	Worker Worker	0.03974021
2023	Hauling Hauling	0.16744049
2023	Vendor Vendor	0.1400083
2023	Worker Worker	0.03894266
2024	Hauling Hauling	0.16534457
2024	Vendor Vendor	0.13876713
2024	Worker Worker	0.03808277
2025	Hauling Hauling	0.16305171
2025	Vendor Vendor	0.13736272
2025	Worker Worker	0.03726591
2026	Hauling Hauling	0.16075668
2026	Vendor Vendor	0.1359573
2026	Worker Worker	0.0364859
2027	Hauling Hauling	0.15844728
2027	Vendor Vendor	0.13458703
2027	Worker Worker	0.03577571
2028	Hauling Hauling	0.15595442
2028	Vendor Vendor	0.13307229
2028	Worker Worker	0.03513338
2029	Hauling Hauling	0.15353145
2029	Vendor Vendor	0.13159181
2029	Worker Worker	0.03454545
2030	Hauling Hauling	0.15123834
2030	Vendor Vendor	0.13016679
2030	Worker Worker	0.03400797
2031	Hauling Hauling	0.1489532
2031	Vendor Vendor	0.12871224
2031	Worker Worker	0.03351506

Op2

Source	Fuel Type	Total Fuel Use (gal)
Hauling	Diesel	1,601
Vendor	Diesel	0
Worker	Gasoline	6,293

Fuel Type	Total Fuel Use
Diesel	1,601
Gasoline	6,293

Topanga Canyon - Op2 and 3

Total On-Road Fuel Consumption

Op3

Source	Fuel Type	Total Fuel Use (gal)
Hauling	Diesel	4,708
Vendor	Diesel	0
Worker	Gasoline	9,052

Fuel Type	Total Fuel Use
Diesel	4,708
Gasoline	9,052

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Idling per Day (minutes)	Regional Emissions (gallons) gal/mile	gal/min	gal/day	Total Gallons/yr
Grading/Excavation	2022								
Total Haul Trips	200								
Hauling	6	43	8	36.5	15	0.17	0.00E+00	37	1,601
Vendor	0	214	8	10.2	15	0.14	0.00E+00	0	0
Worker	40	214	8	18.5	0	0.04	0.00E+00	29	6,293
Demolition NB Road/Bridge	2031								
Total Haul Trips	0								
Hauling	0	43	8	36.5	15	0.15	0.00E+00	0	0
Vendor	0	59	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	59	8	18.5	0	0.03	0.00E+00	25	1,463
Construct NB Road/Bridge	2031								
Total Haul Trips	200								
Hauling	6	43	8	36.5	15	0.15	0.00E+00	33	1,403
Vendor	0	61	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	61	8	18.5	0	0.03	0.00E+00	25	1,513
Construct NB Road/Bridge	2031								
Total Haul Trips	330								
Hauling	4	152	8	36.5	15	0.15	0.00E+00	22	3,306
Vendor	0	214	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	214	8	18.5	0	0.03	0.00E+00	25	5,307
Construct NB Road/Bridge	2031								
Total Haul Trips	0								
Hauling	0	23	8	36.5	15	0.15	0.00E+00	0	0
Vendor	0	31	8	10.2	15	0.13	0.00E+00	0	0
Worker	40	31	8	18.5	0	0.03	0.00E+00	25	769

Appendix N-3
GHG Calculations and Modeling

ESA

N-3.1-1 Construction Assumptions

Topanga Lagoon Restoration

Construction Equipment/Worker/Vendor Truck Schedule and Assumptions

Project Land Uses

Land Use Type	CalEEMod LandUse Type	CalEEMod LandUse Subtype	Amount	Unit	Land Use SF	Notes
Temporary Bridge	Other Asphalt Surfaces		0.31	acres	13,500	Temp bridge is 180 ft long * 75 ft width
Topanga Bridge/Roadway NB	Other Asphalt Surfaces		1.80	acres	78,408	This includes bridge construction (460 ft*75 ft) + roadway improvements. Total acreage of impervious surfaces is 3.6 acres split between NB and SB directions evenly
Topanga Bridge/Roadway SB	Other Asphalt Surfaces		1.80	acres	78,408	
Lifeguard HQ	Office	General Office Building	1.5	KSF	1,500	Estimated on Google Earth
Helipad	Other Nonasphalt Surfaces		2.3	KSF	2,300	Estimated on Google Earth
Visitor Services						
Ranger Office	Office	General Office Building	5.5	KSF	5,500	From PD
Parking Lot	Parking Lot		75	Spaces	29,403	

Added 1 day to end to include end date

	Construction Phase	CalEEMod Phase Type	Start Date	End Date	Workdays (7 days/week)	Worker Vehicles/Day	Workers Trips (In/Out)/Day	Vendor Trips/Day (In/Out)
A	Demolition & Temp Parking Provisions	Demolition	1/1/2027	3/1/2027	60	20	40	
A	Unsuitable Material Replacement	Grading/Excavation	1/1/2027	3/1/2027	60	20	40	
A	Relocate Utilities	Trenching	2/1/2027	8/1/2027	182	20	40	
A	Construct Temporary Road/ Bridge	Grading/Excavation	6/1/2027	6/30/2027	30	20	40	
A	Construct Temporary Road/ Bridge	Building Construction	7/1/2027	11/1/2027	124	20	40	
A	Construct Temporary Road/ Bridge	Paving	11/2/2027	12/31/2027	60	20	40	
B	Demolition NB Road/Bridge	Demolition	1/1/2028	2/29/2028	60	20	40	
B	Construct NB Road/Bridge	Grading/Excavation	3/1/2028	4/30/2028	61	20	40	
B	Construct NB Road/Bridge	Building Construction	5/1/2028	11/30/2028	214	20	40	
B	Construct NB Road/Bridge	Paving	12/1/2028	12/31/2028	31	20	40	
B	Demolition SB Road/Bridge	Demolition	1/1/2029	2/28/2029	59	20	40	
B	Construct SB Road/Bridge	Grading/Excavation	3/1/2029	4/30/2029	61	20	40	
B	Construct SB Road/Bridge	Building Construction	5/1/2029	11/30/2029	214	20	40	
B	Construct SB Road/Bridge	Paving	12/1/2029	12/31/2029	31	20	40	
A	Demolition Temporary Bridge	Demolition	1/1/2030	2/28/2030	59	20	40	
A	Construct DBH Facilities (Lifeguard HQ/Helipad)	Building Construction	3/1/2030	3/31/2030	31	20	40	
A	Lagoon Grading	Grading/Excavation	4/1/2030	10/31/2030	214	20	40	
A	Restore Beach Area	Site Preparation	11/1/2030	12/31/2030	61	20	40	
	Visitor Services							
C	Site Preparation		1/1/2027	1/1/2027	1	5	10	
C	Grading		1/2/2027	1/5/2027	4	8	16	
C	Building Construction		1/6/2027	5/25/2027	140	7	14	6
C	Paving		5/19/2027	5/25/2027	7	18	36	
C	Architectural Coating		5/19/2027	5/25/2027	7	1	2	

Topanga Lagoon Restoration

Construction Haul and Concrete Truck Schedule and Assumptions

Project Land Uses

Land Use Type	CalEEMod LandUse Type	CalEEMod LandUse	Amount	Unit	Land Use SF	Notes
Temporary Bridge	Other Asphalt Surfaces		0.31	acres	13,500	Temp bridge is 180 ft long * 75 ft width
Topanga Bridge/Roadway NB	Other Asphalt Surfaces		1.80	acres	78,408	This includes bridge construction (460 ft*75 ft) + roadway improvements. Total acreage of impervious surfaces is 3.6 acres split between NB and SB directions evenly
Topanga Bridge/Roadway SB	Other Asphalt Surfaces		1.80	acres	78,408	
Lifeguard HQ	Office	General Office	1.5	KSF	1,500	Estimated on Google Earth
Helipad	Other Nonasphalt Surfaces		2.3	KSF	2,300	Estimated on Google Earth
Visitor Services						
Ranger Office	Office	General Office	5.5	KSF	5,500	From PD
Parking Lot	Parking Lot		75	Spaces	29,403	

	Construction Phase	CalEEMod Phase Type	Start Date	End Date	Workdays (5 days/week)		Total Haul (or Concrete) Trips (In/Out)	Total Haul (or Concrete) Trucks/Day	Haul (or Concrete) Trips/Day (In/Out)
A	Demolition & Temp Parking Provisions	Demolition	1/1/2027	3/1/2027	42		2,162	26	52
A	Unsuitable Material Replacement	Grading/Excavation	1/1/2027	3/1/2027	42		7,720	92	184
A	Relocate Utilities	Trenching	2/1/2027	8/1/2027	130		260	1	2
A	Construct Temporary Road/ Bridge	Grading/Excavation	6/1/2027	6/30/2027	22		320	8	16
A	Construct Temporary Road/ Bridge	Building Construction	7/1/2027	11/1/2027	88		208	2	4
A	Construct Temporary Road/ Bridge	Paving	11/2/2027	12/31/2027	44				
B	Demolition NB Road/Bridge	Demolition	1/1/2028	2/29/2028	42		270	4	8
B	Construct NB Road/Bridge	Grading/Excavation	3/1/2028	4/30/2028	43		6,100	71	142
B	Construct NB Road/Bridge	Building Construction	5/1/2028	11/30/2028	154		834	3	6
B	Construct NB Road/Bridge	Paving	12/1/2028	12/31/2028	21				
B	Demolition SB Road/Bridge	Demolition	1/1/2029	2/28/2029	43		270	4	8
B	Construct SB Road/Bridge	Grading/Excavation	3/1/2029	4/30/2029	43		5,860	69	138
B	Construct SB Road/Bridge	Building Construction	5/1/2029	11/30/2029	154		834	3	6
B	Construct SB Road/Bridge	Paving	12/1/2029	12/31/2029	21				
A	Demolition Temporary Bridge	Demolition	1/1/2030	2/28/2030	43				
A	Construct DBH Facilities (Lifeguard HQ/Helipad)	Building Construction	3/1/2030	3/31/2030	21				
A	Lagoon Grading	Grading/Excavation	4/1/2030	10/31/2030	154		51,200	251	502
A	Restore Beach Area	Site Preparation	11/1/2030	12/31/2030	43				
	Visitor Services								
C	Site Preparation		1/1/2027	1/1/2027	1				
C	Grading		1/2/2027	1/5/2027	2				
C	Building Construction		1/6/2027	5/25/2027	100				
C	Paving		5/19/2027	5/25/2027	5				
C	Architectural Coating		5/19/2027	5/25/2027	5				

Demolition Quantities - Structures

Buildings	Amount
Total Demolition Debris (CY)	**10,810**
Haul Truck Capacity (CY)	10
Total Haul Trucks Required	1,081
Total Haul Truck Trips (In/Out)	**2,162**
Total Haul Truck Trips (In/Out) per day	52
Tons of Debris	5,405

Demolition Quantities - NB Bridge

Buildings	Amount
Total Demolition Debris (CY)	**1,350**
Haul Truck Capacity (CY)	10
Total Haul Trucks Required	135
Total Haul Truck Trips (In/Out)	**270**
Total Haul Truck Trips (In/Out) per day	8
Tons of Debris	675

Demolition Quantities - SB Bridge

Buildings	Amount
Total Demolition Debris (	**1,350**
Haul Truck Capacity (CY)	10
Total Haul Trucks Require	135
Total Haul Truck Trips (In	**270**
Total Haul Truck Trips (In/Out) per day	8
Tons of Debris	675

Lagoon Excavation Quantities

Parameters	Amount
Excavation Volume (Export) (CY)	**256,000**
Haul Truck Capacity (CY)	10
Total Haul Trucks Required	25,600
Total Haul Truck Trips (In/Out)	**51,200**
Haul Days	**102**
Daily Haul Amount (CY)	**2,510**
Total Haul Truck Trips (In/Out) per day	502

Sediment Beneficial Reuse Study

8/2/2022

Excavation Quantities - ADL Contaminated Soil

Parameters	Amount		
Excavation Volume (Import) (CY)	**12,600**	2,520	Total Import Truck Trips
Excavation Volume (Export) (CY)	**26,000**	5,200	Total Export Truck Trips
Haul Truck Capacity (CY)	10	60	Daily Import Truck Trips
Total Haul Trucks Required	3,860	124	Daily Export Truck Trips
Total Haul Truck Trips (In/Out)	**7,720**		
Daily Haul Amount (CY)	**920**		
Total Haul Truck Trips (In/Out) per day	184		

Foundations/Concrete Quantities - Temporary Bridge

Foundations	Amount
Total Concrete Volume (C	930
Concrete Truck Capacity (	9
Total Concrete Trucks Rec	104
Total Concrete Truck Trips	208
Daily Max Concrete Amou	**11**
Max Concrete Truck Trips	4
Days Needed	52
Tons of Debris	465

Excavation Quantities - NB Road/Bridge and Roadway Excavation

Parameters	Amount		
Excavation Volume (Import) (CY)	12,000	2,400	Total Import Truck Trips
Excavation Volume (Export) (CY)	18,500	3,700	Total Export Truck Trips
Total Quantity	**30,500**	56	Daily Import Truck Trips
Haul Truck Capacity (CY)	10	86	Daily Export Truck Trips
Total Haul Trucks Required	3,050		
Total Haul Truck Trips (In/Out)	**6,100**		
Daily Haul Amount (CY)	**710**		
Total Haul Truck Trips (In/Out) per day	142		

Excavation Quantities - Temporary Bridge Abutments

Parameters	Amount
Excavation Volume (Import) (CY)	1,600
Excavation Volume (Export) (CY)	0
Total Quantity	**1,600**
Haul Truck Capacity (CY)	10
Total Haul Trucks Required	160
Total Haul Truck Trips (In/Out)	**320**
Daily Haul Amount (CY)	**73**
Total Haul Truck Trips (In/Out) per day	16

Excavation Quantities - SB Road/Bridge

Parameters	Amount		
Excavation Volume (Import) (CY)	12,000	2,400	Total Import Truck Trips
Excavation Volume (Export) (CY)	17,300	3,460	Total Export Truck Trips
Total Quantity	**29,300**	56	Daily Import Truck Trips
Haul Truck Capacity (CY)	10	82	Daily Export Truck Trips
Total Haul Trucks Required	2,930		
Total Haul Truck Trips (In/Out)	**5,860**		
Daily Haul Amount (CY)	**682**		
Total Haul Truck Trips (In/Out) per day	138		

Foundations/Concrete Quantities - NB Bridge

Foundations	Amount
Total Concrete Volume (CY)	3,750
Concrete Truck Capacity (CY)	9
Total Concrete Trucks Required	417
Total Concrete Truck Trips (In/Out	834
Daily Max Concrete Amount (CY)	**25**
Max Concrete Truck Trips (In/Out)	6
Days Needed	139

Foundations/Concrete Quantities - SB Bridge

Foundations	Amount
Total Concrete Volume (CY)	3,750
Concrete Truck Capacity (CY)	9
Total Concrete Trucks Required	417
Total Concrete Truck Trips (In/Out)	834
Daily Max Concrete Amount (CY)	**25**
Max Concrete Truck Trips (In/Out) per Day	6
Days Needed	139

Topanga Lagoon Restoration
Air Quality and Greenhouse Gas Assessment - Construction Assumptions
Off-Road Heavy-Duty Construction Equipment - Maximum

Construction Phase	CalEEMod Phase Type	Heavy-Duty Equipment	No. of Heavy-Duty Equipment	No. of hours/day	Hours of Operation/Week Per Equipment	Emissions Tier Rating (After Mitigation if needed) >100	Notes/Comments
Bridge Construction							
Demolition &Temp Parking Provisions	**Demolition**	Excavator	1	8	40		From Sequencing Report (bridge demo + roadway paving)
		Excavator w/ Hoe Ram	1	8	40		
		Loader	1	8	40		
		Dozer	1	8	40	Tier 4 Final	
		Grader	1	8	40	Tier 4 Final	
		Paver	1	8	40		
		Roller	2	8	40		
Unsuitable Material Replacement	**Grading/Excavation**	Excavator	1	8	40		From Sequencing Report (earthwork)
		Water Truck	1	8	40	Tier 4 Final	
		Loader	1	8	40		
		Dozer	1	8	40	Tier 4 Final	
		Grader	1	8	40	Tier 4 Final	
Relocate Utilities	**Trenching**	Excavator	1	8	40		Assumptions based on previous like-sized project
		Dump Truck	1	8	40		modeled as haul trip outside of CalEEMod
		Loader	1	8	40		
Construct Temporary Road/Bridge	**Grading/Excavation**	Excavator	1	8	40		From Sequencing Report (earthwork)
		Water Truck	1	8	40	Tier 4 Final	
		Loader	1	8	40		
		Dozer	1	8	40	Tier 4 Final	
		Grader	1	8	40	Tier 4 Final	
Construct Temporary Road/Bridge	**Building Construction**	Jackhammer	1	8	40		From Sequencing Report (bridge construction) - modeled as generator
		Heavy Duty Forklift	1	8	40		
		Crane	1	8	40	Tier 4 Final	
		Crawler Tractor	1	8	40		
		Generator	1	8	40		for Jackhammer above
Construct Temporary Road/Bridge	**Paving**	Dozer	1	8	40	Tier 4 Final	From Sequencing Report (roadway paving)
		Grader	1	8	40	Tier 4 Final	
		Paver	1	8	40		
		Roller	1	8	40		
Demolition NB Road/Bridge	**Demolition**	Excavator	1	8	40		From Sequencing Report (bridge demo)
		Excavator w/ Hoe Ram	1	8	40		
		Loader	1	8	40		
Construct NB Road/Bridge	**Grading/Excavation**	Excavator	1	8	40		From Sequencing Report (earthwork)
		Water Truck	1	8	40	Tier 4 Final	
		Loader	1	8	40		
		Dozer	1	8	40	Tier 4 Final	
		Grader	1	8	40	Tier 4 Final	
Construct NB Road/Bridge	**Building Construction**	Jackhammer	1	8	40		From Sequencing Report (bridge construction) - modeled as generator
		Heavy Duty Forklift	1	8	40		
		Crane	1	8	40	Tier 4 Final	
		Crawler Tractor	1	8	40		
		Generator	1	8	40		for Jackhammer above
Construct NB Road/Bridge	**Paving**	Dozer	1	8	40	Tier 4 Final	From Sequencing Report (roadway paving)
		Grader	1	8	40	Tier 4 Final	
		Paver	1	8	40		
		Roller	1	8	40		
Demolition SB Road/Bridge	**Demolition**	Excavator	1	8	40		From Sequencing Report (bridge demo)
		Excavator w/ Hoe Ram	1	8	40		
		Loader	1	8	40		
Construct SB Road/Bridge	**Grading/Excavation**	Excavator	1	8	40		From Sequencing Report (earthwork)
		Water Truck	1	8	40	Tier 4 Final	
		Loader	1	8	40		
		Dozer	1	8	40	Yes	
		Grader	1	8	40	Yes	
Construct SB Road/Bridge	**Building Construction**	Jackhammer	1	8	40		From Sequencing Report (bridge construction) - modeled as generator
		Heavy Duty Forklift	1	8	40		
		Crane	1	8	40	Yes	
		Crawler Tractor	1	8	40		
		Generator	1	8	40		for Jackhammer above
Construct SB Road/Bridge	**Paving**						
		Dozer	1	8	40	Yes	From Sequencing Report (roadway paving)
		Grader	1	8	40	Yes	
		Paver	1	8	40		
		Roller	1	8	40		
Demolition Temporary Bridge	**Demolition**	Excavator	1	8	40		From Sequencing Report (bridge demo)
		Excavator w/ Hoe Ram	1	8	40		
		Loader	1	8	40		
Construct DBH Facilities(Lifeguard HQ/Helipad)	**Building Construction**	Jackhammer	1	8	40		From Sequencing Report (bridge construction) - modeled as generator
		Heavy Duty Forklift	1	8	40		
		Crane	1	8	40	Yes	
		Crawler Tractor	1	8	40		
		Generator	1	8	40		for Jackhammer above
Lagoon Grading	**Grading/Excavation**	Excavator	1	8	40		From Sediment Reuse Report (Option 4)
		Grader	1	8	40	Yes	
		Water Truck	1	8	40	Yes	
Restore Beach Area	**Site Preparation**	Tractors/Loaders/Backhoes	1	8	40		CalEEMod Defaults
		Graders	1	8	40	Yes	
Visitor Services							
	Site Preparation	Tractors/Loaders/Backhoes	1	8	40		CalEEMod Defaults
		Graders	1	8	40	Yes	
	Grading	Graders	1	8	40	Yes	CalEEMod Defaults
		Rubber Tired Dozer	1	8	40	Yes	
		Tractors/Loaders/Backhoes	1	8	40		
	Building Construction	Cranes	1	8	40	Yes	CalEEMod Defaults
		Forklifts	2	8	40		
		Tractors/Loaders/Backhoes	2	8	40		
	Paving	Cement and Mortar Mixers	4	8	40		CalEEMod Defaults
		Pavers	1	8	40		
		Rollers	1	8	40		
		Tractors/Loaders/Backhoes	1	8	40		
	Architectural Coating	Air Compressors	1	8	40		

Topanga Lagoon Restoration
Air Quality and Greenhouse Gas Assessment - Construction Assumptions Opt 2
Off-Road Heavy-Duty Construction Equipment - Maximum

Construction Phase	CalEEMod Phase Type	Heavy-Duty Equipment	No. of Heavy-Duty Equipment	No. of hours/day	Hours of Operation/Week Per Equipment	Emissions Tier Rating (After Mitigation if needed)	Notes/Comments
Seepage Pit	**Grading/Excavation**	Excavator	1	8	40		Assumptions
		Grader	1	8	40	Tier 4 Final	
		Pump	1	8	40		

LandUseSubType	LandUseUnitAmount	LandUseSizeMetric
Other Non-Asphalt Surfaces	8	1000sqft

Construction Equipment/Worker/Vendor Truck Schedule and Assumptions

Construction Phase	CalEEMod Phase Type	Start Date	End Date	Workdays (7 days/week)	Worker Vehicles/Day	Workers Trips (In/Out)/Day	Vendor Trips/Day (In/Out)
Seepage Pit	Grading/Excavation	4/1/2030	10/31/2030	214	20	40	0

Topanga Lagoon Restoration
Air Quality and Greenhouse Gas Assessment - Construction Assumptions Opt 2

LandUseSubType	LandUseUnitAmount	LandUseSizeMetric
Other Non-Asphalt Surfaces	8	1000sqft

Grading Excavation Quantities

Parameters	Amount
Excavation Volume (Export) (CY)	**1,000**
Haul Truck Capacity (CY)	10
Total Haul Trucks Required	100
Total Haul Truck Trips (In/Out)	**200**
Haul Days	**43**
Daily Haul Amount (CY)	**24**
Total Haul Truck Trips (In/Out) per day	6

Construction Haul and Concrete Truck Schedule and Assumptions

Construction Phase	CalEEMod Phase Type	Start Date	End Date	Workdays (5 days/week)	Total Haul (or Concrete) Trips (In/Out)	Total Haul (or Concrete) Trucks/Day	Haul (or Concrete) Trips/Day (In/Out)
Seepage Pit	Grading/Excavation	4/1/2030	10/31/2030	154	200	3	6

Topanga Lagoon Restoration
Air Quality and Greenhouse Gas Assessment - Construction Assumptions Opt 3
Off-Road Heavy-Duty Construction Equipment - Maximum

Construction Phase	CalEEMod Phase Type	Heavy-Duty Equipment	No. of Heavy-Duty Equipment	No. of hours/day	Hours of Operation/Week Per Equipment	Emissions Tier Rating (After Mitigation if needed)	Notes/Comments
Sewer - Option 3	**Demolition**	Excavator	1	8	40		Assumptions based on Option 3
		Excavator w/ Hoe Ram	1	8	40		
		Loader	1	8	40		
Sewer - Option 3	**Grading/Excavation**	Excavator	1	8	40		Assumptions based on Option 3
		Water Truck	1	8	40	Tier 4 Final	
		Loader	1	8	40		
		Dozer	1	8	40	Tier 4 Final	
		Grader	1	8	40	Tier 4 Final	
Sewer - Option 3	**Building Construction**	Jackhammer	1	8	40		Assumptions based on Option 3 - modeled as a gene
		Heavy Duty Forklift	1	8	40		
		Crane	1	8	40	Tier 4 Final	
		Crawler Tractor	1	8	40		
		Generator	1	8	40		for Jackhammer above
Sewer - Option 3	**Paving**	Dozer	1	8	40	Tier 4 Final	Assumptions based on Option 3
		Grader	1	8	40	Tier 4 Final	
		Paver	1	8	40		
		Roller	1	8	40		

Construction Equipment/Worker/Vendor Truck Schedule and Assumptions

LandUseSubType	LandUseUnitAmount	LandUseSizeMetric
Other Asphalt Surfaces	40	1000sqft

Construction Phase	CalEEMod Phase Type	Start Date	End Date	Workdays (7 days/week)	Worker Vehicles/Day	Workers Trips (In/Out)/Day	Vendor Trips/Day (In/Out)
Demolition NB Road/Bridge	Demolition	1/1/2031	2/28/2031	59	20	40	0
Construct NB Road/Bridge	Grading/Excavation	3/1/2031	4/30/2031	61	20	40	0
Construct NB Road/Bridge	Building Construction	5/1/2031	11/30/2031	214	20	40	0
Construct NB Road/Bridge	Paving	12/1/2031	12/31/2031	31	20	40	0

N-3.2-1 Construction GHG Emissions Summary and Calculations

Topanga Lagoon
Construction Annual GHG

	Metric Tons/Year			
Year	**On-Road Mobile Sources**	**CalEEMod**	**Water + Construction Office**	**Total**
2027	2,392	560	6.96	2,959
2028	434	388	6.66	829
2029	410	308	6.66	725
2030	2,895	261	6.91	3,162
Total	**6,131**	**1,516**	**27**	**7,675**
Wastewater Option 2	54	77	0.35	132
Total with Option 2	**6,185**	**1,594**	**28**	**7,806**
Wastewater Option 3	**101**	**308**	6.66	**415**
Total with Option 3	**6,232**	**1,824**	34	**8,090**
Amortized - 30 years (Maximum)	**208**	**61**	**1**	**270**

Topanga Restoration Lagoon
Construction Energy

Construction Water Energy Estimates

Source	Acreage/Day	Number of Days	Total Construction Water Use (Mgal)	Electricity Demand from Water Conveyance (MWh)	Annual Electricity Demand from Water Conveyance (MWh)
Site Preparation (VS)	0.5	1	0.002	0.0	0.0
Grading (VS)	1.0	4	0.012	0.1	0.0
Demolition (TB)	1.0	60	0.180	1.2	0.3
Grading (TB)	1.0	60	0.180	1.2	0.3
Grading (TB)-TR	1.0	30	0.090	0.6	0.2
Demolition (TB)-TB	0.0	59	0.000	0.0	0.0
Grading (TB)-Lagoon	0.5	214	0.321	2.2	0.5
Site Preparation (TB)	0.5	61	0.092	0.6	0.2
Demolition (Bridge)-NB	0.0	60	0.000	0.0	0.0
Grading (Bridge)-NB	1.0	61	0.183	1.2	0.3
Demolition (Bridge)-SB	0.0	59	0.000	0.0	0.0
Grading (Bridge)-SB	1.0	61	0.183	1.2	0.3
Subtotal - Project			**1.242**	**8.5**	**2.1**
Seepage Pit	**0.5**	**214**	**0.321**	**2.2**	**2.2**
Sewer Connection - Demolition	0.0	59	0.000	0.0	0.0
Sewer Connection - Grading	1.0	61	0.183	1.2	1.2
Subtotal - Option 3			**0.183**	**1.2**	**1.2**
Total			**1.563**	**10.6**	**4.3**

CalEEMod Water Electricity Factors	Electricity Intensity Factor To Supply (kWh/Mgal)	Electricity Intensity Factor To Treat (kWh/Mgal)	Electricity Intensity Factor To Distribute (kWh/Mgal)	Electricity Intensity Factor For Wastewater Treatment (kWh/Mgal)
	3044	725	1537	1501

Construction Water GHG	Electricity Emission (MT CO2e/MWh)	Electricity Emission (lbs CO2e/MWh)
1.68	0.16	348.21

Project	MWh/year	GHG (MT/year)
2027	3.2	0.50
2028	1.2	0.20
2029	1.2	0.20
2030	2.8	0.44
Op2	2.2	0.35
Op3	1.2	0.20

Sources and Assumptions:

CalEEMod Appendix G, Default data tables, G-14 Daily Acres Graded by Equipment Type

-Electricity Intensity Factors - California Emissions Estimator Model (CalEEMod).

-Estimated construction water use assumed to be generally equivalent to landscape irrigation, based on a factor of 20.94 gallons per year per square foot of landscaped area within the Los Angeles area (Mediterranean climate), which assumes high water demand landscaping materials and an irrigation system efficiency of 85%. Factor is therefore (20.94 GAL/SF/year) x (43,560 SF/acre) / (365 days/year) / (0.85) = 2,940 gallons/acre/day, rounded up to 3,000 gallons/acre/day. (U.S. Department of Energy, Energy Efficiency & Renewable Energy, Federal Energy Management Program. "Guidelines for Estimating Unmetered Landscaping Water Use." July 2010. Page 12, Table 4 - Annual Irrigation Factor – Landscaped Areas with High Water Requirements).

MT CO2e/MWh based on CO2, CH4 and N2O factors projected by CalEEMod for utility provider for year 2027

Topanga Restoration Lagoon
Construction Energy Analysis

Temporary Construction Trailer - Electricity

Land Use	Square Feet	Energy Use per year (kWh)	Total Energy Use (kWh)	GHG Emissions/year (MTCO2e)	Total GHG Emissions for Construction Duration	Energy Use per SF	
General Office	2,000	40,936	163,745	6.5	25.9	20.5	Option 1 (Includes O
General Office	2,000	40,936	40,936	6.5	6.5	20.5	Option 3
Note: CalEEMod 2022.1 used to estimate energy use for temporary construction office							
Note: Energy use per sf is derived from CalEEMod User Guide, Appendix G, Table G-28 for the Statewide average for General Office Building land use							

N-3.3-1 Project Construction GHG Mobile Emissions

Topanga Canyon - Temporary Bridge
Total Emissions

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Idling per Day (minutes)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10 Dust	PM10 Exh	Total PM10	PM2.5 Dust	PM2.5 Exh	Total PM2.5	(MT/yr) Total CO2e
Demolition &Temp Parking Provisions	2027	Export	SCAB													
Total Haul Trips	2,162															
Hauling	52	42	8	77	15	0.25	15.54	6.08	0.12	3.70	0.20	3.91	0.99	0.19	1.18	263.27
Vendor	0	60	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.90
					Total	0.36	15.66	7.81	0.13	4.22	0.20	4.43	1.12	0.20	1.31	276.16
Unsuitable Material Replacement	2027	Export	SCAB		Workers+Vendors	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	5,200															
Hauling	124	42	8	77	15	0.59	37.05	14.49	0.29	8.83	0.48	9.31	2.36	0.46	2.82	633.20
Vendor	0	60	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.90
					Total	0.70	37.17	16.23	0.29	9.35	0.48	9.83	2.49	0.46	2.95	646.10
Relocate Utilities	2027				Workers+Vendors	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	260															
Hauling	2	130	8	36.5	15	0.01	0.32	0.15	0.00	0.07	0.00	0.07	0.02	0.00	0.02	15.41
Vendor	0	182	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	182	8	18.5	0	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	39.12
					Total	0.12	0.44	1.89	0.01	0.58	0.01	0.59	0.15	0.01	0.15	54.53
Construct Temporary Road/Bridge	2027	Grading/Excavation			Workers+Vendors	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	320															
Hauling	16	22	8	36.5	15	0.06	2.56	1.22	0.02	0.54	0.03	0.57	0.14	0.03	0.17	18.97
Vendor	0	30	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	30	8	18.5	0	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.45
					Total	0.17	2.69	2.96	0.02	1.06	0.03	1.09	0.27	0.03	0.30	25.41
Construct Temporary Road/Bridge	2027	Building Construction			Workers+Vendors	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	208															
Hauling	4	88	8	36.5	15	0.01	0.64	0.31	0.00	0.14	0.01	0.14	0.04	0.01	0.04	12.33
Vendor	0	124	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	124	8	18.5	0	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	26.65
					Total	0.13	0.76	2.04	0.01	0.65	0.01	0.66	0.16	0.01	0.17	38.98
Construct Temporary Road/Bridge	2027	Paving			Workers+Vendors	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	44	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	60	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.90
					Total	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.90
Demolition Temporary Bridge	2030				Workers+Vendors	0.12	0.12	1.74	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	43	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	11.91
					Total	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	11.91
Construct DBH Facilities(Lifeguard HQ/Helipad)	2030				Workers+Vendors	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	21	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.26
					Total	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.26
Lagoon Grading	2030				Workers+Vendors	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	51,200															
Hauling	502	102	8	36.5	15	1.70	72.19	35.91	0.53	16.96	0.89	17.85	4.53	0.85	5.38	2820.96
Vendor	0	214	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	43.18
					Total	1.80	72.28	37.37	0.53	17.48	0.89	18.37	4.66	0.85	5.51	2864.15
Restore Beach Area	2030				Workers+Vendors	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	43	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	61	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.31
					Total	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.31
Unsuitable Material Replacement	2027	Export	SJVAB		Workers+Vendors	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	5200															
Hauling	124	42	8	106	15	0.69	49.36	18.10	0.39	12.16	0.66	12.82	3.24	0.63	3.88	865.92
Vendor	0	60	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Total	0.69	49.36	18.10	0.39	12.16	0.66	12.82	3.24	0.63	3.88	865.92
Unsuitable Material Replacement	2027	Import			Workers+Vendors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total Haul Trips	2520															
Hauling	60	42	8	20	15	0.19	6.21	3.58	0.04	1.11	0.06	1.17	0.30	0.06	0.35	85.19
Vendor	0	60	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Total	0.19	6.21	3.58	0.04	1.11	0.06	1.17	0.30	0.06	0.35	85.19
Demolition &Temp Parking Provisions	2027	Export	SJVAB		Workers+Vendors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total Haul Trips	2,162															
Hauling	52	42	8	106	15	0.29	20.70	7.59	0.17	5.10	0.28	5.38	1.36	0.27	1.63	360.02
Vendor	0	60	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Total	0.29	20.70	7.59	0.17	5.10	0.28	5.38	1.36	0.27	1.63	360.02
					Workers+Vendors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Topanga Canyon - Temporary Bridge
Running Emissions

		Running Emissions Factor (grams/mile)						Running Emissions Factor (grams/mile)		
		ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX
2027	2027Hauling Hauling	0.013128	1.553518611	0.45473657	0.01336714	0.02273486	0.02174732	1471.80075	0.0608523	0.23462364
2027	2027Vendor Vendor	0.01570588	1.102331968	0.36327753	0.01214871	0.01475662	0.01411185	1311.1435	0.03509759	0.18307889
2027	2027Worker Worker	0.01447264	0.062492418	0.90233334	0.00281062	0.00150729	0.0013867	284.320587	0.00354266	0.00566149
2028	2028Hauling Hauling	0.01261339	1.493718015	0.43877031	0.01305596	0.02247317	0.02149714	1438.29866	0.05768159	0.22931835
2028	2028Vendor Vendor	0.01417298	1.038868065	0.3360531	0.01185313	0.01426835	0.01364491	1280.01295	0.03342244	0.17922194
2028	2028Worker Worker	0.01314756	0.057035459	0.85167037	0.00274948	0.00140448	0.00129194	278.134904	0.00325313	0.00533773
2029	2029Hauling Hauling	0.01213472	1.434866903	0.4224926	0.01273534	0.0221686	0.0212059	1403.60667	0.05465536	0.22381566
2029	2029Vendor Vendor	0.0128196	0.978781777	0.31101237	0.01152628	0.01380314	0.01320005	1245.46404	0.03180989	0.17489835
2029	2029Worker Worker	0.01192021	0.051957034	0.80464317	0.00269297	0.00130724	0.00120239	272.417637	0.00298654	0.00503952
2030	2030Hauling Hauling	0.01169729	1.381905725	0.40596438	0.01241489	0.02183595	0.02088778	1368.72007	0.05170538	0.2182712
2030	2030Vendor Vendor	0.01168751	0.9252091	0.28941545	0.01117412	0.01336285	0.01277903	1208.11234	0.03023265	0.17022289
2030	2030Worker Worker	0.01081241	0.047255061	0.76242747	0.00264062	0.00121547	0.00111789	267.121939	0.00274623	0.00476556
2031	2031Hauling Hauling	0.01126827	1.331771303	0.38663416	0.01209496	0.02148002	0.02054741	1333.31591	0.04842446	0.21262163
2031	2031Vendor Vendor	0.01070694	0.874998281	0.26868024	0.01079467	0.01293916	0.01237394	1167.57711	0.02847022	0.16520071
2031	2031Worker Worker	0.00977403	0.042746598	0.72305591	0.00259298	0.00112929	0.00103861	262.302837	0.0025216	0.00450761
0	GWP	N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day)						Regional Emissions (MT/year)			
					ROG	NOX	CO	SO2	PM10	PM2.5	CO2	CH4	N2O	CO2e
Demolition &Temp Parking	2027													
Total Haul Trips	2162													
Hauling	52	42	8	77	0.12	13.71	4.01	0.12	0.20	0.19	245.02	0.25	11.64	256.91
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.02	0.10	1.47	0.00	0.00	0.00	12.62	0.00	0.07	12.70
Unsuitable Material Replac	2027													
Total Haul Trips	5200													
Hauling	124	42	8	77	0.28	32.70	9.57	0.28	0.48	0.46	589.31	0.61	28.00	617.91
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.02	0.10	1.47	0.00	0.00	0.00	12.62	0.00	0.07	12.70
Relocate Utilities	2027													
Total Haul Trips	260													
Hauling	2	130	8	36.5	0.00	0.25	0.07	0.00	0.00	0.00	13.97	0.01	0.66	14.65
Vendor	0	182	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	182	8	18.5	0.02	0.10	1.47	0.00	0.00	0.00	38.29	0.01	0.23	38.53
Construct Temporary Road/	2027													
Total Haul Trips	320													
Hauling	16	22	8	36.5	0.02	2.00	0.59	0.02	0.03	0.03	17.19	0.02	0.82	18.03
Vendor	0	30	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	30	8	18.5	0.02	0.10	1.47	0.00	0.00	0.00	6.31	0.00	0.04	6.35
Construct Temporary Road/	2027													
Total Haul Trips	208													
Hauling	4	88	8	36.5	0.00	0.50	0.15	0.00	0.01	0.01	11.17	0.01	0.53	11.72
Vendor	0	124	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	124	8	18.5	0.02	0.10	1.47	0.00	0.00	0.00	26.09	0.01	0.15	26.25
Construct Temporary Road/	2027													
Total Haul Trips	0													
Hauling	0	44	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.02	0.10	1.47	0.00	0.00	0.00	12.62	0.00	0.07	12.70
Demolition Temporary Brid	2030													
Total Haul Trips	0													
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.02	0.08	1.24	0.00	0.00	0.00	11.66	0.00	0.06	11.73
Construct DBH Facilities(Life	2030													
Total Haul Trips	0													
Hauling	0	21	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.02	0.08	1.24	0.00	0.00	0.00	6.13	0.00	0.03	6.16
Lagoon Grading	2030													
Total Haul Trips	51200													
Hauling	502	102	8	36.5	0.47	55.82	16.40	0.50	0.88	0.84	2557.86	2.42	121.56	2681.84
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.02	0.08	1.24	0.00	0.00	0.00	42.30	0.01	0.22	42.54
Restore Beach Area	2030													
Total Haul Trips	0													
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.02	0.08	1.24	0.00	0.00	0.00	12.06	0.00	0.06	12.13
Unsuitable Material Replac	2027													
Total Haul Trips	5200													
Hauling	124	42	8	106	0.38	45.02	13.18	0.39	0.66	0.63	811.26	0.84	38.54	850.63
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unsuitable Material Replac	2027													
Total Haul Trips	2520													
Hauling	60	42	8	20	0.03	4.11	1.20	0.04	0.06	0.06	74.18	0.08	3.52	77.78
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition &Temp Parking	2027													
Total Haul Trips	2162													
Hauling	52	42	8	106	0.16	18.88	5.53	0.16	0.28	0.26	337.30	0.35	16.02	353.67
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - Temporary Bridge
Start Emissions

		Start Emissions Factor (grams/trip)						Start Emissions Factor (grams/trip)		
		ROG_STREX	NOX_STREX	CO_STREX	SOx_STREX	PM10_STREX	PM2.5_STREX	CO2_STREX	CH4_STREX	N2O_STREX
2027	2027Hauling Hauling	0.00060894	2.672142352	0.00302137	3.16557E-07	5.30481E-07	4.87758E-07	0.03202066	7.5498E-08	7.36611E-06
2027	2027Vendor Vendor	0.080213538	1.961946447	0.60365405	5.50826E-05	6.07836E-05	5.58883E-05	5.57177064	0.005494835	0.004037678
2027	2027Worker Worker	1.038950633	0.251050817	3.01934346	0.000691936	0.002053348	0.001887978	69.9913431	0.06616369	0.030829475
2028	2028Hauling Hauling	0.000490696	2.636914961	0.00257595	2.71845E-07	4.29594E-07	3.94995E-07	0.02749789	6.56178E-08	5.97594E-06
2028	2028Vendor Vendor	0.075419112	1.927915654	0.55968909	5.22383E-05	5.76932E-05	5.30468E-05	5.28405692	0.005169504	0.003780947
2028	2028Worker Worker	0.997046953	0.239560346	2.85187017	0.000675557	0.001941969	0.001785569	68.3345653	0.062483886	0.030029939
2029	2029Hauling Hauling	0.000383539	2.591170334	0.00214107	2.33546E-07	3.28727E-07	3.02252E-07	0.02362391	5.62127E-08	4.65545E-06
2029	2029Vendor Vendor	0.069289941	1.883995908	0.51714657	4.94212E-05	5.46034E-05	5.02058E-05	4.99909929	0.004852786	0.003548842
2029	2029Worker Worker	0.945798618	0.229251267	2.69630558	0.000660221	0.001832244	0.00168468	66.7833	0.059077063	0.029313823
2030	2030Hauling Hauling	0.00027279	2.546881303	0.00161285	1.92445E-07	2.06187E-07	1.89581E-07	0.01946637	4.71315E-08	4.0595E-06
2030	2030Vendor Vendor	0.063656597	1.839529651	0.47865041	4.67001E-05	5.18671E-05	4.76899E-05	4.72385215	0.004565454	0.003322989
2030	2030Worker Worker	0.901632052	0.219772527	2.55165593	0.00064583	0.001725708	0.001586724	65.3276344	0.055883281	0.028658371
2031	2031Hauling Hauling	0.000210057	2.503276097	0.00139863	1.66951E-07	1.58801E-07	1.46012E-07	0.01688763	4.13015E-08	2.64568E-06
2031	2031Vendor Vendor	0.059141215	1.792713918	0.44197461	4.38654E-05	4.91716E-05	4.52115E-05	4.43711805	0.004280254	0.003105544
2031	2031Worker Worker	0.857879142	0.211029605	2.41545051	0.000632455	0.001621689	0.001491083	63.974738	0.052892816	0.028060877
	GWP		N/A					1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Demolition &Temp Parking	2027													
Total Haul Trips	2162													
Hauling	52	42	8	77	0.00	0.31	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.16
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.09	0.02	0.27	0.00	0.00	0.00	0.17	0.00	0.00	0.19
Unsuitable Material Replac	2027													
Total Haul Trips	5200													
Hauling	124	42	8	77	0.00	0.73	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.39
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.09	0.02	0.27	0.00	0.00	0.00	0.17	0.00	0.00	0.19
Relocate Utilities	2027													
Total Haul Trips	260													
Hauling	2	130	8	36.5	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02
Vendor	0	182	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	182	8	18.5	0.09	0.02	0.27	0.00	0.00	0.00	0.51	0.00	0.00	0.59
Construct Temporary Road/	2027													
Total Haul Trips	320													
Hauling	16	22	8	36.5	0.00	0.09	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02
Vendor	0	30	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	30	8	18.5	0.09	0.02	0.27	0.00	0.00	0.00	0.08	0.00	0.00	0.10
Construct Temporary Road/	2027													
Total Haul Trips	208													
Hauling	4	88	8	36.5	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.02
Vendor	0	124	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	124	8	18.5	0.09	0.02	0.27	0.00	0.00	0.00	0.35	0.00	0.00	0.40
Construct Temporary Road/	2027													
Total Haul Trips	0													
Hauling	0	44	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.09	0.02	0.27	0.00	0.00	0.00	0.17	0.00	0.00	0.19
Demolition Temporary Brid	2030													
Total Haul Trips	0													
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.08	0.02	0.23	0.00	0.00	0.00	0.15	0.00	0.00	0.18
Construct DBH Facilities(Life	2030													
Total Haul Trips	0													
Hauling	0	21	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.08	0.02	0.23	0.00	0.00	0.00	0.08	0.00	0.00	0.09
Lagoon Grading	2030													
Total Haul Trips	51200													
Hauling	502	102	8	36.5	0.00	2.82	0.00	0.00	0.00	0.00	2.20	0.00	0.00	2.33
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.08	0.02	0.23	0.00	0.00	0.00	0.56	0.00	0.00	0.64
Restore Beach Area	2030													
Total Haul Trips	0													
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.08	0.02	0.23	0.00	0.00	0.00	0.16	0.00	0.00	0.18
Unsuitable Material Replac	2027													
Total Haul Trips	5200													
Hauling	124	42	8	106	0.00	0.73	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.39
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unsuitable Material Replac	2027													
Total Haul Trips	2520													
Hauling	60	42	8	20	0.00	0.35	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.19
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition &Temp Parking	2027													
Total Haul Trips	2162													
Hauling	52	42	8	106	0.00	0.31	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.16
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - Temporary Bridge
Idling Emissions

		Idling Emissions Factor (grams/minute)						Idling Emissions Factor (grams/minute)		
		ROG_IDLEX	NOx_IDLEX	CO_IDLEX	SOx_IDLEX	PM10_IDLEX	PM2.5_IDLEX	CO2_IDLEX	CH4_IDLEX	N2O_IDLEX
2027	2027Hauling Hauling	0.07592279	0.881696127	1.19921987	0.00159973	0.00047074	0.00044926	181.442358	0.03427011	0.02916541
2027	2027Vendor Vendor	0.05529965	0.899602458	1.04932075	0.00167506	0.00086494	0.00082645	186.589554	0.03155173	0.02918792
2027	2027Worker Worker	0	0	0	0	0	0	0	0	0
2028	2028Hauling Hauling	0.07529788	0.857767875	1.19214339	0.00156045	0.00045204	0.00043133	177.300744	0.03377364	0.02851321
2028	2028Vendor Vendor	0.05432839	0.863093228	1.0395891	0.00163993	0.00074988	0.00071632	182.978932	0.03134729	0.02865517
2028	2028Worker Worker	0	0	0	0	0	0	0	0	0
2029	2029Hauling Hauling	0.07461794	0.835480721	1.18399992	0.00152188	0.00043143	0.00041158	173.194944	0.03323976	0.02786481
2029	2029Vendor Vendor	0.05333308	0.827999465	1.02749811	0.0016013	0.00065239	0.00062302	178.951612	0.03104801	0.02805443
2029	2029Worker Worker	0	0	0	0	0	0	0	0	0
2030	2030Hauling Hauling	0.07391144	0.816007794	1.17493744	0.0014846	0.00041331	0.00039421	169.186161	0.03269373	0.0272299
2030	2030Vendor Vendor	0.05232472	0.795299763	1.01321823	0.00155966	0.00057171	0.0005458	174.561724	0.03067462	0.02739395
2030	2030Worker Worker	0	0	0	0	0	0	0	0	0
2031	2031Hauling Hauling	0.0732853	0.799579641	1.1664382	0.00145061	0.00039768	0.00037924	165.457521	0.03205186	0.02663599
2031	2031Vendor Vendor	0.05130878	0.763402339	0.99683404	0.00151522	0.00050437	0.00048136	169.805962	0.03011968	0.02667472
2031	2031Worker Worker	0	0	0	0	0	0	0	0	0
	GWP	N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	Idling minutes per Day	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Demolition &Temp Parking	2027													
Total Haul Trips	2162													
Hauling	52	42	8	15	0.13	1.52	2.06	0.00	0.00	0.00	5.88	0.03	0.28	6.19
Vendor	0	60	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unsuitable Material Replac	2027													
Total Haul Trips	5200													
Hauling	124	42	8	15	0.31	3.62	4.92	0.01	0.00	0.00	14.15	0.07	0.68	14.90
Vendor	0	60	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Relocate Utilities	2027													
Total Haul Trips	260													
Hauling	2	130	8	15	0.01	0.06	0.08	0.00	0.00	0.00	0.71	0.00	0.03	0.74
Vendor	0	182	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	182	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct Temporary Road/	2027													
Total Haul Trips	320													
Hauling	16	22	8	15	0.04	0.47	0.63	0.00	0.00	0.00	0.87	0.00	0.04	0.92
Vendor	0	30	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	30	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct Temporary Road/	2027													
Total Haul Trips	208													
Hauling	4	88	8	15	0.01	0.12	0.16	0.00	0.00	0.00	0.57	0.00	0.03	0.60
Vendor	0	124	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	124	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct Temporary Road/	2027													
Total Haul Trips	0													
Hauling	0	44	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	60	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition Temporary Brid	2030													
Total Haul Trips	0													
Hauling	0	43	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct DBH Facilities(Life	2030													
Total Haul Trips	0													
Hauling	0	21	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lagoon Grading	2030													
Total Haul Trips	51200													
Hauling	502	102	8	15	1.23	13.55	19.50	0.02	0.01	0.01	129.93	0.63	6.23	136.79
Vendor	0	214	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restore Beach Area	2030													
Total Haul Trips	0													
Hauling	0	43	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	61	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unsuitable Material Replac	2027													
Total Haul Trips	5200													
Hauling	124	42	8	15	0.31	3.62	4.92	0.01	0.00	0.00	14.15	0.07	0.68	14.90
Vendor	0	60	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unsuitable Material Replac	2027													
Total Haul Trips	2520													
Hauling	60	42	8	15	0.15	1.75	2.38	0.00	0.00	0.00	6.86	0.03	0.33	7.22
Vendor	0	60	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition &Temp Parking	2027													
Total Haul Trips	2162													
Hauling	52	42	8	15	0.13	1.52	2.06	0.00	0.00	0.00	5.88	0.03	0.28	6.19
Vendor	0	60	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - Temporary Bridge
Road Dust, Break Wear, and Tire wear Emissions

		Emission Factors (grams/mile)					
		PM10			PM2.5		
		RD	PM10_PMBW	PM10_PMTW	RD	PM2.5_PMBW	PM2.5_PMTW
2027	2027Hauling Hauling	0.29984991	0.084297987	0.03545106	0.07359952	0.0295043	0.00886277
2027	2027Vendor Vendor	0.29984991	0.063623189	0.02372553	0.07359952	0.02226812	0.00593138
2027	2027Worker Worker	0.29984991	0.009305649	0.008	0.07359952	0.00325698	0.002
2028	2028Hauling Hauling	0.29984991	0.084486989	0.03545475	0.07359952	0.02957045	0.00886369
2028	2028Vendor Vendor	0.29984991	0.063544145	0.02372738	0.07359952	0.02224045	0.00593184
2028	2028Worker Worker	0.29984991	0.009284129	0.008	0.07359952	0.00324945	0.002
2029	2029Hauling Hauling	0.29984991	0.084584422	0.03545835	0.07359952	0.02960455	0.00886459
2029	2029Vendor Vendor	0.29984991	0.063359545	0.02372918	0.07359952	0.02217584	0.00593229
2029	2029Worker Worker	0.29984991	0.00926272	0.008	0.07359952	0.00324195	0.002
2030	2030Hauling Hauling	0.29984991	0.08460378	0.03546191	0.07359952	0.02961132	0.00886548
2030	2030Vendor Vendor	0.29984991	0.063078834	0.02373095	0.07359952	0.02207759	0.00593274
2030	2030Worker Worker	0.29984991	0.00924132	0.008	0.07359952	0.00323446	0.002
2031	2031Hauling Hauling	0.29984991	0.084504548	0.03546578	0.07359952	0.02957659	0.00886644
2031	2031Vendor Vendor	0.29984991	0.062682863	0.02373289	0.07359952	0.021939	0.00593322
2031	2031Worker Worker	0.29984991	0.009221285	0.008	0.07359952	0.00322745	0.002

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) PM10 RD	PM10 BW	PM10 TW	PM2.5 RD	PM2.5 BW	PM2.5 TW
Demolition &Temp Parking	2027									
Total Haul Trips	2162									
Hauling	52	42	8	77	2.65	0.74	0.31	0.65	0.26	0.08
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Unsuitable Material Replac	2027									
Total Haul Trips	5200									
Hauling	124	42	8	77	6.31	1.77	0.75	1.55	0.62	0.19
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Relocate Utilities	2027									
Total Haul Trips	260									
Hauling	2	130	8	36.5	0.05	0.01	0.01	0.01	0.00	0.00
Vendor	0	182	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	182	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct Temporary Road/	2027									
Total Haul Trips	320									
Hauling	16	22	8	36.5	0.39	0.11	0.05	0.09	0.04	0.01
Vendor	0	30	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	30	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct Temporary Road/	2027									
Total Haul Trips	208									
Hauling	4	88	8	36.5	0.10	0.03	0.01	0.02	0.01	0.00
Vendor	0	124	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	124	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct Temporary Road/	2027									
Total Haul Trips	0									
Hauling	0	44	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Demolition Temporary Brid	2030									
Total Haul Trips	0									
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct DBH Facilities(Life	2030									
Total Haul Trips	0									
Hauling	0	21	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Lagoon Grading	2030									
Total Haul Trips	51200									
Hauling	502	102	8	36.5	12.11	3.42	1.43	2.97	1.20	0.36
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Restore Beach Area	2030									
Total Haul Trips	0									
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Unsuitable Material Replac	2027									
Total Haul Trips	5200									
Hauling	124	42	8	106	8.69	2.44	1.03	2.13	0.85	0.26
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00
Unsuitable Material Replac	2027									
Total Haul Trips	2520									
Hauling	60	42	8	20	0.79	0.22	0.09	0.19	0.08	0.02
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00
Demolition &Temp Parking	2027									
Total Haul Trips	2162									
Hauling	52	42	8	106	3.64	1.02	0.43	0.89	0.36	0.11
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	60	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - Temporary Bridge
Road Dust

Paved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,P} = (k\ (sL)^{0.91} \times (W)^{1.02})$

Where:

- $EF_{Dust,P}$ = Paved Road Dust Emission Factor (having the same units as k)
- k = particle size multiplier
- sL = road surface silt loading (g/m^2)
- W = average fleet vehicle weight (tons) (CARB uses 2.4 tons as a fleet average vehicle weight factor)

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	0.9979	0.2449
sL	0.1	0.1
W	2.4	2.4
$EF_{Dust,P}$	3.00E-01	7.36E-02

Unpaved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,U} = (k\ (\ s / 12)^{1} \times (Sp / 30)^{0.5} / (M / 0.5)^{0.2}) - C)$

Where:

- $EF_{Dust,U}$ = Unpaved Road Dust Emission Factor (having the same units as k)
- k = particle size multiplier
- s = surface material silt content (%)
- Sp = mean vehicle speed (mph)
- M = surface material moisture content (%)
- C = Emission Factor for 1980s vehicle fleet exhaust, brake wear, and tire wear

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	816.47	81.65
s	4.3%	4.3%
Sp	15	15
M	0.5%	0.5%
C	0.00047	0.00036
$EF_{Dust,U}$	5.20E+00	5.19E-01

Sources:

SCAQMD, CalEEMod, Version 2022.1.
CARB, *Entrained Dust from Paved Road Travel: Emission Estimation Methodology Background Document* , (1997).
USEPA, *AP-42* , Fifth Edition, Volume I, Chapter 13.2.1 - Paved Roads, (2011).
ESA, 2023.

Topanga Canyon - NB/SB Bridge
Total Emissions

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Idling per Day (minutes)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10 Dust	PM10 Exh	Total PM10	PM2.5 Dust	PM2.5 Exh	Total PM2.5	(MT/yr) Total CO2e
Demolition NB Road/Bridge	2028															
Total Haul Trips	270															
Hauling	8	42	8	36.5	15	0.03	1.24	0.60	0.01	0.27	0.01	0.28	0.07	0.01	0.09	15.64
Vendor	0	60	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0	0.11	0.11	1.64	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.61
					Total	0.14	1.35	2.24	0.01	0.79	0.02	0.80	0.20	0.02	0.22	28.25
Construct NB Road/Bridge	2028	Grading/Excavation		Export	Workers+Ver	0.11	0.11	1.64	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	3,700															
Hauling	86	43	8	36.5	15	0.30	13.28	6.43	0.09	2.91	0.16	3.06	0.78	0.15	0.93	214.26
Vendor	0	61	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0	0.11	0.11	1.64	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.82
					Total	0.41	13.39	8.07	0.10	3.42	0.16	3.58	0.90	0.15	1.06	227.09
Construct NB Road/Bridge	2028	Building Construction			Workers+Ver	0.11	0.11	1.64	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	834															
Hauling	6	154	8	36.5	15	0.02	0.93	0.45	0.01	0.20	0.01	0.21	0.05	0.01	0.06	48.30
Vendor	0	214	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0	0.11	0.11	1.64	0.00	0.52	0.00	0.52	0.13	0.00	0.13	44.99
					Total	0.13	1.04	2.09	0.01	0.72	0.01	0.73	0.18	0.01	0.20	93.28
Construct NB Road/Bridge	2028	Paving			Workers+Ver	0.11	0.11	1.64	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	21	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0	0.11	0.11	1.64	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.52
					Total	0.11	0.11	1.64	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.52
Demolition SB Road/Bridge	2029				Workers+Ver	0.11	0.11	1.64	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	270															
Hauling	8	43	8	36.5	15	0.03	1.19	0.59	0.01	0.27	0.01	0.28	0.07	0.01	0.09	15.26
Vendor	0	59	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0	0.10	0.10	1.55	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.14
					Total	0.13	1.30	2.14	0.01	0.79	0.02	0.80	0.20	0.02	0.22	27.40
Construct SB Road/Bridge	2029	Grading/Excavation		Export	Workers+Ver	0.10	0.10	1.55	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	3,460															
Hauling	82	43	8	36.5	15	0.28	12.20	6.00	0.09	2.77	0.15	2.92	0.74	0.14	0.88	195.51
Vendor	0	61	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0	0.10	0.10	1.55	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.56
					Total	0.39	12.31	7.55	0.09	3.29	0.15	3.44	0.87	0.14	1.01	208.07
Construct SB Road/Bridge	2029	Building Construction			Workers+Ver	0.10	0.10	1.55	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	834															
Hauling	6	154	8	36.5	15	0.02	0.89	0.44	0.01	0.20	0.01	0.21	0.05	0.01	0.06	47.13
Vendor	0	214	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0	0.10	0.10	1.55	0.00	0.52	0.00	0.52	0.13	0.00	0.13	44.05
					Total	0.12	1.00	1.99	0.01	0.72	0.01	0.73	0.18	0.01	0.20	91.17
Construct SB Road/Bridge	2029	Paving			Workers+Ver	0.10	0.10	1.55	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	21	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0	0.10	0.10	1.55	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.38
					Total	0.10	0.10	1.55	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.38
Construct NB Road/Bridge	2028	Grading/Excavation		Import	Workers+Ver	0.10	0.10	1.55	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	2,400															
Hauling	56	43	8	20	15	0.17	5.60	3.29	0.04	1.04	0.06	1.09	0.28	0.05	0.33	79.26
Vendor	0	61	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	18.5	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Total	0.17	5.60	3.29	0.04	1.04	0.06	1.09	0.28	0.05	0.33	79.26
Construct SB Road/Bridge	2029	Grading/Excavation		Import	Workers+Ver	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total Haul Trips	2400															
Hauling	56	43	8	20	15	0.17	5.41	3.24	0.03	1.04	0.06	1.09	0.28	0.05	0.33	77.34
Vendor	0	61	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	18.5	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					Total	0.17	5.41	3.24	0.03	1.04	0.06	1.09	0.28	0.05	0.33	77.34
					Workers+Ver	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Topanga Canyon - NB/SB Bridge
Running Emissions

		Running Emissions Factor (grams/mile)						Running Emissions Factor (grams/mile)		
		ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX
2027	2027Hauling Hauling	0.013128	1.553518611	0.45473657	0.01336714	0.02273486	0.02174732	1471.80075	0.0608523	0.23462364
2027	2027Vendor Vendor	0.01570588	1.102331968	0.36327753	0.01214871	0.01475662	0.01411185	1311.1435	0.03509759	0.18307889
2027	2027Worker Worker	0.01447264	0.062492418	0.90233334	0.00281062	0.00150729	0.0013867	284.320587	0.00354266	0.00566149
2028	2028Hauling Hauling	0.01261339	1.493718015	0.43877031	0.01305596	0.02247317	0.02149714	1438.29866	0.05768159	0.22931835
2028	2028Vendor Vendor	0.01417298	1.038868065	0.3360531	0.01185313	0.01426835	0.01364491	1280.01295	0.03342244	0.17922194
2028	2028Worker Worker	0.01314756	0.057035459	0.85167037	0.00274948	0.00140448	0.00129194	278.134904	0.00325313	0.00533773
2029	2029Hauling Hauling	0.01213472	1.434866903	0.4224926	0.01273534	0.0221686	0.0212059	1403.60667	0.05465536	0.22381566
2029	2029Vendor Vendor	0.0128196	0.978781777	0.31101237	0.01152628	0.01380314	0.01320005	1245.46404	0.03180989	0.17489835
2029	2029Worker Worker	0.01192021	0.051957034	0.80464317	0.00269297	0.00130724	0.00120239	272.417637	0.00298654	0.00503952
2030	2030Hauling Hauling	0.01169729	1.381905725	0.40596438	0.01241489	0.02183595	0.02088778	1368.72007	0.05170538	0.2182712
2030	2030Vendor Vendor	0.01168751	0.9252091	0.28941545	0.01117412	0.01336285	0.01277903	1208.11234	0.03023265	0.17022289
2030	2030Worker Worker	0.01081241	0.047255061	0.76242747	0.00264062	0.00121547	0.00111789	267.121939	0.00274623	0.00476556
2031	2031Hauling Hauling	0.01126827	1.331771303	0.38663416	0.01209496	0.02148002	0.02054741	1333.31591	0.04842446	0.21262163
2031	2031Vendor Vendor	0.01070694	0.874998281	0.26868024	0.01079467	0.01293916	0.01237394	1167.57711	0.02847022	0.16520071
2031	2031Worker Worker	0.00977403	0.042746598	0.72305591	0.00259298	0.00112929	0.00103861	262.302837	0.0025216	0.00450761
0	GWP	N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Demolition NB Road/Bridge	2028													
Total Haul Trips	270													
Hauling	8	42	8	36.5	0.01	0.96	0.28	0.01	0.01	0.01	14.17	0.01	0.67	14.86
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.02	0.09	1.39	0.00	0.00	0.00	12.35	0.00	0.07	12.42
Construct NB Road/Bridge	2028													
Total Haul Trips	3700													
Hauling	86	43	8	36.5	0.09	10.34	3.04	0.09	0.16	0.15	194.24	0.19	9.23	203.67
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.02	0.09	1.39	0.00	0.00	0.00	12.56	0.00	0.07	12.63
Construct NB Road/Bridge	2028													
Total Haul Trips	834													
Hauling	6	154	8	36.5	0.01	0.72	0.21	0.01	0.01	0.01	43.78	0.04	2.08	45.91
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.02	0.09	1.39	0.00	0.00	0.00	44.05	0.01	0.25	44.31
Construct NB Road/Bridge	2028													
Total Haul Trips	0													
Hauling	0	21	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.02	0.09	1.39	0.00	0.00	0.00	6.38	0.00	0.04	6.42
Demolition SB Road/Bridge	2029													
Total Haul Trips	270													
Hauling	8	43	8	36.5	0.01	0.92	0.27	0.01	0.01	0.01	13.83	0.01	0.66	14.50
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.02	0.08	1.31	0.00	0.00	0.00	11.89	0.00	0.07	11.96
Construct SB Road/Bridge	2029													
Total Haul Trips	3460													
Hauling	82	43	8	36.5	0.08	9.47	2.79	0.08	0.15	0.14	177.26	0.17	8.42	185.86
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.02	0.08	1.31	0.00	0.00	0.00	12.30	0.00	0.07	12.37
Construct SB Road/Bridge	2029													
Total Haul Trips	834													
Hauling	6	154	8	36.5	0.01	0.69	0.20	0.01	0.01	0.01	42.73	0.04	2.03	44.80
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.02	0.08	1.31	0.00	0.00	0.00	43.14	0.01	0.24	43.39
Construct SB Road/Bridge	2029													
Total Haul Trips	0													
Hauling	0	21	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.02	0.08	1.31	0.00	0.00	0.00	6.25	0.00	0.03	6.29
Construct NB Road/Bridge	2028													
Total Haul Trips	2400													
Hauling	56	43	8	20	0.03	3.69	1.08	0.03	0.06	0.05	69.04	0.07	3.28	72.39
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct SB Road/Bridge	2029													
Total Haul Trips	2400													
Hauling	56	43	8	20	0.03	3.54	1.04	0.03	0.05	0.05	67.37	0.07	3.20	70.64
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - NB/SB Bridge
Start Emissions

			Start Emissions Factor (grams/trip)						Start Emissions Factor (grams/trip)		
			ROG_STREX	NOX_STREX	CO_STREX	SOx_STREX	PM10_STREX	PM2.5_STREX	CO2_STREX	CH4_STREX	N2O_STREX
2027	2027Hauling	Hauling	0.00060894	2.672142352	0.00302137	3.16557E-07	5.30481E-07	4.87758E-07	0.03202066	7.5498E-08	7.36611E-06
2027	2027Vendor	Vendor	0.080213538	1.961946447	0.60365405	5.50826E-05	6.07836E-05	5.58883E-05	5.57177064	0.005494835	0.004037678
2027	2027Worker	Worker	1.038950633	0.251050817	3.01934346	0.000691936	0.002053348	0.001887978	69.9913431	0.06616369	0.030829475
2028	2028Hauling	Hauling	0.000490696	2.636914961	0.00257595	2.71845E-07	4.29594E-07	3.94995E-07	0.02749789	6.56178E-08	5.97594E-06
2028	2028Vendor	Vendor	0.075419112	1.927915654	0.55968909	5.22383E-05	5.76932E-05	5.30468E-05	5.28405692	0.005169504	0.003780947
2028	2028Worker	Worker	0.997046953	0.239560346	2.85187017	0.000675557	0.001941969	0.001785569	68.3345653	0.062483886	0.030029939
2029	2029Hauling	Hauling	0.000383539	2.591170334	0.00214107	2.33546E-07	3.28727E-07	3.02252E-07	0.02362391	5.62127E-08	4.65545E-06
2029	2029Vendor	Vendor	0.069289941	1.883995908	0.51714657	4.94212E-05	5.46034E-05	5.02058E-05	4.99909929	0.004852786	0.003548842
2029	2029Worker	Worker	0.945798618	0.229251267	2.69630558	0.000660221	0.001832244	0.00168468	66.7833	0.059077063	0.029313823
2030	2030Hauling	Hauling	0.00027279	2.546881303	0.00161285	1.92445E-07	2.06187E-07	1.89581E-07	0.01946637	4.71315E-08	4.0595E-06
2030	2030Vendor	Vendor	0.063656597	1.839529651	0.47865041	4.67001E-05	5.18671E-05	4.76899E-05	4.72385215	0.004565454	0.003322989
2030	2030Worker	Worker	0.901632052	0.219772527	2.55165593	0.00064583	0.001725708	0.001586724	65.3276344	0.055883281	0.028658371
2031	2031Hauling	Hauling	0.000210057	2.503276097	0.00139863	1.66951E-07	1.58801E-07	1.46012E-07	0.01688763	4.13015E-08	2.64568E-06
2031	2031Vendor	Vendor	0.059141215	1.792713918	0.44197461	4.38654E-05	4.91716E-05	4.52115E-05	4.43711805	0.004280254	0.003105544
2031	2031Worker	Worker	0.857879142	0.211029605	2.41545051	0.000632455	0.001621689	0.001491083	63.974738	0.052892816	0.028060877
	GWP			N/A					1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Demolition NB Road/Bridg	2028													
Total Haul Trips	270													
Hauling	8	42	8	36.5	0.00	0.05	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.09	0.02	0.25	0.00	0.00	0.00	0.16	0.00	0.00	0.19
Construct NB Road/Bridge	2028													
Total Haul Trips	3700													
Hauling	86	43	8	36.5	0.00	0.50	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.24
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.09	0.02	0.25	0.00	0.00	0.00	0.17	0.00	0.00	0.19
Construct NB Road/Bridge	2028													
Total Haul Trips	834													
Hauling	6	154	8	36.5	0.00	0.03	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.05
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.09	0.02	0.25	0.00	0.00	0.00	0.58	0.00	0.00	0.67
Construct NB Road/Bridge	2028													
Total Haul Trips	0													
Hauling	0	21	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.09	0.02	0.25	0.00	0.00	0.00	0.08	0.00	0.00	0.10
Demolition SB Road/Bridge	2029													
Total Haul Trips	270													
Hauling	8	43	8	36.5	0.00	0.05	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.08	0.02	0.24	0.00	0.00	0.00	0.16	0.00	0.00	0.18
Construct SB Road/Bridge	2029													
Total Haul Trips	3460													
Hauling	82	43	8	36.5	0.00	0.47	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.19
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.08	0.02	0.24	0.00	0.00	0.00	0.16	0.00	0.00	0.19
Construct SB Road/Bridge	2029													
Total Haul Trips	834													
Hauling	6	154	8	36.5	0.00	0.03	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.05
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.08	0.02	0.24	0.00	0.00	0.00	0.57	0.00	0.00	0.66
Construct SB Road/Bridge	2029													
Total Haul Trips	0													
Hauling	0	21	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.08	0.02	0.24	0.00	0.00	0.00	0.08	0.00	0.00	0.10
Construct NB Road/Bridge	2028													
Total Haul Trips	2400													
Hauling	56	43	8	20	0.00	0.33	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.15
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct SB Road/Bridge	2029													
Total Haul Trips	2400													
Hauling	56	43	8	20	0.00	0.32	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.13
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - NB/SB Bridge
Idling Emissions

			Idling Emissions Factor (grams/minute)						Idling Emissions Factor (grams/minute)		
			ROG_IDLEX	NOx_IDLEX	CO_IDLEX	SOx_IDLEX	PM10_IDLEX	PM2.5_IDLEX	CO2_IDLEX	CH4_IDLEX	N2O_IDLEX
2027	2027Hauling	Hauling	0.07592279	0.881696127	1.19921987	0.00159973	0.00047074	0.00044926	181.442358	0.03427011	0.02916541
2027	2027Vendor	Vendor	0.05529965	0.899602458	1.04932075	0.00167506	0.00086494	0.00082645	186.589554	0.03155173	0.02918792
2027	2027Worker	Worker	0	0	0	0	0	0	0	0	0
2028	2028Hauling	Hauling	0.07529788	0.857767875	1.19214339	0.00156045	0.00045204	0.00043133	177.300744	0.03377364	0.02851321
2028	2028Vendor	Vendor	0.05432839	0.863093228	1.0395891	0.00163993	0.00074988	0.00071632	182.978932	0.03134729	0.02865517
2028	2028Worker	Worker	0	0	0	0	0	0	0	0	0
2029	2029Hauling	Hauling	0.07461794	0.835480721	1.18399992	0.00152188	0.00043143	0.00041158	173.194944	0.03323976	0.02786481
2029	2029Vendor	Vendor	0.05333308	0.827999465	1.02749811	0.0016013	0.00065239	0.00062302	178.951612	0.03104801	0.02805443
2029	2029Worker	Worker	0	0	0	0	0	0	0	0	0
2030	2030Hauling	Hauling	0.07391144	0.816007794	1.17493744	0.0014846	0.00041331	0.00039421	169.186161	0.03269373	0.0272299
2030	2030Vendor	Vendor	0.05232472	0.795299763	1.01321823	0.00155966	0.00057171	0.0005458	174.561724	0.03067462	0.02739395
2030	2030Worker	Worker	0	0	0	0	0	0	0	0	0
2031	2031Hauling	Hauling	0.0732853	0.799579641	1.1664382	0.00145061	0.00039768	0.00037924	165.457521	0.03205186	0.02663599
2031	2031Vendor	Vendor	0.05130878	0.763402339	0.99683404	0.00151522	0.00050437	0.00048136	169.805962	0.03011968	0.02667472
2031	2031Worker	Worker	0	0	0	0	0	0	0	0	0
	GWP		N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	Idling minutes per Day	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Demolition NB Road/Bridge	2028													
Total Haul Trips	270													
Hauling	8	42	8	15	0.02	0.23	0.32	0.00	0.00	0.00	0.72	0.00	0.03	0.76
Vendor	0	60	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2028													
Total Haul Trips	3700													
Hauling	86	43	8	15	0.21	2.44	3.39	0.00	0.00	0.00	9.84	0.05	0.47	10.36
Vendor	0	61	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2028													
Total Haul Trips	834													
Hauling	6	154	8	15	0.01	0.17	0.24	0.00	0.00	0.00	2.22	0.01	0.11	2.33
Vendor	0	214	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2028													
Total Haul Trips	0													
Hauling	0	21	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition SB Road/Bridge	2029													
Total Haul Trips	270													
Hauling	8	43	8	15	0.02	0.22	0.31	0.00	0.00	0.00	0.70	0.00	0.03	0.74
Vendor	0	59	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct SB Road/Bridge	2029													
Total Haul Trips	3460													
Hauling	82	43	8	15	0.20	2.27	3.21	0.00	0.00	0.00	8.99	0.04	0.43	9.46
Vendor	0	61	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct SB Road/Bridge	2029													
Total Haul Trips	834													
Hauling	6	154	8	15	0.01	0.17	0.23	0.00	0.00	0.00	2.17	0.01	0.10	2.28
Vendor	0	214	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct SB Road/Bridge	2029													
Total Haul Trips	0													
Hauling	0	21	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2028													
Total Haul Trips	2400													
Hauling	56	43	8	15	0.14	1.59	2.21	0.00	0.00	0.00	6.38	0.03	0.31	6.72
Vendor	0	61	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct SB Road/Bridge	2029													
Total Haul Trips	2400													
Hauling	56	43	8	15	0.14	1.55	2.19	0.00	0.00	0.00	6.24	0.03	0.30	6.56
Vendor	0	61	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - NB/SB Bridge
Road Dust, Break Wear, and Tire wear Emissions

		Emission Factors (grams/mile)					
		PM10			PM2.5		
		RD	PM10_PMBW	PM10_PMTW	RD	PM2.5_PMBW	PM2.5_PMTW
2027	2027Hauling Hauling	0.29984991	0.084297987	0.03545106	0.07359952	0.0295043	0.00886277
2027	2027Vendor Vendor	0.29984991	0.063623189	0.02372553	0.07359952	0.02226812	0.00593138
2027	2027Worker Worker	0.29984991	0.009305649	0.008	0.07359952	0.00325698	0.002
2028	2028Hauling Hauling	0.29984991	0.084486989	0.03545475	0.07359952	0.02957045	0.00886369
2028	2028Vendor Vendor	0.29984991	0.063544145	0.02372738	0.07359952	0.02224045	0.00593184
2028	2028Worker Worker	0.29984991	0.009284129	0.008	0.07359952	0.00324945	0.002
2029	2029Hauling Hauling	0.29984991	0.084584422	0.03545835	0.07359952	0.02960455	0.00886459
2029	2029Vendor Vendor	0.29984991	0.063359545	0.02372918	0.07359952	0.02217584	0.00593229
2029	2029Worker Worker	0.29984991	0.00926272	0.008	0.07359952	0.00324195	0.002
2030	2030Hauling Hauling	0.29984991	0.08460378	0.03546191	0.07359952	0.02961132	0.00886548
2030	2030Vendor Vendor	0.29984991	0.063078834	0.02373095	0.07359952	0.02207759	0.00593274
2030	2030Worker Worker	0.29984991	0.00924132	0.008	0.07359952	0.00323446	0.002
2031	2031Hauling Hauling	0.29984991	0.084504548	0.03546578	0.07359952	0.02957659	0.00886644
2031	2031Vendor Vendor	0.29984991	0.062682863	0.02373289	0.07359952	0.021939	0.00593322
2031	2031Worker Worker	0.29984991	0.009221285	0.008	0.07359952	0.00322745	0.002

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day)					
					PM10			PM2.5		
					RD	BW	TW	RD	BW	TW
Demolition NB Road/Bridge	2028									
Total Haul Trips	270									
Hauling	8	42	8	36.5	0.19	0.05	0.02	0.05	0.02	0.01
Vendor	0	60	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	60	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2028									
Total Haul Trips	3700									
Hauling	86	43	8	36.5	2.08	0.58	0.25	0.51	0.20	0.06
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2028									
Total Haul Trips	834									
Hauling	6	154	8	36.5	0.14	0.04	0.02	0.04	0.01	0.00
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2028									
Total Haul Trips	0									
Hauling	0	21	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Demolition SB Road/Bridge	2029									
Total Haul Trips	270									
Hauling	8	43	8	36.5	0.19	0.05	0.02	0.05	0.02	0.01
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct SB Road/Bridge	2029									
Total Haul Trips	3460									
Hauling	82	43	8	36.5	1.98	0.56	0.23	0.49	0.20	0.06
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct SB Road/Bridge	2029									
Total Haul Trips	834									
Hauling	6	154	8	36.5	0.14	0.04	0.02	0.04	0.01	0.00
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct SB Road/Bridge	2029									
Total Haul Trips	0									
Hauling	0	21	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2028									
Total Haul Trips	2400									
Hauling	56	43	8	20	0.74	0.21	0.09	0.18	0.07	0.02
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00
Construct SB Road/Bridge	2029									
Total Haul Trips	2400									
Hauling	56	43	8	20	0.74	0.21	0.09	0.18	0.07	0.02
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0	61	8	18.5	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - NB/SB Bridge
Road Dust

Paved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,P} = (k\ (sL)^{0.91} \times (W)^{1.02})$

Where:

$EF_{Dust,P}$ =	Paved Road Dust Emission Factor (having the same units as k)
k =	particle size multiplier
sL =	road surface silt loading (g/m^2)
W =	average fleet vehicle weight (tons) (CARB uses 2.4 tons as a fleet average vehicle weight factor)

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	0.9979	0.2449
sL	0.1	0.1
W	2.4	2.4
$EF_{Dust,P}$	3.00E-01	7.36E-02

Unpaved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,U} = (k\ (\ s / 12)^{1} \times (Sp / 30)^{0.5} / (M / 0.5)^{0.2}) - C)$

Where:

$EF_{Dust,U}$ =	Unpaved Road Dust Emission Factor (having the same units as k)
k =	particle size multiplier
s =	surface material silt content (%)
Sp =	mean vehicle speed (mph)
M =	surface material moisture content (%)
C =	Emission Factor for 1980s vehicle fleet exhaust, brake wear, and tire wear

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	816.47	81.65
s	4.3%	4.3%
Sp	15	15
M	0.5%	0.5%
C	0.00047	0.00036
$EF_{Dust,U}$	5.20E+00	5.19E-01

Sources:

SCAQMD, CalEEMod, Version 2022.1.

CARB, *Entrained Dust from Paved Road Travel: Emission Estimation Methodology Background Document* , (1997).

USEPA, *AP-42* , Fifth Edition, Volume I, Chapter 13.2.1 - Paved Roads, (2011).

ESA, 2023.

Topanga Canyon - VS
Total Emissions

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Idling per Day (minutes)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10 Dust	PM10 Exh	Total PM10	PM2.5 Dust	PM2.5 Exh	Total PM2.5	(MT/yr) Total CO2e
Site Preparation	2027															
Total Haul Trips	0															
Hauling	0	1	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	1	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	1	8	18.5	0	0.03	0.03	0.43	0.00	0.13	0.00	0.13	0.03	0.00	0.03	0.05
					Total	0.03	0.03	0.43	0.00	0.13	0.00	0.13	0.03	0.00	0.03	0.05
Grading	2027				Workers+Ver	0.03	0.03	0.43	0.00	0.13	0.00	0.13	0.03	0.00	0.03	
Total Haul Trips	0															
Hauling	0	4	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	4	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	16	4	8	18.5	0	0.05	0.05	0.70	0.00	0.21	0.00	0.21	0.05	0.00	0.05	0.34
					Total	0.05	0.05	0.70	0.00	0.21	0.00	0.21	0.05	0.00	0.05	0.34
Building Construction	2027				Workers+Ver	0.05	0.05	0.70	0.00	0.21	0.00	0.21	0.05	0.00	0.05	
Total Haul Trips	0															
Hauling	0	140	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	6	140	8	10.2	15	0.01	0.35	0.27	0.00	0.05	0.00	0.05	0.01	0.00	0.02	14.19
Worker	14	140	8	18.5	0	0.04	0.04	0.61	0.00	0.18	0.00	0.18	0.05	0.00	0.05	10.53
					Total	0.05	0.40	0.87	0.00	0.23	0.00	0.24	0.06	0.00	0.06	24.72
Paving	2027				Workers+Ver	0.05	0.40	0.87	0.00	0.23	0.00	0.24	0.06	0.00	0.06	
Total Haul Trips	0															
Hauling	0	7	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	36	7	8	18.5	0	0.10	0.11	1.56	0.00	0.47	0.00	0.47	0.12	0.00	0.12	1.35
					Total	0.10	0.11	1.56	0.00	0.47	0.00	0.47	0.12	0.00	0.12	1.35
Architectural Coating	2027				Workers+Ver	0.10	0.11	1.56	0.00	0.47	0.00	0.47	0.12	0.00	0.12	
Total Haul Trips	0															
Hauling	0	7	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	2	7	8	18.5	0	0.01	0.01	0.09	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.08
					Total	0.01	0.01	0.09	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.08
					Workers+Ver	0.01	0.01	0.09	0.00	0.03	0.00	0.03	0.01	0.00	0.01	

Topanga Canyon - VS
Running Emissions

		Running Emissions Factor (grams/mile)						Running Emissions Factor (grams/mile)		
		ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX
2027	2027Hauling Hauling	0.013128	1.553518611	0.45473657	0.01336714	0.02273486	0.02174732	1471.80075	0.0608523	0.23462364
2027	2027Vendor Vendor	0.01570588	1.102331968	0.36327753	0.01214871	0.01475662	0.01411185	1311.1435	0.03509759	0.18307889
2027	2027Worker Worker	0.01447264	0.062492418	0.90233334	0.00281062	0.00150729	0.0013867	284.320587	0.00354266	0.00566149
2028	2028Hauling Hauling	0.01261339	1.493718015	0.43877031	0.01305596	0.02247317	0.02149714	1438.29866	0.05768159	0.22931835
2028	2028Vendor Vendor	0.01417298	1.038868065	0.3360531	0.01185313	0.01426835	0.01364491	1280.01295	0.03342244	0.17922194
2028	2028Worker Worker	0.01314756	0.057035459	0.85167037	0.00274948	0.00140448	0.00129194	278.134904	0.00325313	0.00533773
2029	2029Hauling Hauling	0.01213472	1.434866903	0.4224926	0.01273534	0.0221686	0.0212059	1403.60667	0.05465536	0.22381566
2029	2029Vendor Vendor	0.0128196	0.978781777	0.31101237	0.01152628	0.01380314	0.01320005	1245.46404	0.03180989	0.17489835
2029	2029Worker Worker	0.01192021	0.051957034	0.80464317	0.00269297	0.00130724	0.00120239	272.417637	0.00298654	0.00503952
2030	2030Hauling Hauling	0.01169729	1.381905725	0.40596438	0.01241489	0.02183595	0.02088778	1368.72007	0.05170538	0.2182712
2030	2030Vendor Vendor	0.01168751	0.9252091	0.28941545	0.01117412	0.01336285	0.01277903	1208.11234	0.03023265	0.17022289
2030	2030Worker Worker	0.01081241	0.047255061	0.76242747	0.00264062	0.00121547	0.00111789	267.121939	0.00274623	0.00476556
2031	2031Hauling Hauling	0.01126827	1.331771303	0.38663416	0.01209496	0.02148002	0.02054741	1333.31591	0.04842446	0.21262163
2031	2031Vendor Vendor	0.01070694	0.874998281	0.26868024	0.01079467	0.01293916	0.01237394	1167.57711	0.02847022	0.16520071
2031	2031Worker Worker	0.00977403	0.042746598	0.72305591	0.00259298	0.00112929	0.00103861	262.302837	0.0025216	0.00450761
0	GWP	N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Site Preparation	2027													
Total Haul Trips	0													
Hauling	0	1	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	1	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	1	8	18.5	0.01	0.03	0.37	0.00	0.00	0.00	0.05	0.00	0.00	0.05
Grading	2027													
Total Haul Trips	0													
Hauling	0	4	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	4	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	16	4	8	18.5	0.01	0.04	0.59	0.00	0.00	0.00	0.34	0.00	0.00	0.34
Building Construction	2027													
Total Haul Trips	0													
Hauling	0	140	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	6	140	8	10.2	0.00	0.15	0.05	0.00	0.00	0.00	11.23	0.01	0.47	11.71
Worker	14	140	8	18.5	0.01	0.04	0.52	0.00	0.00	0.00	10.31	0.00	0.06	10.37
Paving	2027													
Total Haul Trips	0													
Hauling	0	7	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	36	7	8	18.5	0.02	0.09	1.32	0.00	0.00	0.00	1.33	0.00	0.01	1.33
Architectural Coating	2027													
Total Haul Trips	0													
Hauling	0	7	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	2	7	8	18.5	0.00	0.01	0.07	0.00	0.00	0.00	0.07	0.00	0.00	0.07

Topanga Canyon - VS
Start Emissions

			Start Emissions Factor (grams/trip)						Start Emissions Factor (grams/trip)		
			ROG_STREX	NOX_STREX	CO_STREX	SOx_STREX	PM10_STREX	PM2.5_STREX	CO2_STREX	CH4_STREX	N2O_STREX
2027	2027Hauling	Hauling	0.00060894	2.672142352	0.00302137	3.16557E-07	5.30481E-07	4.87758E-07	0.03202066	7.5498E-08	7.36611E-06
2027	2027Vendor	Vendor	0.080213538	1.961946447	0.60365405	5.50826E-05	6.07836E-05	5.58883E-05	5.57177064	0.005494835	0.004037678
2027	2027Worker	Worker	1.038950633	0.251050817	3.01934346	0.000691936	0.002053348	0.001887978	69.9913431	0.06616369	0.030829475
2028	2028Hauling	Hauling	0.000490696	2.636914961	0.00257595	2.71845E-07	4.29594E-07	3.94995E-07	0.02749789	6.56178E-08	5.97594E-06
2028	2028Vendor	Vendor	0.075419112	1.927915654	0.55968909	5.22383E-05	5.76932E-05	5.30468E-05	5.28405692	0.005169504	0.003780947
2028	2028Worker	Worker	0.997046953	0.239560346	2.85187017	0.000675557	0.001941969	0.001785569	68.3345653	0.062483886	0.030029939
2029	2029Hauling	Hauling	0.000383539	2.591170334	0.00214107	2.33546E-07	3.28727E-07	3.02252E-07	0.02362391	5.62127E-08	4.65545E-06
2029	2029Vendor	Vendor	0.069289941	1.883995908	0.51714657	4.94212E-05	5.46034E-05	5.02058E-05	4.99909929	0.004852786	0.003548842
2029	2029Worker	Worker	0.945798618	0.229251267	2.69630558	0.000660221	0.001832244	0.00168468	66.7833	0.059077063	0.029313823
2030	2030Hauling	Hauling	0.00027279	2.546881303	0.00161285	1.92445E-07	2.06187E-07	1.89581E-07	0.01946637	4.71315E-08	4.0595E-06
2030	2030Vendor	Vendor	0.063656597	1.839529651	0.47865041	4.67001E-05	5.18671E-05	4.76899E-05	4.72385215	0.004565454	0.003322989
2030	2030Worker	Worker	0.901632052	0.219772527	2.55165593	0.00064583	0.001725708	0.001586724	65.3276344	0.055883281	0.028658371
2031	2031Hauling	Hauling	0.000210057	2.503276097	0.00139863	1.66951E-07	1.58801E-07	1.46012E-07	0.01688763	4.13015E-08	2.64568E-06
2031	2031Vendor	Vendor	0.059141215	1.792713918	0.44197461	4.38654E-05	4.91716E-05	4.52115E-05	4.43711805	0.004280254	0.003105544
2031	2031Worker	Worker	0.857879142	0.211029605	2.41545051	0.000632455	0.001621689	0.001491083	63.974738	0.052892816	0.028060877
	GWP			N/A					1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Site Preparation	2027													
Total Haul Trips	0													
Hauling	0	1	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	1	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	1	8	18.5	0.02	0.01	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading	2027													
Total Haul Trips	0													
Hauling	0	4	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	4	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	16	4	8	18.5	0.04	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Building Construction	2027													
Total Haul Trips	0													
Hauling	0	140	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	6	140	8	10.2	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Worker	14	140	8	18.5	0.03	0.01	0.09	0.00	0.00	0.00	0.14	0.00	0.00	0.16
Paving	2027													
Total Haul Trips	0													
Hauling	0	7	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	36	7	8	18.5	0.08	0.02	0.24	0.00	0.00	0.00	0.02	0.00	0.00	0.02
Architectural Coating	2027													
Total Haul Trips	0													
Hauling	0	7	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	2	7	8	18.5	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - VS
Idling Emissions

			Idling Emissions Factor (grams/minute)						Idling Emissions Factor (grams/minute)		
			ROG_IDLEX	NOx_IDLEX	CO_IDLEX	SOx_IDLEX	PM10_IDLEX	PM2.5_IDLEX	CO2_IDLEX	CH4_IDLEX	N2O_IDLEX
2027	2027Hauling	Hauling	0.07592279	0.881696127	1.19921987	0.00159973	0.00047074	0.00044926	181.442358	0.03427011	0.02916541
2027	2027Vendor	Vendor	0.05529965	0.899602458	1.04932075	0.00167506	0.00086494	0.00082645	186.589554	0.03155173	0.02918792
2027	2027Worker	Worker	0	0	0	0	0	0	0	0	0
2028	2028Hauling	Hauling	0.07529788	0.857767875	1.19214339	0.00156045	0.00045204	0.00043133	177.300744	0.03377364	0.02851321
2028	2028Vendor	Vendor	0.05432839	0.863093228	1.0395891	0.00163993	0.00074988	0.00071632	182.978932	0.03134729	0.02865517
2028	2028Worker	Worker	0	0	0	0	0	0	0	0	0
2029	2029Hauling	Hauling	0.07461794	0.835480721	1.18399992	0.00152188	0.00043143	0.00041158	173.194944	0.03323976	0.02786481
2029	2029Vendor	Vendor	0.05333308	0.827999465	1.02749811	0.0016013	0.00065239	0.00062302	178.951612	0.03104801	0.02805443
2029	2029Worker	Worker	0	0	0	0	0	0	0	0	0
2030	2030Hauling	Hauling	0.07391144	0.816007794	1.17493744	0.0014846	0.00041331	0.00039421	169.186161	0.03269373	0.0272299
2030	2030Vendor	Vendor	0.05232472	0.795299763	1.01321823	0.00155966	0.00057171	0.0005458	174.561724	0.03067462	0.02739395
2030	2030Worker	Worker	0	0	0	0	0	0	0	0	0
2031	2031Hauling	Hauling	0.0732853	0.799579641	1.1664382	0.00145061	0.00039768	0.00037924	165.457521	0.03205186	0.02663599
2031	2031Vendor	Vendor	0.05130878	0.763402339	0.99683404	0.00151522	0.00050437	0.00048136	169.805962	0.03011968	0.02667472
2031	2031Worker	Worker	0	0	0	0	0	0	0	0	0
		GWP	N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	Idling minutes per Day	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Site Preparation	2027													
Total Haul Trips	0													
Hauling	0	1	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	1	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	1	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading	2027													
Total Haul Trips	0													
Hauling	0	4	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	4	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	16	4	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	2027													
Total Haul Trips	0													
Hauling	0	140	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	6	140	8	15	0.01	0.18	0.21	0.00	0.00	0.00	2.35	0.01	0.11	2.47
Worker	14	140	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	2027													
Total Haul Trips	0													
Hauling	0	7	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	36	7	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	2027													
Total Haul Trips	0													
Hauling	0	7	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	2	7	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - VS
Road Dust, Break Wear, and Tire wear Emissions

		Emission Factors (grams/mile)					
			PM10			PM2.5	
		RD	PM10_PMBW	PM10_PMTW	RD	PM2.5_PMBW	PM2.5_PMTW
2027	2027Hauling Hauling	0.29984991	0.084297987	0.03545106	0.07359952	0.0295043	0.00886277
2027	2027Vendor Vendor	0.29984991	0.063623189	0.02372553	0.07359952	0.02226812	0.00593138
2027	2027Worker Worker	0.29984991	0.009305649	0.008	0.07359952	0.00325698	0.002
2028	2028Hauling Hauling	0.29984991	0.084486989	0.03545475	0.07359952	0.02957045	0.00886369
2028	2028Vendor Vendor	0.29984991	0.063544145	0.02372738	0.07359952	0.02224045	0.00593184
2028	2028Worker Worker	0.29984991	0.009284129	0.008	0.07359952	0.00324945	0.002
2029	2029Hauling Hauling	0.29984991	0.084584422	0.03545835	0.07359952	0.02960455	0.00886459
2029	2029Vendor Vendor	0.29984991	0.063359545	0.02372918	0.07359952	0.02217584	0.00593229
2029	2029Worker Worker	0.29984991	0.00926272	0.008	0.07359952	0.00324195	0.002
2030	2030Hauling Hauling	0.29984991	0.08460378	0.03546191	0.07359952	0.02961132	0.00886548
2030	2030Vendor Vendor	0.29984991	0.063078834	0.02373095	0.07359952	0.02207759	0.00593274
2030	2030Worker Worker	0.29984991	0.00924132	0.008	0.07359952	0.00323446	0.002
2031	2031Hauling Hauling	0.29984991	0.084504548	0.03546578	0.07359952	0.02957659	0.00886644
2031	2031Vendor Vendor	0.29984991	0.062682863	0.02373289	0.07359952	0.021939	0.00593322
2031	2031Worker Worker	0.29984991	0.009221285	0.008	0.07359952	0.00322745	0.002

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day)					
						PM10			PM2.5	
					RD	BW	TW	RD	BW	TW
Site Preparation	2027									
Total Haul Trips	0									
Hauling	0	1	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	1	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	10	1	8	18.5	0.12	0.00	0.00	0.03	0.00	0.00
Grading	2027									
Total Haul Trips	0									
Hauling	0	4	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	4	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	16	4	8	18.5	0.20	0.01	0.01	0.05	0.00	0.00
Building Construction	2027									
Total Haul Trips	0									
Hauling	0	140	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	6	140	8	10.2	0.04	0.01	0.00	0.01	0.00	0.00
Worker	14	140	8	18.5	0.17	0.01	0.00	0.04	0.00	0.00
Paving	2027									
Total Haul Trips	0									
Hauling	0	7	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	36	7	8	18.5	0.44	0.01	0.01	0.11	0.00	0.00
Architectural Coating	2027									
Total Haul Trips	0									
Hauling	0	7	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	7	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	2	7	8	18.5	0.02	0.00	0.00	0.01	0.00	0.00

Topanga Canyon - VS
Road Dust

Paved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,P} = (k\ (sL)^{0.91} \times (W)^{1.02})$

Where:

$EF_{Dust,P}$ =	Paved Road Dust Emission Factor (having the same units as k)
k =	particle size multiplier
sL =	road surface silt loading (g/m^2)
W =	average fleet vehicle weight (tons) (CARB uses 2.4 tons as a fleet average vehicle weight factor)

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	0.9979	0.2449
sL	0.1	0.1
W	2.4	2.4
$EF_{Dust,P}$	3.00E-01	7.36E-02

Unpaved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,U} = (k\ (\ s / 12)^{1} \times (Sp / 30)^{0.5} / (M / 0.5)^{0.2}) - C)$

Where:

$EF_{Dust,U}$ =	Unpaved Road Dust Emission Factor (having the same units as k)
k =	particle size multiplier
s =	surface material silt content (%)
Sp =	mean vehicle speed (mph)
M =	surface material moisture content (%)
C =	Emission Factor for 1980s vehicle fleet exhaust, brake wear, and tire wear

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	816.47	81.65
s	4.3%	4.3%
Sp	15	15
M	0.5%	0.5%
C	0.00047	0.00036
$EF_{Dust,U}$	5.20E+00	5.19E-01

Sources:

SCAQMD, CalEEMod, Version 2022.1.
CARB, *Entrained Dust from Paved Road Travel: Emission Estimation Methodology Background Document* , (1997).
USEPA, *AP-42* , Fifth Edition, Volume I, Chapter 13.2.1 - Paved Roads, (2011).
ESA, 2023.

N-3.3-2 Project Construction Modeling

Topanga-Temp Bridge-Con Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Topanga-Temp Bridge-Con
Construction Start Date	1/1/2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	4.60
Location	18711 Pacific Coast Hwy, Malibu, CA 90265, USA
County	Los Angeles-South Coast
City	Unincorporated
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3802
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Asphalt Surfaces	13.5	1000sqft	0.31	0.00	0.00	—	—	—

General Office Building	1.50	1000sqft	0.03	1,500	0.00	—	—	—
Other Non-Asphalt Surfaces	2.30	1000sqft	0.05	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.41	2.03	16.5	19.4	0.04	0.68	2.76	3.44	0.62	1.34	1.96	—	4,145	4,145	0.17	0.03	0.00	4,159
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.64	3.90	32.7	37.9	0.07	1.38	4.03	5.41	1.27	1.53	2.79	—	7,265	7,265	0.29	0.06	0.01	7,289
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.63	1.37	11.6	13.3	0.02	0.51	0.91	1.42	0.47	0.37	0.83	—	2,602	2,602	0.10	0.02	0.03	2,611
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.30	0.25	2.12	2.42	< 0.005	0.09	0.17	0.26	0.08	0.07	0.15	—	431	431	0.02	< 0.005	< 0.005	432

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	2.41	2.03	16.5	19.4	0.04	0.68	2.76	3.44	0.62	1.34	1.96	—	4,145	4,145	0.17	0.03	0.00	4,159
2030	0.93	0.78	4.64	7.57	0.02	0.19	0.23	0.43	0.18	0.03	0.20	—	2,045	2,045	0.08	0.02	0.00	2,052
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	4.64	3.90	32.7	37.9	0.07	1.38	4.03	5.41	1.27	1.53	2.79	—	7,265	7,265	0.29	0.06	0.01	7,289
2030	0.93	0.78	5.87	7.57	0.02	0.27	0.23	0.43	0.24	0.03	0.24	—	2,045	2,045	0.08	0.02	0.00	2,052
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.63	1.37	11.6	13.3	0.02	0.51	0.91	1.42	0.47	0.37	0.83	—	2,602	2,602	0.10	0.02	0.03	2,611
2030	0.73	0.62	4.10	6.60	0.01	0.16	0.19	0.35	0.15	0.02	0.17	—	1,570	1,570	0.06	0.01	0.00	1,576
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.30	0.25	2.12	2.42	< 0.005	0.09	0.17	0.26	0.08	0.07	0.15	—	431	431	0.02	< 0.005	< 0.005	432
2030	0.13	0.11	0.75	1.20	< 0.005	0.03	0.03	0.06	0.03	< 0.005	0.03	—	260	260	0.01	< 0.005	0.00	261

3. Construction Emissions Details

3.1. Demo + Parking Provisions (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.23	1.88	16.3	18.5	0.03	0.70	—	0.70	0.65	—	0.65	—	3,120	3,120	0.13	0.03	—	3,131
Demolition	—	—	—	—	—	—	1.25	1.25	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	2.67	3.04	< 0.005	0.12	—	0.12	0.11	—	0.11	—	513	513	0.02	< 0.005	—	515
Demolition	—	—	—	—	—	—	0.21	0.21	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.49	0.56	< 0.005	0.02	—	0.02	0.02	—	0.02	—	84.9	84.9	< 0.005	< 0.005	—	85.2
Demolition	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Demo Temp Bridge (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	2.51	3.94	0.01	0.05	—	0.05	0.05	—	0.05	—	574	574	0.02	< 0.005	—	576
Demolition	—	—	—	—	—	—	0.11	0.11	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.41	0.64	< 0.005	0.01	—	0.01	0.01	—	0.01	—	92.8	92.8	< 0.005	< 0.005	—	93.1

Demolitio	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.4	15.4	< 0.005	< 0.005	—	15.4
Demolitio n	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Restore Beach Area (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.36	2.81	5.58	0.01	0.13	—	0.13	0.12	—	0.12	—	858	858	0.03	0.01	—	861
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.47	0.93	< 0.005	0.02	—	0.02	0.02	—	0.02	—	143	143	0.01	< 0.005	—	144
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.17	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	23.8	23.8	< 0.005	< 0.005	—	23.8

Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Unsuitable Material Replacement (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	14.7	16.4	0.03	0.62	—	0.62	0.57	—	0.57	—	3,713	3,713	0.15	0.03	—	3,725
Dust From Material Movement	—	—	—	—	—	—	2.78	2.78	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.30	2.41	2.70	0.01	0.10	—	0.10	0.09	—	0.09	—	610	610	0.02	< 0.005	—	612
Dust From Material Movement	—	—	—	—	—	—	0.46	0.46	—	0.22	0.22	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.44	0.49	< 0.005	0.02	—	0.02	0.02	—	0.02	—	101	101	< 0.005	< 0.005	—	101
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Construct Temp Bridge - Grading (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	14.7	16.4	0.03	0.62	—	0.62	0.57	—	0.57	—	3,713	3,713	0.15	0.03	—	3,725

Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	1.21	1.35	< 0.005	0.05	—	0.05	0.05	—	0.05	—	305	305	0.01	< 0.005	—	306
Dust From Material Movement	—	—	—	—	—	—	0.23	0.23	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.22	0.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	50.5	50.5	< 0.005	< 0.005	—	50.7
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Lagoon Grading (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.93	0.78	4.64	7.57	0.02	0.19	—	0.19	0.18	—	0.18	—	2,045	2,045	0.08	0.02	—	2,052
Dust From Material Movement	—	—	—	—	—	—	0.23	0.23	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.93	0.78	4.64	7.57	0.02	0.19	—	0.19	0.18	—	0.18	—	2,045	2,045	0.08	0.02	—	2,052
Dust From Material Movement	—	—	—	—	—	—	0.23	0.23	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.46	2.72	4.44	0.01	0.11	—	0.11	0.10	—	0.10	—	1,199	1,199	0.05	0.01	—	1,203
Dust From Material Movement	—	—	—	—	—	—	0.14	0.14	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.50	0.81	< 0.005	0.02	—	0.02	0.02	—	0.02	—	198	198	0.01	< 0.005	—	199
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Construct Temp Bridge - BC (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.92	0.78	6.87	7.04	0.02	0.33	—	0.33	0.31	—	0.31	—	1,595	1,595	0.06	0.01	—	1,601
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.92	0.78	6.87	7.04	0.02	0.33	—	0.33	0.31	—	0.31	—	1,595	1,595	0.06	0.01	—	1,601
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	0.26	2.34	2.39	0.01	0.11	—	0.11	0.10	—	0.10	—	542	542	0.02	< 0.005	—	544
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.43	0.44	< 0.005	0.02	—	0.02	0.02	—	0.02	—	89.7	89.7	< 0.005	< 0.005	—	90.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Construct DBH Facilities (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	5.87	6.97	0.02	0.27	—	0.27	0.24	—	0.24	—	1,596	1,596	0.06	0.01	—	1,601
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.50	0.59	< 0.005	0.02	—	0.02	0.02	—	0.02	—	136	136	0.01	< 0.005	—	136
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.4	22.4	< 0.005	< 0.005	—	22.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.17. Construct Temp Bridge - Paving (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.75	1.47	12.8	13.6	0.02	0.59	—	0.59	0.55	—	0.55	—	2,405	2,405	0.10	0.02	—	2,413
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.24	2.10	2.23	< 0.005	0.10	—	0.10	0.09	—	0.09	—	395	395	0.02	< 0.005	—	397
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.38	0.41	< 0.005	0.02	—	0.02	0.02	—	0.02	—	65.4	65.4	< 0.005	< 0.005	—	65.7
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.51	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	126	126	< 0.005	< 0.005	0.01	127
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	21.0	21.0	< 0.005	< 0.005	0.03	21.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.48	3.48	< 0.005	< 0.005	< 0.005	3.52
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.19. Relocate Utilities (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.19	1.80	2.93	< 0.005	0.05	—	0.05	0.05	—	0.05	—	432	432	0.02	< 0.005	—	434
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.19	1.80	2.93	< 0.005	0.05	—	0.05	0.05	—	0.05	—	432	432	0.02	< 0.005	—	434
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.90	1.46	< 0.005	0.03	—	0.03	0.02	—	0.02	—	215	215	0.01	< 0.005	—	216
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.02	0.16	0.27	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	35.7	35.7	< 0.005	< 0.005	—	35.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demo + Parking Provisions	Demolition	1/1/2027	3/1/2027	7.00	60.0	—
Demo Temp Bridge	Demolition	1/1/2030	2/28/2030	7.00	59.0	—
Restore Beach Area	Site Preparation	11/1/2030	12/31/2030	7.00	61.0	—
Unsuitable Material Replacement	Grading	1/1/2027	3/1/2027	7.00	60.0	—
Construct Temp Bridge - Grading	Grading	6/1/2027	6/30/2027	7.00	30.0	—
Lagoon Grading	Grading	4/1/2030	10/31/2030	7.00	214	—
Construct Temp Bridge - BC	Building Construction	7/1/2027	11/1/2027	7.00	124	—
Construct DBH Facilities	Building Construction	3/1/2030	3/31/2030	7.00	31.0	—
Construct Temp Bridge - Paving	Paving	11/2/2027	12/31/2027	7.00	60.0	—
Relocate Utilities	Trenching	2/1/2027	8/1/2027	7.00	182	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demo + Parking Provisions	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Demo + Parking Provisions	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demo + Parking Provisions	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Demo + Parking Provisions	Graders	Diesel	Average	1.00	8.00	148	0.41
Demo + Parking Provisions	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Demo + Parking Provisions	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Demo Temp Bridge	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Demo Temp Bridge	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Restore Beach Area	Graders	Diesel	Average	1.00	8.00	148	0.41
Restore Beach Area	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Unsuitable Material Replacement	Graders	Diesel	Average	1.00	8.00	148	0.41
Unsuitable Material Replacement	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Unsuitable Material Replacement	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Unsuitable Material Replacement	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Unsuitable Material Replacement	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Construct Temp Bridge - Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Construct Temp Bridge - Grading	Graders	Diesel	Average	1.00	8.00	148	0.41

Construct Temp Bridge - Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Construct Temp Bridge - Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Construct Temp Bridge - Grading	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Lagoon Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Lagoon Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Lagoon Grading	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Construct Temp Bridge - BC	Cranes	Diesel	Average	1.00	8.00	367	0.29
Construct Temp Bridge - BC	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Construct Temp Bridge - BC	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Construct Temp Bridge - BC	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Construct DBH Facilities	Cranes	Diesel	Average	1.00	8.00	367	0.29
Construct DBH Facilities	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Construct DBH Facilities	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Construct DBH Facilities	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Construct Temp Bridge - Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Construct Temp Bridge - Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Construct Temp Bridge - Paving	Graders	Diesel	Average	1.00	8.00	148	0.41
Construct Temp Bridge - Paving	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40

Relocate Utilities	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Relocate Utilities	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demo + Parking Provisions	—	—	—	—
Demo + Parking Provisions	Worker	0.00	18.5	LDA,LDT1,LDT2
Demo + Parking Provisions	Vendor	—	10.2	HHDT,MHDT
Demo + Parking Provisions	Hauling	0.00	20.0	HHDT
Demo + Parking Provisions	Onsite truck	—	—	HHDT
Unsuitable Material Replacement	—	—	—	—
Unsuitable Material Replacement	Worker	0.00	18.5	LDA,LDT1,LDT2
Unsuitable Material Replacement	Vendor	—	10.2	HHDT,MHDT
Unsuitable Material Replacement	Hauling	0.00	20.0	HHDT
Unsuitable Material Replacement	Onsite truck	—	—	HHDT
Relocate Utilities	—	—	—	—
Relocate Utilities	Worker	0.00	18.5	LDA,LDT1,LDT2
Relocate Utilities	Vendor	—	10.2	HHDT,MHDT
Relocate Utilities	Hauling	0.00	20.0	HHDT
Relocate Utilities	Onsite truck	—	—	HHDT
Construct Temp Bridge - Grading	—	—	—	—
Construct Temp Bridge - Grading	Worker	0.00	18.5	LDA,LDT1,LDT2
Construct Temp Bridge - Grading	Vendor	—	10.2	HHDT,MHDT
Construct Temp Bridge - Grading	Hauling	0.00	20.0	HHDT
Construct Temp Bridge - Grading	Onsite truck	—	—	HHDT

Construct Temp Bridge - BC	—	—	—	—
Construct Temp Bridge - BC	Worker	0.00	18.5	LDA,LDT1,LDT2
Construct Temp Bridge - BC	Vendor	0.00	10.2	HHDT,MHDT
Construct Temp Bridge - BC	Hauling	0.00	20.0	HHDT
Construct Temp Bridge - BC	Onsite truck	—	—	HHDT
Demo Temp Bridge	—	—	—	—
Demo Temp Bridge	Worker	0.00	18.5	LDA,LDT1,LDT2
Demo Temp Bridge	Vendor	—	10.2	HHDT,MHDT
Demo Temp Bridge	Hauling	0.00	20.0	HHDT
Demo Temp Bridge	Onsite truck	—	—	HHDT
Restore Beach Area	—	—	—	—
Restore Beach Area	Worker	0.00	18.5	LDA,LDT1,LDT2
Restore Beach Area	Vendor	—	10.2	HHDT,MHDT
Restore Beach Area	Hauling	0.00	20.0	HHDT
Restore Beach Area	Onsite truck	—	—	HHDT
Lagoon Grading	—	—	—	—
Lagoon Grading	Worker	0.00	18.5	LDA,LDT1,LDT2
Lagoon Grading	Vendor	—	10.2	HHDT,MHDT
Lagoon Grading	Hauling	0.00	20.0	HHDT
Lagoon Grading	Onsite truck	—	—	HHDT
Construct DBH Facilities	—	—	—	—
Construct DBH Facilities	Worker	0.00	18.5	LDA,LDT1,LDT2
Construct DBH Facilities	Vendor	0.00	10.2	HHDT,MHDT
Construct DBH Facilities	Hauling	0.00	20.0	HHDT
Construct DBH Facilities	Onsite truck	—	—	HHDT
Construct Temp Bridge - Paving	—	—	—	—
Construct Temp Bridge - Paving	Worker	10.0	18.5	LDA,LDT1,LDT2

Construct Temp Bridge - Paving	Vendor	—	10.2	HHDT,MHDT
Construct Temp Bridge - Paving	Hauling	0.00	20.0	HHDT
Construct Temp Bridge - Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demo + Parking Provisions	0.00	0.00	0.00	5,405	—
Demo Temp Bridge	0.00	0.00	0.00	465	—
Restore Beach Area	0.00	0.00	21.5	0.00	—
Unsuitable Material Replacement	12,600	26,000	42.0	0.00	—
Construct Temp Bridge - Grading	1,600	0.00	22.0	0.00	—
Lagoon Grading	0.00	256,000	77.0	0.00	—
Construct Temp Bridge - Paving	0.00	0.00	0.00	0.00	0.36

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Asphalt Surfaces	0.31	100%
General Office Building	0.00	0%
Other Non-Asphalt Surfaces	0.05	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00	532	0.03	< 0.005
2030	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.96	annual days of extreme heat
Extreme Precipitation	5.90	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	20.5	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A

Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	—
AQ-PM	—
AQ-DPM	—
Drinking Water	—
Lead Risk Housing	—
Pesticides	—
Toxic Releases	—
Traffic	—
Effect Indicators	—
CleanUp Sites	—
Groundwater	—
Haz Waste Facilities/Generators	—
Impaired Water Bodies	—
Solid Waste	—
Sensitive Population	—
Asthma	—
Cardio-vascular	—
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	—
Housing	—

Linguistic	—
Poverty	—
Unemployment	—

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	89.34941614
Employed	19.02989863
Median HI	97.69023483
Education	—
Bachelor's or higher	88.59232645
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	93.63531374
Active commuting	12.16476325
Social	—
2-parent households	42.29436674
Voting	82.35596048
Neighborhood	—
Alcohol availability	89.4649044
Park access	38.81688695
Retail density	42.06339022
Supermarket access	2.399589375
Tree canopy	71.42307199

Housing	—
Homeownership	65.75131528
Housing habitability	87.501604
Low-inc homeowner severe housing cost burden	64.24996792
Low-inc renter severe housing cost burden	88.91312717
Uncrowded housing	62.10701912
Health Outcomes	—
Insured adults	89.59322469
Arthritis	0.0
Asthma ER Admissions	99.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	77.8
Cognitively Disabled	87.2
Physically Disabled	55.6
Heart Attack ER Admissions	99.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	93.4
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—

Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	99.5
SLR Inundation Area	38.8
Children	43.1
Elderly	11.5
English Speaking	77.4
Foreign-born	54.6
Outdoor Workers	85.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	79.5
Traffic Density	81.9
Traffic Access	23.0
Other Indices	—
Hardship	5.4
Other Decision Support	—
2016 Voting	60.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	—
Healthy Places Index Score for Project Location (b)	90.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	see construction assumptions
Construction: Off-Road Equipment	see construction assumptions
Construction: Trips and VMT	construction mobile emissions calculated outside of CalEEMod
Construction: Dust From Material Movement	see construction assumptions

Topanga-NB Bridge-Con Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Topanga-NB Bridge-Con
Construction Start Date	1/1/2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	4.60
Location	18711 Pacific Coast Hwy, Malibu, CA 90265, USA
County	Los Angeles-South Coast
City	Unincorporated
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3802
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Asphalt Surfaces	78.4	1000sqft	1.80	78,408	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.15	1.81	14.1	16.4	0.03	0.60	2.77	3.37	0.55	1.34	1.88	—	3,714	3,714	0.15	0.08	2.20	3,727
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.15	1.81	14.1	16.4	0.03	0.60	2.77	3.37	0.55	1.34	1.88	—	3,714	3,714	0.15	0.08	0.06	3,727
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.16	0.98	7.90	9.75	0.02	0.34	0.81	1.14	0.31	0.30	0.61	—	2,322	2,322	0.09	0.06	0.56	2,342
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.21	0.18	1.44	1.78	< 0.005	0.06	0.15	0.21	0.06	0.06	0.11	—	384	384	0.01	0.01	0.09	388

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2028	2.15	1.81	14.1	16.4	0.03	0.60	2.77	3.37	0.55	1.34	1.88	—	3,714	3,714	0.15	0.08	2.20	3,727
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	2.15	1.81	14.1	16.4	0.03	0.60	2.77	3.37	0.55	1.34	1.88	—	3,714	3,714	0.15	0.08	0.06	3,727
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	1.16	0.98	7.90	9.75	0.02	0.34	0.81	1.14	0.31	0.30	0.61	—	2,322	2,322	0.09	0.06	0.56	2,342
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.21	0.18	1.44	1.78	< 0.005	0.06	0.15	0.21	0.06	0.06	0.11	—	384	384	0.01	0.01	0.09	388

3. Construction Emissions Details

3.1. NB Road/Bridge - Demo (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.57	3.95	0.01	0.07	—	0.07	0.06	—	0.06	—	574	574	0.02	< 0.005	—	576
Demolition	—	—	—	—	—	—	0.16	0.16	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.05	0.04	0.42	0.65	< 0.005	0.01	—	0.01	0.01	—	0.01	—	94.3	94.3	< 0.005	< 0.005	—	94.6
Demolition	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.6	15.6	< 0.005	< 0.005	—	15.7
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. NB Road/Bridge - Grading (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.15	1.81	14.1	16.4	0.03	0.60	—	0.60	0.55	—	0.55	—	3,714	3,714	0.15	0.03	—	3,727
Dust From Material Movement	—	—	—	—	—	—	2.77	2.77	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.15	1.81	14.1	16.4	0.03	0.60	—	0.60	0.55	—	0.55	—	3,714	3,714	0.15	0.03	—	3,727
Dust From Material Movement	—	—	—	—	—	—	2.77	2.77	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.30	2.36	2.75	0.01	0.10	—	0.10	0.09	—	0.09	—	621	621	0.03	0.01	—	623
Dust From Material Movement	—	—	—	—	—	—	0.46	0.46	—	0.22	0.22	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.43	0.50	< 0.005	0.02	—	0.02	0.02	—	0.02	—	103	103	< 0.005	< 0.005	—	103
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. NB Road/Bridge - BC (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.40	7.03	0.02	0.30	—	0.30	0.28	—	0.28	—	1,596	1,596	0.06	0.01	—	1,601
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.40	7.03	0.02	0.30	—	0.30	0.28	—	0.28	—	1,596	1,596	0.06	0.01	—	1,601
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.43	3.75	4.12	0.01	0.18	—	0.18	0.16	—	0.16	—	936	936	0.04	0.01	—	939
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.68	0.75	< 0.005	0.03	—	0.03	0.03	—	0.03	—	155	155	0.01	< 0.005	—	155
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.11	1.86	0.00	0.00	0.43	0.43	0.00	0.10	0.10	—	430	430	< 0.005	0.02	1.23	436
Vendor	0.03	0.01	0.40	0.19	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	384	384	0.01	0.05	0.97	401
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.13	1.58	0.00	0.00	0.43	0.43	0.00	0.10	0.10	—	408	408	0.01	0.02	0.03	412
Vendor	0.03	0.01	0.42	0.20	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	384	384	0.01	0.05	0.03	401
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.07	0.97	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	242	242	< 0.005	0.01	0.31	246
Vendor	0.01	0.01	0.25	0.11	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	225	225	0.01	0.03	0.24	235
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.18	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	40.1	40.1	< 0.005	< 0.005	0.05	40.7
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	37.3	37.3	< 0.005	0.01	0.04	38.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. NB Road/Bridge - Paving (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.71	1.44	12.4	13.6	0.02	0.56	—	0.56	0.52	—	0.52	—	2,405	2,405	0.10	0.02	—	2,414
Paving	—	0.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	1.05	1.16	< 0.005	0.05	—	0.05	0.04	—	0.04	—	204	204	0.01	< 0.005	—	205
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.19	0.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	33.8	33.8	< 0.005	< 0.005	—	33.9
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
NB Road/Bridge - Demo	Demolition	1/1/2028	2/29/2028	7.00	60.0	—
NB Road/Bridge - Grading	Grading	3/1/2028	4/30/2028	7.00	61.0	—
NB Road/Bridge - BC	Building Construction	5/1/2028	11/30/2028	7.00	214	—
NB Road/Bridge - Paving	Paving	12/1/2028	12/31/2028	7.00	31.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
NB Road/Bridge - Demo	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
NB Road/Bridge - Demo	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
NB Road/Bridge - Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
NB Road/Bridge - Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
NB Road/Bridge - Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
NB Road/Bridge - Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
NB Road/Bridge - Grading	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
NB Road/Bridge - BC	Cranes	Diesel	Average	1.00	8.00	367	0.29
NB Road/Bridge - BC	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
NB Road/Bridge - BC	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
NB Road/Bridge - BC	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
NB Road/Bridge - Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
NB Road/Bridge - Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
NB Road/Bridge - Paving	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
NB Road/Bridge - Paving	Graders	Diesel	Average	1.00	8.00	148	0.41

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
NB Road/Bridge - Demo	—	—	—	—
NB Road/Bridge - Demo	Worker	0.00	18.5	LDA,LDT1,LDT2
NB Road/Bridge - Demo	Vendor	—	10.2	HHDT,MHDT
NB Road/Bridge - Demo	Hauling	0.00	20.0	HHDT
NB Road/Bridge - Demo	Onsite truck	—	—	HHDT
NB Road/Bridge - Grading	—	—	—	—
NB Road/Bridge - Grading	Worker	0.00	18.5	LDA,LDT1,LDT2
NB Road/Bridge - Grading	Vendor	—	10.2	HHDT,MHDT
NB Road/Bridge - Grading	Hauling	0.00	20.0	HHDT
NB Road/Bridge - Grading	Onsite truck	—	—	HHDT
NB Road/Bridge - BC	—	—	—	—
NB Road/Bridge - BC	Worker	32.9	18.5	LDA,LDT1,LDT2
NB Road/Bridge - BC	Vendor	12.9	10.2	HHDT,MHDT
NB Road/Bridge - BC	Hauling	0.00	20.0	HHDT
NB Road/Bridge - BC	Onsite truck	—	—	HHDT
NB Road/Bridge - Paving	—	—	—	—
NB Road/Bridge - Paving	Worker	0.00	18.5	LDA,LDT1,LDT2
NB Road/Bridge - Paving	Vendor	—	10.2	HHDT,MHDT
NB Road/Bridge - Paving	Hauling	0.00	20.0	HHDT
NB Road/Bridge - Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
NB Road/Bridge - Demo	0.00	0.00	0.00	675	—
NB Road/Bridge - Grading	12,000	18,500	43.0	0.00	—
NB Road/Bridge - Paving	0.00	0.00	0.00	0.00	1.80

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Asphalt Surfaces	1.80	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2028	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.96	annual days of extreme heat
Extreme Precipitation	5.90	annual days with precipitation above 20 mm

Sea Level Rise	—	meters of inundation depth
Wildfire	20.5	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score

Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	—
AQ-PM	—
AQ-DPM	—
Drinking Water	—
Lead Risk Housing	—
Pesticides	—
Toxic Releases	—

Traffic	—
Effect Indicators	—
CleanUp Sites	—
Groundwater	—
Haz Waste Facilities/Generators	—
Impaired Water Bodies	—
Solid Waste	—
Sensitive Population	—
Asthma	—
Cardio-vascular	—
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	—
Housing	—
Linguistic	—
Poverty	—
Unemployment	—

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	89.34941614
Employed	19.02989863
Median HI	97.69023483
Education	—
Bachelor's or higher	88.59232645

High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	93.63531374
Active commuting	12.16476325
Social	—
2-parent households	42.29436674
Voting	82.35596048
Neighborhood	—
Alcohol availability	89.4649044
Park access	38.81688695
Retail density	42.06339022
Supermarket access	2.399589375
Tree canopy	71.42307199
Housing	—
Homeownership	65.75131528
Housing habitability	87.501604
Low-inc homeowner severe housing cost burden	64.24996792
Low-inc renter severe housing cost burden	88.91312717
Uncrowded housing	62.10701912
Health Outcomes	—
Insured adults	89.59322469
Arthritis	0.0
Asthma ER Admissions	99.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0

Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	77.8
Cognitively Disabled	87.2
Physically Disabled	55.6
Heart Attack ER Admissions	99.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	93.4
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	99.5
SLR Inundation Area	38.8
Children	43.1
Elderly	11.5
English Speaking	77.4
Foreign-born	54.6
Outdoor Workers	85.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	79.5

Traffic Density	81.9
Traffic Access	23.0
Other Indices	—
Hardship	5.4
Other Decision Support	—
2016 Voting	60.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	—
Healthy Places Index Score for Project Location (b)	90.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	see construction assumptions

Construction: Off-Road Equipment	see construction assumptions
Construction: Trips and VMT	construction mobile emissions calculated outside of CalEEMod.
Construction: Dust From Material Movement	see construction assumptions

Topanga-SB Bridge-Con Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Topanga-SB Bridge-Con
Construction Start Date	1/1/2029
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	4.60
Location	18711 Pacific Coast Hwy, Malibu, CA 90265, USA
County	Los Angeles-South Coast
City	Unincorporated
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3802
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Asphalt Surfaces	78.4	1000sqft	1.80	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.10	1.76	13.2	16.3	0.03	0.56	2.77	3.33	0.51	1.34	1.85	—	3,713	3,713	0.15	0.03	0.00	3,726
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.10	1.76	13.2	16.3	0.03	0.56	2.77	3.33	0.51	1.34	1.85	—	3,713	3,713	0.15	0.03	0.00	3,726
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.04	0.89	7.16	8.61	0.02	0.31	0.49	0.80	0.29	0.23	0.51	—	1,853	1,853	0.08	0.02	0.00	1,859
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.19	0.16	1.31	1.57	< 0.005	0.06	0.09	0.15	0.05	0.04	0.09	—	307	307	0.01	< 0.005	0.00	308

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2029	2.10	1.76	13.2	16.3	0.03	0.56	2.77	3.33	0.51	1.34	1.85	—	3,713	3,713	0.15	0.03	0.00	3,726
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	2.10	1.76	13.2	16.3	0.03	0.56	2.77	3.33	0.51	1.34	1.85	—	3,713	3,713	0.15	0.03	0.00	3,726
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	1.04	0.89	7.16	8.61	0.02	0.31	0.49	0.80	0.29	0.23	0.51	—	1,853	1,853	0.08	0.02	0.00	1,859
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	0.19	0.16	1.31	1.57	< 0.005	0.06	0.09	0.15	0.05	0.04	0.09	—	307	307	0.01	< 0.005	0.00	308

3. Construction Emissions Details

3.1. SB Road/Bridge - Demo (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.53	3.96	0.01	0.06	—	0.06	0.05	—	0.05	—	574	574	0.02	< 0.005	—	576
Demolition	—	—	—	—	—	—	0.16	0.16	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.05	0.04	0.41	0.64	< 0.005	0.01	—	0.01	0.01	—	0.01	—	92.8	92.8	< 0.005	< 0.005	—	93.1
Demolition	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.4	15.4	< 0.005	< 0.005	—	15.4
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. SB Road/Bridge - Grading (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.10	1.76	13.2	16.3	0.03	0.56	—	0.56	0.51	—	0.51	—	3,713	3,713	0.15	0.03	—	3,726
Dust From Material Movement	—	—	—	—	—	—	2.77	2.77	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.10	1.76	13.2	16.3	0.03	0.56	—	0.56	0.51	—	0.51	—	3,713	3,713	0.15	0.03	—	3,726
Dust From Material Movement	—	—	—	—	—	—	2.77	2.77	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.29	2.21	2.73	0.01	0.09	—	0.09	0.09	—	0.09	—	621	621	0.03	0.01	—	623
Dust From Material Movement	—	—	—	—	—	—	0.46	0.46	—	0.22	0.22	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.40	0.50	< 0.005	0.02	—	0.02	0.02	—	0.02	—	103	103	< 0.005	< 0.005	—	103
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. SB Road/Bridge - BC (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	0.71	6.06	6.99	0.02	0.28	—	0.28	0.26	—	0.26	—	1,596	1,596	0.06	0.01	—	1,601
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	0.71	6.06	6.99	0.02	0.28	—	0.28	0.26	—	0.26	—	1,596	1,596	0.06	0.01	—	1,601
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.42	3.55	4.10	0.01	0.16	—	0.16	0.15	—	0.15	—	936	936	0.04	0.01	—	939
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.65	0.75	< 0.005	0.03	—	0.03	0.03	—	0.03	—	155	155	0.01	< 0.005	—	155
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. SB Road/Bridge - Paving (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.66	1.39	11.6	13.5	0.02	0.53	—	0.53	0.49	—	0.49	—	2,404	2,404	0.10	0.02	—	2,412
Paving	—	0.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	0.99	1.15	< 0.005	0.05	—	0.05	0.04	—	0.04	—	204	204	0.01	< 0.005	—	205
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.18	0.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	33.8	33.8	< 0.005	< 0.005	—	33.9
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
SB Road/Bridge - Demo	Demolition	1/1/2029	2/28/2029	7.00	59.0	—
SB Road/Bridge - Grading	Grading	3/1/2029	4/30/2029	7.00	61.0	—
SB Road/Bridge - BC	Building Construction	5/1/2029	11/30/2029	7.00	214	—
SB Road/Bridge - Paving	Paving	12/1/2029	12/31/2029	7.00	31.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
SB Road/Bridge - Demo	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
SB Road/Bridge - Demo	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
SB Road/Bridge - Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
SB Road/Bridge - Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
SB Road/Bridge - Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
SB Road/Bridge - Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
SB Road/Bridge - Grading	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
SB Road/Bridge - BC	Cranes	Diesel	Average	1.00	8.00	367	0.29
SB Road/Bridge - BC	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
SB Road/Bridge - BC	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
SB Road/Bridge - BC	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
SB Road/Bridge - Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
SB Road/Bridge - Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
SB Road/Bridge - Paving	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
SB Road/Bridge - Paving	Graders	Diesel	Average	1.00	8.00	148	0.41

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
SB Road/Bridge - Demo	—	—	—	—
SB Road/Bridge - Demo	Worker	0.00	18.5	LDA,LDT1,LDT2
SB Road/Bridge - Demo	Vendor	—	10.2	HHDT,MHDT
SB Road/Bridge - Demo	Hauling	0.00	20.0	HHDT
SB Road/Bridge - Demo	Onsite truck	—	—	HHDT
SB Road/Bridge - Grading	—	—	—	—
SB Road/Bridge - Grading	Worker	0.00	18.5	LDA,LDT1,LDT2
SB Road/Bridge - Grading	Vendor	—	10.2	HHDT,MHDT
SB Road/Bridge - Grading	Hauling	0.00	20.0	HHDT
SB Road/Bridge - Grading	Onsite truck	—	—	HHDT
SB Road/Bridge - BC	—	—	—	—
SB Road/Bridge - BC	Worker	0.00	18.5	LDA,LDT1,LDT2
SB Road/Bridge - BC	Vendor	0.00	10.2	HHDT,MHDT
SB Road/Bridge - BC	Hauling	0.00	20.0	HHDT
SB Road/Bridge - BC	Onsite truck	—	—	HHDT
SB Road/Bridge - Paving	—	—	—	—
SB Road/Bridge - Paving	Worker	0.00	18.5	LDA,LDT1,LDT2
SB Road/Bridge - Paving	Vendor	—	10.2	HHDT,MHDT
SB Road/Bridge - Paving	Hauling	0.00	20.0	HHDT
SB Road/Bridge - Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
SB Road/Bridge - Demo	0.00	0.00	0.00	675	—
SB Road/Bridge - Grading	12,000	17,300	43.0	0.00	—
SB Road/Bridge - Paving	0.00	0.00	0.00	0.00	1.80

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Asphalt Surfaces	1.80	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2029	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.96	annual days of extreme heat
Extreme Precipitation	5.90	annual days with precipitation above 20 mm

Sea Level Rise	—	meters of inundation depth
Wildfire	20.5	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score

Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	—
AQ-PM	—
AQ-DPM	—
Drinking Water	—
Lead Risk Housing	—
Pesticides	—
Toxic Releases	—

Traffic	—
Effect Indicators	—
CleanUp Sites	—
Groundwater	—
Haz Waste Facilities/Generators	—
Impaired Water Bodies	—
Solid Waste	—
Sensitive Population	—
Asthma	—
Cardio-vascular	—
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	—
Housing	—
Linguistic	—
Poverty	—
Unemployment	—

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	89.34941614
Employed	19.02989863
Median HI	97.69023483
Education	—
Bachelor's or higher	88.59232645

High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	93.63531374
Active commuting	12.16476325
Social	—
2-parent households	42.29436674
Voting	82.35596048
Neighborhood	—
Alcohol availability	89.4649044
Park access	38.81688695
Retail density	42.06339022
Supermarket access	2.399589375
Tree canopy	71.42307199
Housing	—
Homeownership	65.75131528
Housing habitability	87.501604
Low-inc homeowner severe housing cost burden	64.24996792
Low-inc renter severe housing cost burden	88.91312717
Uncrowded housing	62.10701912
Health Outcomes	—
Insured adults	89.59322469
Arthritis	0.0
Asthma ER Admissions	99.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0

Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	77.8
Cognitively Disabled	87.2
Physically Disabled	55.6
Heart Attack ER Admissions	99.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	93.4
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	99.5
SLR Inundation Area	38.8
Children	43.1
Elderly	11.5
English Speaking	77.4
Foreign-born	54.6
Outdoor Workers	85.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	79.5

Traffic Density	81.9
Traffic Access	23.0
Other Indices	—
Hardship	5.4
Other Decision Support	—
2016 Voting	60.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	—
Healthy Places Index Score for Project Location (b)	90.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	see construction assumptions

Construction: Off-Road Equipment	see construction assumptions
Construction: Trips and VMT	construction mobile emissions calculated outside of CalEEMod.
Construction: Dust From Material Movement	see construction assumptions

Topanga-VS-Con Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Topanga-VS-Con
Construction Start Date	1/1/2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	4.60
Location	18711 Pacific Coast Hwy, Malibu, CA 90265, USA
County	Los Angeles-South Coast
City	Unincorporated
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3802
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Office Building	5.50	1000sqft	0.13	5,500	0.00	—	—	—

Parking Lot	75.0	Space	0.67	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.70	10.1	12.6	16.7	0.03	0.47	0.00	0.47	0.44	0.00	0.44	—	3,026	3,026	0.12	0.02	0.00	3,037
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.55	1.30	11.4	12.4	0.02	0.52	2.76	3.28	0.48	1.34	1.81	—	2,238	2,238	0.09	0.02	0.00	2,245
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.35	0.46	2.75	3.73	0.01	0.11	0.03	0.14	0.10	0.01	0.11	—	768	768	0.03	0.01	0.00	771
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.06	0.08	0.50	0.68	< 0.005	0.02	0.01	0.02	0.02	< 0.005	0.02	—	127	127	0.01	< 0.005	0.00	128

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.70	10.1	12.6	16.7	0.03	0.47	0.00	0.47	0.44	0.00	0.44	—	3,026	3,026	0.12	0.02	0.00	3,037
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.55	1.30	11.4	12.4	0.02	0.52	2.76	3.28	0.48	1.34	1.81	—	2,238	2,238	0.09	0.02	0.00	2,245
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.35	0.46	2.75	3.73	0.01	0.11	0.03	0.14	0.10	0.01	0.11	—	768	768	0.03	0.01	0.00	771
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.06	0.08	0.50	0.68	< 0.005	0.02	0.01	0.02	0.02	< 0.005	0.02	—	127	127	0.01	< 0.005	0.00	128

3. Construction Emissions Details

3.1. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	0.41	3.44	5.56	0.01	0.17	—	0.17	0.15	—	0.15	—	859	859	0.03	0.01	—	862
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.02	0.02	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.35	2.35	< 0.005	< 0.005	—	2.36
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.39	0.39	< 0.005	< 0.005	—	0.39
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.55	1.30	11.4	12.4	0.02	0.52	—	0.52	0.48	—	0.48	—	2,238	2,238	0.09	0.02	—	2,245
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.13	0.14	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.5	24.5	< 0.005	< 0.005	—	24.6

Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.06	4.06	< 0.005	< 0.005	—	4.07
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.51	8.94	0.02	0.25	—	0.25	0.23	—	0.23	—	1,876	1,876	0.08	0.02	—	1,882
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.51	8.94	0.02	0.25	—	0.25	0.23	—	0.23	—	1,876	1,876	0.08	0.02	—	1,882
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.50	3.43	0.01	0.10	—	0.10	0.09	—	0.09	—	719	719	0.03	0.01	—	722
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.46	0.63	< 0.005	0.02	—	0.02	0.02	—	0.02	—	119	119	< 0.005	< 0.005	—	120
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Paving (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.70	0.58	4.98	6.25	0.01	0.20	—	0.20	0.19	—	0.19	—	973	973	0.04	0.01	—	976
Paving	—	0.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.7	18.7	< 0.005	< 0.005	—	18.7
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.09	3.09	< 0.005	< 0.005	—	3.10
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Architectural Coating (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	1.11	1.50	< 0.005	0.03	—	0.03	0.02	—	0.02	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	—	8.45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.41	3.41	< 0.005	< 0.005	—	3.43
Architectural Coatings	—	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.57	0.57	< 0.005	< 0.005	—	0.57
Architectural Coatings	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/1/2027	1/1/2027	7.00	1.00	—
Grading	Grading	1/2/2027	1/5/2027	7.00	4.00	—
Building Construction	Building Construction	1/6/2027	5/25/2027	7.00	140	—
Paving	Paving	5/19/2027	5/25/2027	7.00	7.00	—
Architectural Coating	Architectural Coating	5/19/2027	5/25/2027	7.00	7.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	8.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	8.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	0.00	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	0.00	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT

Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	0.00	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	0.00	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.00	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	8,250	2,750	1,764

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	0.50	0.00	—
Grading	—	—	4.00	0.00	—
Paving	0.00	0.00	0.00	0.00	0.67

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Office Building	0.00	0%
Parking Lot	0.67	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.96	annual days of extreme heat
Extreme Precipitation	5.90	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	20.5	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	—
AQ-PM	—
AQ-DPM	—
Drinking Water	—
Lead Risk Housing	—
Pesticides	—
Toxic Releases	—
Traffic	—
Effect Indicators	—
CleanUp Sites	—
Groundwater	—
Haz Waste Facilities/Generators	—
Impaired Water Bodies	—
Solid Waste	—
Sensitive Population	—
Asthma	—
Cardio-vascular	—

Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	—
Housing	—
Linguistic	—
Poverty	—
Unemployment	—

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	89.34941614
Employed	19.02989863
Median HI	97.69023483
Education	—
Bachelor's or higher	88.59232645
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	93.63531374
Active commuting	12.16476325
Social	—
2-parent households	42.29436674
Voting	82.35596048
Neighborhood	—
Alcohol availability	89.4649044

Park access	38.81688695
Retail density	42.06339022
Supermarket access	2.399589375
Tree canopy	71.42307199
Housing	—
Homeownership	65.75131528
Housing habitability	87.501604
Low-inc homeowner severe housing cost burden	64.24996792
Low-inc renter severe housing cost burden	88.91312717
Uncrowded housing	62.10701912
Health Outcomes	—
Insured adults	89.59322469
Arthritis	0.0
Asthma ER Admissions	99.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	77.8
Cognitively Disabled	87.2
Physically Disabled	55.6
Heart Attack ER Admissions	99.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0

Pedestrian Injuries	93.4
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	99.5
SLR Inundation Area	38.8
Children	43.1
Elderly	11.5
English Speaking	77.4
Foreign-born	54.6
Outdoor Workers	85.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	79.5
Traffic Density	81.9
Traffic Access	23.0
Other Indices	—
Hardship	5.4
Other Decision Support	—
2016 Voting	60.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	—

Healthy Places Index Score for Project Location (b)	90.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	see construction assumptions
Construction: Construction Phases	see construction assumptions
Construction: Off-Road Equipment	see construction assumptions
Construction: Trips and VMT	construction mobile emissions calculated outside of CalEEMod.

N-3.4-1 Option 2 Construction GHG Mobile Emissions

Topanga Canyon - Op2 and 3
Total Emissions

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Idling per Day (minutes)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10 Dust	PM10 Exh	Total PM10	PM2.5 Dust	PM2.5 Exh	Total PM2.5	(MT/yr) Total CO2e
Grading/Excavation	2030															
Total Haul Trips	200															
Hauling	6	43	8	36.5	15	0.02	0.86	0.43	0.01	0.20	0.01	0.21	0.05	0.01	0.06	11.02
Vendor	0	214	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	43.18
					Total	0.12	0.96	1.90	0.01	0.72	0.01	0.73	0.18	0.01	0.19	54.20
Demolition NB Road/Bridge	2031				Workers+Ver	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	43	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	11.69
					Total	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	11.69
Construct NB Road/Bridge	2031	Grading/Excavation			Workers+Ver	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	200															
Hauling	6	43	8	36.5	15	0.02	0.83	0.42	0.01	0.20	0.01	0.21	0.05	0.01	0.06	10.73
Vendor	0	61	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.08
					Total	0.11	0.92	1.81	0.01	0.72	0.01	0.73	0.18	0.01	0.19	22.82
Construct NB Road/Bridge	2031	Building Construction			Workers+Ver	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	330															
Hauling	4	152	8	36.5	15	0.01	0.56	0.28	0.00	0.14	0.01	0.14	0.04	0.01	0.04	17.71
Vendor	0	214	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	42.39
					Total	0.10	0.64	1.67	0.01	0.65	0.01	0.66	0.16	0.01	0.17	60.10
Construct NB Road/Bridge	2031	Paving			Workers+Ver	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	23	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.14
					Total	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.14
					Workers+Ver	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	

Topanga Canyon - Op2 and 3
Running Emissions

			Running Emissions Factor (grams/mile)						Running Emissions Factor (grams/mile)		
			ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX
2027	2027Hauling	Hauling	0.013128	1.553518611	0.45473657	0.01336714	0.02273486	0.02174732	1471.80075	0.0608523	0.23462364
2027	2027Vendor	Vendor	0.01570588	1.102331968	0.36327753	0.01214871	0.01475662	0.01411185	1311.1435	0.03509759	0.18307889
2027	2027Worker	Worker	0.01447264	0.062492418	0.90233334	0.00281062	0.00150729	0.0013867	284.320587	0.00354266	0.00566149
2028	2028Hauling	Hauling	0.01261339	1.493718015	0.43877031	0.01305596	0.02247317	0.02149714	1438.29866	0.05768159	0.22931835
2028	2028Vendor	Vendor	0.01417298	1.038868065	0.3360531	0.01185313	0.01426835	0.01364491	1280.01295	0.03342244	0.17922194
2028	2028Worker	Worker	0.01314756	0.057035459	0.85167037	0.00274948	0.00140448	0.00129194	278.134904	0.00325313	0.00533773
2029	2029Hauling	Hauling	0.01213472	1.434866903	0.4224926	0.01273534	0.0221686	0.0212059	1403.60667	0.05465536	0.22381566
2029	2029Vendor	Vendor	0.0128196	0.978781777	0.31101237	0.01152628	0.01380314	0.01320005	1245.46404	0.03180989	0.17489835
2029	2029Worker	Worker	0.01192021	0.051957034	0.80464317	0.00269297	0.00130724	0.00120239	272.417637	0.00298654	0.00503952
2030	2030Hauling	Hauling	0.01169729	1.381905725	0.40596438	0.01241489	0.02183595	0.02088778	1368.72007	0.05170538	0.2182712
2030	2030Vendor	Vendor	0.01168751	0.9252091	0.28941545	0.01117412	0.01336285	0.01277903	1208.11234	0.03023265	0.17022289
2030	2030Worker	Worker	0.01081241	0.047255061	0.76242747	0.00264062	0.00121547	0.00111789	267.121939	0.00274623	0.00476556
2031	2031Hauling	Hauling	0.01126827	1.331771303	0.38663416	0.01209496	0.02148002	0.02054741	1333.31591	0.04842446	0.21262163
2031	2031Vendor	Vendor	0.01070694	0.874998281	0.26868024	0.01079467	0.01293916	0.01237394	1167.57711	0.02847022	0.16520071
2031	2031Worker	Worker	0.00977403	0.042746598	0.72305591	0.00259298	0.00112929	0.00103861	262.302837	0.0025216	0.00450761
0	GWP		N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Grading/Excavation	2030													
Total Haul Trips	200													
Hauling	6	43	8	36.5	0.01	0.67	0.20	0.01	0.01	0.01	9.99	0.01	0.47	10.48
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.02	0.08	1.24	0.00	0.00	0.00	42.30	0.01	0.22	42.54
Demolition NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.02	0.07	1.18	0.00	0.00	0.00	11.45	0.00	0.06	11.51
Construct NB Road/Bridge	2031													
Total Haul Trips	200													
Hauling	6	43	8	36.5	0.01	0.64	0.19	0.01	0.01	0.01	9.73	0.01	0.46	10.20
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.02	0.07	1.18	0.00	0.00	0.00	11.84	0.00	0.06	11.90
Construct NB Road/Bridge	2031													
Total Haul Trips	330													
Hauling	4	152	8	36.5	0.00	0.43	0.12	0.00	0.01	0.01	16.06	0.01	0.76	16.84
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.02	0.07	1.18	0.00	0.00	0.00	41.54	0.01	0.21	41.76
Construct NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	23	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.02	0.07	1.18	0.00	0.00	0.00	6.02	0.00	0.03	6.05

Topanga Canyon - Op2 and 3
Start Emissions

			Start Emissions Factor (grams/trip)						Start Emissions Factor (grams/trip)		
			ROG_STREX	NOX_STREX	CO_STREX	SOx_STREX	PM10_STREX	PM2.5_STREX	CO2_STREX	CH4_STREX	N2O_STREX
2027	2027Hauling	Hauling	0.00060894	2.672142352	0.00302137	3.16557E-07	5.30481E-07	4.87758E-07	0.03202066	7.5498E-08	7.36611E-06
2027	2027Vendor	Vendor	0.080213538	1.961946447	0.60365405	5.50826E-05	6.07836E-05	5.58883E-05	5.57177064	0.005494835	0.004037678
2027	2027Worker	Worker	1.038950633	0.251050817	3.01934346	0.000691936	0.002053348	0.001887978	69.9913431	0.06616369	0.030829475
2028	2028Hauling	Hauling	0.000490696	2.636914961	0.00257595	2.71845E-07	4.29594E-07	3.94995E-07	0.02749789	6.56178E-08	5.97594E-06
2028	2028Vendor	Vendor	0.075419112	1.927915654	0.55968909	5.22383E-05	5.76932E-05	5.30468E-05	5.28405692	0.005169504	0.003780947
2028	2028Worker	Worker	0.997046953	0.239560346	2.85187017	0.000675557	0.001941969	0.001785569	68.3345653	0.062483886	0.030029939
2029	2029Hauling	Hauling	0.000383539	2.591170334	0.00214107	2.33546E-07	3.28727E-07	3.02252E-07	0.02362391	5.62127E-08	4.65545E-06
2029	2029Vendor	Vendor	0.069289941	1.883995908	0.51714657	4.94212E-05	5.46034E-05	5.02058E-05	4.99909929	0.004852786	0.003548842
2029	2029Worker	Worker	0.945798618	0.229251267	2.69630558	0.000660221	0.001832244	0.00168468	66.7833	0.059077063	0.029313823
2030	2030Hauling	Hauling	0.00027279	2.546881303	0.00161285	1.92445E-07	2.06187E-07	1.89581E-07	0.01946637	4.71315E-08	4.0595E-06
2030	2030Vendor	Vendor	0.063656597	1.839529651	0.47865041	4.67001E-05	5.18671E-05	4.76899E-05	4.72385215	0.004565454	0.003322989
2030	2030Worker	Worker	0.901632052	0.219772527	2.55165593	0.00064583	0.001725708	0.001586724	65.3276344	0.055883281	0.028658371
2031	2031Hauling	Hauling	0.000210057	2.503276097	0.00139863	1.66951E-07	1.58801E-07	1.46012E-07	0.01688763	4.13015E-08	2.64568E-06
2031	2031Vendor	Vendor	0.059141215	1.792713918	0.44197461	4.38654E-05	4.91716E-05	4.52115E-05	4.43711805	0.004280254	0.003105544
2031	2031Worker	Worker	0.857879142	0.211029605	2.41545051	0.000632455	0.001621689	0.001491083	63.974738	0.052892816	0.028060877
	GWP			N/A					1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Grading/Excavation	2030													
Total Haul Trips	200													
Hauling	6	43	8	36.5	0.00	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.08	0.02	0.23	0.00	0.00	0.00	0.56	0.00	0.00	0.64
Demolition NB Road/Bridg	2031													
Total Haul Trips	0													
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.08	0.02	0.21	0.00	0.00	0.00	0.15	0.00	0.00	0.17
Construct NB Road/Bridge	2031													
Total Haul Trips	200													
Hauling	6	43	8	36.5	0.00	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.08	0.02	0.21	0.00	0.00	0.00	0.16	0.00	0.00	0.18
Construct NB Road/Bridge	2031													
Total Haul Trips	330													
Hauling	4	152	8	36.5	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.08	0.02	0.21	0.00	0.00	0.00	0.55	0.00	0.00	0.63
Construct NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	23	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.08	0.02	0.21	0.00	0.00	0.00	0.08	0.00	0.00	0.09

Topanga Canyon - Op2 and 3
Idling Emissions

			Idling Emissions Factor (grams/minute)						Idling Emissions Factor (grams/minute)		
			ROG_IDLEX	NOx_IDLEX	CO_IDLEX	SOx_IDLEX	PM10_IDLEX	PM2.5_IDLEX	CO2_IDLEX	CH4_IDLEX	N2O_IDLEX
2027	2027Hauling	Hauling	0.07592279	0.881696127	1.19921987	0.00159973	0.00047074	0.00044926	181.442358	0.03427011	0.02916541
2027	2027Vendor	Vendor	0.05529965	0.899602458	1.04932075	0.00167506	0.00086494	0.00082645	186.589554	0.03155173	0.02918792
2027	2027Worker	Worker	0	0	0	0	0	0	0	0	0
2028	2028Hauling	Hauling	0.07529788	0.857767875	1.19214339	0.00156045	0.00045204	0.00043133	177.300744	0.03377364	0.02851321
2028	2028Vendor	Vendor	0.05432839	0.863093228	1.0395891	0.00163993	0.00074988	0.00071632	182.978932	0.03134729	0.02865517
2028	2028Worker	Worker	0	0	0	0	0	0	0	0	0
2029	2029Hauling	Hauling	0.07461794	0.835480721	1.18399992	0.00152188	0.00043143	0.00041158	173.194944	0.03323976	0.02786481
2029	2029Vendor	Vendor	0.05333308	0.827999465	1.02749811	0.0016013	0.00065239	0.00062302	178.951612	0.03104801	0.02805443
2029	2029Worker	Worker	0	0	0	0	0	0	0	0	0
2030	2030Hauling	Hauling	0.07391144	0.816007794	1.17493744	0.0014846	0.00041331	0.00039421	169.186161	0.03269373	0.0272299
2030	2030Vendor	Vendor	0.05232472	0.795299763	1.01321823	0.00155966	0.00057171	0.0005458	174.561724	0.03067462	0.02739395
2030	2030Worker	Worker	0	0	0	0	0	0	0	0	0
2031	2031Hauling	Hauling	0.0732853	0.799579641	1.1664382	0.00145061	0.00039768	0.00037924	165.457521	0.03205186	0.02663599
2031	2031Vendor	Vendor	0.05130878	0.763402339	0.99683404	0.00151522	0.00050437	0.00048136	169.805962	0.03011968	0.02667472
2031	2031Worker	Worker	0	0	0	0	0	0	0	0	0
		GWP	N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	Idling minutes per Day	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Grading/Excavation	2030													
Total Haul Trips	200													
Hauling	6	43	8	15	0.01	0.16	0.23	0.00	0.00	0.00	0.51	0.00	0.02	0.53
Vendor	0	214	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	43	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2031													
Total Haul Trips	200													
Hauling	6	43	8	15	0.01	0.16	0.23	0.00	0.00	0.00	0.50	0.00	0.02	0.52
Vendor	0	61	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2031													
Total Haul Trips	330													
Hauling	4	152	8	15	0.01	0.11	0.15	0.00	0.00	0.00	0.82	0.00	0.04	0.86
Vendor	0	214	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	23	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - Op2 and 3
Road Dust, Break Wear, and Tire wear Emissions

			Emission Factors (grams/mile)					
			PM10			PM2.5		
			RD	PM10_PMBW	PM10_PMTW	RD	PM2.5_PMBW	PM2.5_PMTW
2027	2027Hauling	Hauling	0.29984991	0.084297987	0.03545106	0.07359952	0.0295043	0.00886277
2027	2027Vendor	Vendor	0.29984991	0.063623189	0.02372553	0.07359952	0.02226812	0.00593138
2027	2027Worker	Worker	0.29984991	0.009305649	0.008	0.07359952	0.00325698	0.002
2028	2028Hauling	Hauling	0.29984991	0.084486989	0.03545475	0.07359952	0.02957045	0.00886369
2028	2028Vendor	Vendor	0.29984991	0.063544145	0.02372738	0.07359952	0.02224045	0.00593184
2028	2028Worker	Worker	0.29984991	0.009284129	0.008	0.07359952	0.00324945	0.002
2029	2029Hauling	Hauling	0.29984991	0.084584422	0.03545835	0.07359952	0.02960455	0.00886459
2029	2029Vendor	Vendor	0.29984991	0.063359545	0.02372918	0.07359952	0.02217584	0.00593229
2029	2029Worker	Worker	0.29984991	0.00926272	0.008	0.07359952	0.00324195	0.002
2030	2030Hauling	Hauling	0.29984991	0.08460378	0.03546191	0.07359952	0.02961132	0.00886548
2030	2030Vendor	Vendor	0.29984991	0.063078834	0.02373095	0.07359952	0.02207759	0.00593274
2030	2030Worker	Worker	0.29984991	0.00924132	0.008	0.07359952	0.00323446	0.002
2031	2031Hauling	Hauling	0.29984991	0.084504548	0.03546578	0.07359952	0.02957659	0.00886644
2031	2031Vendor	Vendor	0.29984991	0.062682863	0.02373289	0.07359952	0.021939	0.00593322
2031	2031Worker	Worker	0.29984991	0.009221285	0.008	0.07359952	0.00322745	0.002

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day)					
					PM10			PM2.5		
					RD	BW	TW	RD	BW	TW
Grading/Excavation	2030									
Total Haul Trips	200									
Hauling	6	43	8	36.5	0.14	0.04	0.02	0.04	0.01	0.00
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Demolition NB Road/Bridge	2031									
Total Haul Trips	0									
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2031									
Total Haul Trips	200									
Hauling	6	43	8	36.5	0.14	0.04	0.02	0.04	0.01	0.00
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2031									
Total Haul Trips	330									
Hauling	4	152	8	36.5	0.10	0.03	0.01	0.02	0.01	0.00
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2031									
Total Haul Trips	0									
Hauling	0	23	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00

Topanga Canyon - Op2 and 3
Road Dust

Paved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,P} = (k\ (sL)^{0.91} \times (W)^{1.02})$

Where:

$EF_{Dust,P}$ =	Paved Road Dust Emission Factor (having the same units as k)
k =	particle size multiplier
sL =	road surface silt loading (g/m^2)
W =	average fleet vehicle weight (tons) (CARB uses 2.4 tons as a fleet average vehicle weight factor)

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	0.9979	0.2449
sL	0.1	0.1
W	2.4	2.4
$EF_{Dust,P}$	3.00E-01	7.36E-02

Unpaved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,U} = (k\ (\ s / 12)^{1} \times (Sp / 30)^{0.5} / (M / 0.5)^{0.2}) - C)$

Where:

$EF_{Dust,U}$ =	Unpaved Road Dust Emission Factor (having the same units as k)
k =	particle size multiplier
s =	surface material silt content (%)
Sp =	mean vehicle speed (mph)
M =	surface material moisture content (%)
C =	Emission Factor for 1980s vehicle fleet exhaust, brake wear, and tire wear

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	816.47	81.65
s	4.3%	4.3%
Sp	15	15
M	0.5%	0.5%
C	0.00047	0.00036
$EF_{Dust,U}$	5.20E+00	5.19E-01

Sources:

SCAQMD, CalEEMod, Version 2022.1.

CARB, *Entrained Dust from Paved Road Travel: Emission Estimation Methodology Background Document* , (1997).

USEPA, *AP-42* , Fifth Edition, Volume I, Chapter 13.2.1 - Paved Roads, (2011).

ESA, 2023.

N-3.4-2 Option 2 Construction Modeling

Topanga-Op2-Con Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Topanga-Op2-Con
Construction Start Date	4/1/2030
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	4.60
Location	18711 Pacific Coast Hwy, Malibu, CA 90265, USA
County	Los Angeles-South Coast
City	Unincorporated
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3802
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	8.00	1000sqft	0.18	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.52	0.43	3.29	5.10	0.01	0.14	0.21	0.35	0.13	0.02	0.16	—	792	792	0.03	0.01	0.00	795
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.52	0.43	3.29	5.10	0.01	0.14	0.21	0.35	0.13	0.02	0.16	—	792	792	0.03	0.01	0.00	795
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.30	0.25	1.93	2.99	< 0.005	0.08	0.12	0.21	0.08	0.01	0.09	—	464	464	0.02	< 0.005	0.00	466
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.06	0.05	0.35	0.55	< 0.005	0.02	0.02	0.04	0.01	< 0.005	0.02	—	76.9	76.9	< 0.005	< 0.005	0.00	77.1

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2030	0.52	0.43	3.29	5.10	0.01	0.14	0.21	0.35	0.13	0.02	0.16	—	792	792	0.03	0.01	0.00	795
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	0.52	0.43	3.29	5.10	0.01	0.14	0.21	0.35	0.13	0.02	0.16	—	792	792	0.03	0.01	0.00	795
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	0.30	0.25	1.93	2.99	< 0.005	0.08	0.12	0.21	0.08	0.01	0.09	—	464	464	0.02	< 0.005	0.00	466
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	0.06	0.05	0.35	0.55	< 0.005	0.02	0.02	0.04	0.01	< 0.005	0.02	—	76.9	76.9	< 0.005	< 0.005	0.00	77.1

3. Construction Emissions Details

3.1. Grading (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.43	3.29	5.10	0.01	0.14	—	0.14	0.13	—	0.13	—	792	792	0.03	0.01	—	795
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.52	0.43	3.29	5.10	0.01	0.14	—	0.14	0.13	—	0.13	—	792	792	0.03	0.01	—	795
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	1.93	2.99	< 0.005	0.08	—	0.08	0.08	—	0.08	—	464	464	0.02	< 0.005	—	466
Dust From Material Movement	—	—	—	—	—	—	0.12	0.12	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.35	0.55	< 0.005	0.02	—	0.02	0.01	—	0.01	—	76.9	76.9	< 0.005	< 0.005	—	77.1
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	4/1/2030	10/31/2030	7.00	214	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Pumps	Diesel	Average	1.00	8.00	11.0	0.74

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	0.00	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	—	1,000	77.0	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	0.18	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2030	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.96	annual days of extreme heat
Extreme Precipitation	5.90	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	20.5	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2

Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	—
AQ-PM	—
AQ-DPM	—
Drinking Water	—
Lead Risk Housing	—
Pesticides	—
Toxic Releases	—
Traffic	—
Effect Indicators	—
CleanUp Sites	—

Groundwater	—
Haz Waste Facilities/Generators	—
Impaired Water Bodies	—
Solid Waste	—
Sensitive Population	—
Asthma	—
Cardio-vascular	—
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	—
Housing	—
Linguistic	—
Poverty	—
Unemployment	—

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	89.34941614
Employed	19.02989863
Median HI	97.69023483
Education	—
Bachelor's or higher	88.59232645
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—

Auto Access	93.63531374
Active commuting	12.16476325
Social	—
2-parent households	42.29436674
Voting	82.35596048
Neighborhood	—
Alcohol availability	89.4649044
Park access	38.81688695
Retail density	42.06339022
Supermarket access	2.399589375
Tree canopy	71.42307199
Housing	—
Homeownership	65.75131528
Housing habitability	87.501604
Low-inc homeowner severe housing cost burden	64.24996792
Low-inc renter severe housing cost burden	88.91312717
Uncrowded housing	62.10701912
Health Outcomes	—
Insured adults	89.59322469
Arthritis	0.0
Asthma ER Admissions	99.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0

Life Expectancy at Birth	77.8
Cognitively Disabled	87.2
Physically Disabled	55.6
Heart Attack ER Admissions	99.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	93.4
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	99.5
SLR Inundation Area	38.8
Children	43.1
Elderly	11.5
English Speaking	77.4
Foreign-born	54.6
Outdoor Workers	85.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	79.5
Traffic Density	81.9
Traffic Access	23.0
Other Indices	—

Hardship	5.4
Other Decision Support	—
2016 Voting	60.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	—
Healthy Places Index Score for Project Location (b)	90.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	see construction assumptions
Construction: Off-Road Equipment	see construction assumptions
Construction: Trips and VMT	construction mobile emissions calculated outside of CalEEMod.
Construction: Dust From Material Movement	see construction assumptions

N-3.5-1 Option 3 Construction GHG Mobile Emissions

Topanga Canyon - Op2 and 3
Total Emissions

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Idling per Day (minutes)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10 Dust	PM10 Exh	Total PM10	PM2.5 Dust	PM2.5 Exh	Total PM2.5	(MT/yr) Total CO2e
Grading/Excavation	2030															
Total Haul Trips	200															
Hauling	6	43	8	36.5	15	0.02	0.86	0.43	0.01	0.20	0.01	0.21	0.05	0.01	0.06	11.02
Vendor	0	214	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	43.18
					Total	0.12	0.96	1.90	0.01	0.72	0.01	0.73	0.18	0.01	0.19	54.20
Demolition NB Road/Bridge	2031				Workers+Ver	0.10	0.10	1.47	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	43	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	11.69
					Total	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	11.69
Construct NB Road/Bridge	2031	Grading/Excavation			Workers+Ver	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	200															
Hauling	6	43	8	36.5	15	0.02	0.83	0.42	0.01	0.20	0.01	0.21	0.05	0.01	0.06	10.73
Vendor	0	61	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	12.08
					Total	0.11	0.92	1.81	0.01	0.72	0.01	0.73	0.18	0.01	0.19	22.82
Construct NB Road/Bridge	2031	Building Construction			Workers+Ver	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	330															
Hauling	4	152	8	36.5	15	0.01	0.56	0.28	0.00	0.14	0.01	0.14	0.04	0.01	0.04	17.71
Vendor	0	214	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	42.39
					Total	0.10	0.64	1.67	0.01	0.65	0.01	0.66	0.16	0.01	0.17	60.10
Construct NB Road/Bridge	2031	Paving			Workers+Ver	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	
Total Haul Trips	0															
Hauling	0	23	8	36.5	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.14
					Total	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	6.14
					Workers+Ver	0.09	0.09	1.39	0.00	0.52	0.00	0.52	0.13	0.00	0.13	

Topanga Canyon - Op2 and 3
Running Emissions

		Running Emissions Factor (grams/mile)						Running Emissions Factor (grams/mile)		
		ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX
2027	2027Hauling Hauling	0.013128	1.553518611	0.45473657	0.01336714	0.02273486	0.02174732	1471.80075	0.0608523	0.23462364
2027	2027Vendor Vendor	0.01570588	1.102331968	0.36327753	0.01214871	0.01475662	0.01411185	1311.1435	0.03509759	0.18307889
2027	2027Worker Worker	0.01447264	0.062492418	0.90233334	0.00281062	0.00150729	0.0013867	284.320587	0.00354266	0.00566149
2028	2028Hauling Hauling	0.01261339	1.493718015	0.43877031	0.01305596	0.02247317	0.02149714	1438.29866	0.05768159	0.22931835
2028	2028Vendor Vendor	0.01417298	1.038868065	0.3360531	0.01185313	0.01426835	0.01364491	1280.01295	0.03342244	0.17922194
2028	2028Worker Worker	0.01314756	0.057035459	0.85167037	0.00274948	0.00140448	0.00129194	278.134904	0.00325313	0.00533773
2029	2029Hauling Hauling	0.01213472	1.434866903	0.4224926	0.01273534	0.0221686	0.0212059	1403.60667	0.05465536	0.22381566
2029	2029Vendor Vendor	0.0128196	0.978781777	0.31101237	0.01152628	0.01380314	0.01320005	1245.46404	0.03180989	0.17489835
2029	2029Worker Worker	0.01192021	0.051957034	0.80464317	0.00269297	0.00130724	0.00120239	272.417637	0.00298654	0.00503952
2030	2030Hauling Hauling	0.01169729	1.381905725	0.40596438	0.01241489	0.02183595	0.02088778	1368.72007	0.05170538	0.2182712
2030	2030Vendor Vendor	0.01168751	0.9252091	0.28941545	0.01117412	0.01336285	0.01277903	1208.11234	0.03023265	0.17022289
2030	2030Worker Worker	0.01081241	0.047255061	0.76242747	0.00264062	0.00121547	0.00111789	267.121939	0.00274623	0.00476556
2031	2031Hauling Hauling	0.01126827	1.331771303	0.38663416	0.01209496	0.02148002	0.02054741	1333.31591	0.04842446	0.21262163
2031	2031Vendor Vendor	0.01070694	0.874998281	0.26868024	0.01079467	0.01293916	0.01237394	1167.57711	0.02847022	0.16520071
2031	2031Worker Worker	0.00977403	0.042746598	0.72305591	0.00259298	0.00112929	0.00103861	262.302837	0.0025216	0.00450761
0	GWP	N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Grading/Excavation	2030													
Total Haul Trips	200													
Hauling	6	43	8	36.5	0.01	0.67	0.20	0.01	0.01	0.01	9.99	0.01	0.47	10.48
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.02	0.08	1.24	0.00	0.00	0.00	42.30	0.01	0.22	42.54
Demolition NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.02	0.07	1.18	0.00	0.00	0.00	11.45	0.00	0.06	11.51
Construct NB Road/Bridge	2031													
Total Haul Trips	200													
Hauling	6	43	8	36.5	0.01	0.64	0.19	0.01	0.01	0.01	9.73	0.01	0.46	10.20
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.02	0.07	1.18	0.00	0.00	0.00	11.84	0.00	0.06	11.90
Construct NB Road/Bridge	2031													
Total Haul Trips	330													
Hauling	4	152	8	36.5	0.00	0.43	0.12	0.00	0.01	0.01	16.06	0.01	0.76	16.84
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.02	0.07	1.18	0.00	0.00	0.00	41.54	0.01	0.21	41.76
Construct NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	23	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.02	0.07	1.18	0.00	0.00	0.00	6.02	0.00	0.03	6.05

Topanga Canyon - Op2 and 3
Start Emissions

			Start Emissions Factor (grams/trip)						Start Emissions Factor (grams/trip)		
			ROG_STREX	NOX_STREX	CO_STREX	SOx_STREX	PM10_STREX	PM2.5_STREX	CO2_STREX	CH4_STREX	N2O_STREX
2027	2027Hauling	Hauling	0.00060894	2.672142352	0.00302137	3.16557E-07	5.30481E-07	4.87758E-07	0.03202066	7.5498E-08	7.36611E-06
2027	2027Vendor	Vendor	0.080213538	1.961946447	0.60365405	5.50826E-05	6.07836E-05	5.58883E-05	5.57177064	0.005494835	0.004037678
2027	2027Worker	Worker	1.038950633	0.251050817	3.01934346	0.000691936	0.002053348	0.001887978	69.9913431	0.06616369	0.030829475
2028	2028Hauling	Hauling	0.000490696	2.636914961	0.00257595	2.71845E-07	4.29594E-07	3.94995E-07	0.02749789	6.56178E-08	5.97594E-06
2028	2028Vendor	Vendor	0.075419112	1.927915654	0.55968909	5.22383E-05	5.76932E-05	5.30468E-05	5.28405692	0.005169504	0.003780947
2028	2028Worker	Worker	0.997046953	0.239560346	2.85187017	0.000675557	0.001941969	0.001785569	68.3345653	0.062483886	0.030029939
2029	2029Hauling	Hauling	0.000383539	2.591170334	0.00214107	2.33546E-07	3.28727E-07	3.02252E-07	0.02362391	5.62127E-08	4.65545E-06
2029	2029Vendor	Vendor	0.069289941	1.883995908	0.51714657	4.94212E-05	5.46034E-05	5.02058E-05	4.99909929	0.004852786	0.003548842
2029	2029Worker	Worker	0.945798618	0.229251267	2.69630558	0.000660221	0.001832244	0.00168468	66.7833	0.059077063	0.029313823
2030	2030Hauling	Hauling	0.00027279	2.546881303	0.00161285	1.92445E-07	2.06187E-07	1.89581E-07	0.01946637	4.71315E-08	4.0595E-06
2030	2030Vendor	Vendor	0.063656597	1.839529651	0.47865041	4.67001E-05	5.18671E-05	4.76899E-05	4.72385215	0.004565454	0.003322989
2030	2030Worker	Worker	0.901632052	0.219772527	2.55165593	0.00064583	0.001725708	0.001586724	65.3276344	0.055883281	0.028658371
2031	2031Hauling	Hauling	0.000210057	2.503276097	0.00139863	1.66951E-07	1.58801E-07	1.46012E-07	0.01688763	4.13015E-08	2.64568E-06
2031	2031Vendor	Vendor	0.059141215	1.792713918	0.44197461	4.38654E-05	4.91716E-05	4.52115E-05	4.43711805	0.004280254	0.003105544
2031	2031Worker	Worker	0.857879142	0.211029605	2.41545051	0.000632455	0.001621689	0.001491083	63.974738	0.052892816	0.028060877
	GWP			N/A					1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Grading/Excavation	2030													
Total Haul Trips	200													
Hauling	6	43	8	36.5	0.00	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.08	0.02	0.23	0.00	0.00	0.00	0.56	0.00	0.00	0.64
Demolition NB Road/Bridg	2031													
Total Haul Trips	0													
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.08	0.02	0.21	0.00	0.00	0.00	0.15	0.00	0.00	0.17
Construct NB Road/Bridge	2031													
Total Haul Trips	200													
Hauling	6	43	8	36.5	0.00	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.08	0.02	0.21	0.00	0.00	0.00	0.16	0.00	0.00	0.18
Construct NB Road/Bridge	2031													
Total Haul Trips	330													
Hauling	4	152	8	36.5	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.08	0.02	0.21	0.00	0.00	0.00	0.55	0.00	0.00	0.63
Construct NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	23	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.08	0.02	0.21	0.00	0.00	0.00	0.08	0.00	0.00	0.09

Topanga Canyon - Op2 and 3
Idling Emissions

			Idling Emissions Factor (grams/minute)						Idling Emissions Factor (grams/minute)		
			ROG_IDLEX	NOx_IDLEX	CO_IDLEX	SOx_IDLEX	PM10_IDLEX	PM2.5_IDLEX	CO2_IDLEX	CH4_IDLEX	N2O_IDLEX
2027	2027Hauling	Hauling	0.07592279	0.881696127	1.19921987	0.00159973	0.00047074	0.00044926	181.442358	0.03427011	0.02916541
2027	2027Vendor	Vendor	0.05529965	0.899602458	1.04932075	0.00167506	0.00086494	0.00082645	186.589554	0.03155173	0.02918792
2027	2027Worker	Worker	0	0	0	0	0	0	0	0	0
2028	2028Hauling	Hauling	0.07529788	0.857767875	1.19214339	0.00156045	0.00045204	0.00043133	177.300744	0.03377364	0.02851321
2028	2028Vendor	Vendor	0.05432839	0.863093228	1.0395891	0.00163993	0.00074988	0.00071632	182.978932	0.03134729	0.02865517
2028	2028Worker	Worker	0	0	0	0	0	0	0	0	0
2029	2029Hauling	Hauling	0.07461794	0.835480721	1.18399992	0.00152188	0.00043143	0.00041158	173.194944	0.03323976	0.02786481
2029	2029Vendor	Vendor	0.05333308	0.827999465	1.02749811	0.0016013	0.00065239	0.00062302	178.951612	0.03104801	0.02805443
2029	2029Worker	Worker	0	0	0	0	0	0	0	0	0
2030	2030Hauling	Hauling	0.07391144	0.816007794	1.17493744	0.0014846	0.00041331	0.00039421	169.186161	0.03269373	0.0272299
2030	2030Vendor	Vendor	0.05232472	0.795299763	1.01321823	0.00155966	0.00057171	0.0005458	174.561724	0.03067462	0.02739395
2030	2030Worker	Worker	0	0	0	0	0	0	0	0	0
2031	2031Hauling	Hauling	0.0732853	0.799579641	1.1664382	0.00145061	0.00039768	0.00037924	165.457521	0.03205186	0.02663599
2031	2031Vendor	Vendor	0.05130878	0.763402339	0.99683404	0.00151522	0.00050437	0.00048136	169.805962	0.03011968	0.02667472
2031	2031Worker	Worker	0	0	0	0	0	0	0	0	0
		GWP	N/A	N/A	N/A	N/A	N/A	N/A	1	25	298

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	Idling minutes per Day	Regional Emissions (pounds/day) ROG	NOX	CO	SO2	PM10	PM2.5	Regional Emissions (MT/year) CO2	CH4	N2O	CO2e
Grading/Excavation	2030													
Total Haul Trips	200													
Hauling	6	43	8	15	0.01	0.16	0.23	0.00	0.00	0.00	0.51	0.00	0.02	0.53
Vendor	0	214	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	43	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2031													
Total Haul Trips	200													
Hauling	6	43	8	15	0.01	0.16	0.23	0.00	0.00	0.00	0.50	0.00	0.02	0.52
Vendor	0	61	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2031													
Total Haul Trips	330													
Hauling	4	152	8	15	0.01	0.11	0.15	0.00	0.00	0.00	0.82	0.00	0.04	0.86
Vendor	0	214	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct NB Road/Bridge	2031													
Total Haul Trips	0													
Hauling	0	23	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Topanga Canyon - Op2 and 3
Road Dust, Break Wear, and Tire wear Emissions

			Emission Factors (grams/mile)					
			PM10			PM2.5		
			RD	PM10_PMBW	PM10_PMTW	RD	PM2.5_PMBW	PM2.5_PMTW
2027	2027Hauling	Hauling	0.29984991	0.084297987	0.03545106	0.07359952	0.0295043	0.00886277
2027	2027Vendor	Vendor	0.29984991	0.063623189	0.02372553	0.07359952	0.02226812	0.00593138
2027	2027Worker	Worker	0.29984991	0.009305649	0.008	0.07359952	0.00325698	0.002
2028	2028Hauling	Hauling	0.29984991	0.084486989	0.03545475	0.07359952	0.02957045	0.00886369
2028	2028Vendor	Vendor	0.29984991	0.063544145	0.02372738	0.07359952	0.02224045	0.00593184
2028	2028Worker	Worker	0.29984991	0.009284129	0.008	0.07359952	0.00324945	0.002
2029	2029Hauling	Hauling	0.29984991	0.084584422	0.03545835	0.07359952	0.02960455	0.00886459
2029	2029Vendor	Vendor	0.29984991	0.063359545	0.02372918	0.07359952	0.02217584	0.00593229
2029	2029Worker	Worker	0.29984991	0.00926272	0.008	0.07359952	0.00324195	0.002
2030	2030Hauling	Hauling	0.29984991	0.08460378	0.03546191	0.07359952	0.02961132	0.00886548
2030	2030Vendor	Vendor	0.29984991	0.063078834	0.02373095	0.07359952	0.02207759	0.00593274
2030	2030Worker	Worker	0.29984991	0.00924132	0.008	0.07359952	0.00323446	0.002
2031	2031Hauling	Hauling	0.29984991	0.084504548	0.03546578	0.07359952	0.02957659	0.00886644
2031	2031Vendor	Vendor	0.29984991	0.062682863	0.02373289	0.07359952	0.021939	0.00593322
2031	2031Worker	Worker	0.29984991	0.009221285	0.008	0.07359952	0.00322745	0.002

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Regional Emissions (pounds/day)					
					PM10			PM2.5		
					RD	BW	TW	RD	BW	TW
Grading/Excavation	2030									
Total Haul Trips	200									
Hauling	6	43	8	36.5	0.14	0.04	0.02	0.04	0.01	0.00
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Demolition NB Road/Bridge	2031									
Total Haul Trips	0									
Hauling	0	43	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	59	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	59	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2031									
Total Haul Trips	200									
Hauling	6	43	8	36.5	0.14	0.04	0.02	0.04	0.01	0.00
Vendor	0	61	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	61	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2031									
Total Haul Trips	330									
Hauling	4	152	8	36.5	0.10	0.03	0.01	0.02	0.01	0.00
Vendor	0	214	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	214	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00
Construct NB Road/Bridge	2031									
Total Haul Trips	0									
Hauling	0	23	8	36.5	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0	31	8	10.2	0.00	0.00	0.00	0.00	0.00	0.00
Worker	40	31	8	18.5	0.49	0.02	0.01	0.12	0.01	0.00

Topanga Canyon - Op2 and 3
Road Dust

Paved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,P} = (k\ (sL)^{0.91} \times (W)^{1.02})$

Where:

$EF_{Dust,P}$ =	Paved Road Dust Emission Factor (having the same units as k)
k =	particle size multiplier
sL =	road surface silt loading (g/m^2)
W =	average fleet vehicle weight (tons) (CARB uses 2.4 tons as a fleet average vehicle weight factor)

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	0.9979	0.2449
sL	0.1	0.1
W	2.4	2.4
$EF_{Dust,P}$	3.00E-01	7.36E-02

Unpaved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,U} = (k\ (\ s / 12)^{1} \times (Sp / 30)^{0.5} / (M / 0.5)^{0.2}) - C)$

Where:

$EF_{Dust,U}$ =	Unpaved Road Dust Emission Factor (having the same units as k)
k =	particle size multiplier
s =	surface material silt content (%)
Sp =	mean vehicle speed (mph)
M =	surface material moisture content (%)
C =	Emission Factor for 1980s vehicle fleet exhaust, brake wear, and tire wear

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	816.47	81.65
s	4.3%	4.3%
Sp	15	15
M	0.5%	0.5%
C	0.00047	0.00036
$EF_{Dust,U}$	5.20E+00	5.19E-01

Sources:

SCAQMD, CalEEMod, Version 2022.1.

CARB, *Entrained Dust from Paved Road Travel: Emission Estimation Methodology Background Document* , (1997).

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ESA, 2023.

N-3.5-2 Option 3 Construction Modeling

Topanga-Op3-Con Detailed Report

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1.1. Basic Project Information

Data Field	Value
Project Name	Topanga-Op3-Con
Construction Start Date	1/1/2031
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	4.60
Location	18711 Pacific Coast Hwy, Malibu, CA 90265, USA
County	Los Angeles-South Coast
City	Unincorporated
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3802
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Asphalt Surfaces	40.0	1000sqft	0.92	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.01	1.69	12.2	16.2	0.03	0.53	2.76	3.29	0.49	1.34	1.82	—	3,713	3,713	0.15	0.03	0.00	3,726
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.01	1.69	12.2	16.2	0.03	0.53	2.76	3.29	0.49	1.34	1.82	—	3,713	3,713	0.15	0.03	0.00	3,726
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.99	0.84	6.66	8.55	0.02	0.29	0.46	0.75	0.26	0.22	0.49	—	1,853	1,853	0.08	0.02	0.00	1,859
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18	0.15	1.22	1.56	< 0.005	0.05	0.08	0.14	0.05	0.04	0.09	—	307	307	0.01	< 0.005	0.00	308

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2031	2.01	1.69	12.2	16.2	0.03	0.53	2.76	3.29	0.49	1.34	1.82	—	3,713	3,713	0.15	0.03	0.00	3,726
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	2.01	1.69	12.2	16.2	0.03	0.53	2.76	3.29	0.49	1.34	1.82	—	3,713	3,713	0.15	0.03	0.00	3,726
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	0.99	0.84	6.66	8.55	0.02	0.29	0.46	0.75	0.26	0.22	0.49	—	1,853	1,853	0.08	0.02	0.00	1,859
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	0.18	0.15	1.22	1.56	< 0.005	0.05	0.08	0.14	0.05	0.04	0.09	—	307	307	0.01	< 0.005	0.00	308

3. Construction Emissions Details

3.1. Demolition (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	2.48	3.93	0.01	0.05	—	0.05	0.04	—	0.04	—	574	574	0.02	< 0.005	—	576
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.05	0.04	0.40	0.63	< 0.005	0.01	—	0.01	0.01	—	0.01	—	92.8	92.8	< 0.005	< 0.005	—	93.1
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.4	15.4	< 0.005	< 0.005	—	15.4
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.01	1.69	12.2	16.2	0.03	0.53	—	0.53	0.49	—	0.49	—	3,713	3,713	0.15	0.03	—	3,726
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.01	1.69	12.2	16.2	0.03	0.53	—	0.53	0.49	—	0.49	—	3,713	3,713	0.15	0.03	—	3,726
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34	0.28	2.04	2.71	0.01	0.09	—	0.09	0.08	—	0.08	—	621	621	0.03	0.01	—	623
Dust From Material Movement	—	—	—	—	—	—	0.46	0.46	—	0.22	0.22	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.37	0.49	< 0.005	0.02	—	0.02	0.01	—	0.01	—	103	103	< 0.005	< 0.005	—	103
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.68	5.63	6.94	0.02	0.25	—	0.25	0.23	—	0.23	—	1,596	1,596	0.06	0.01	—	1,601
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.68	5.63	6.94	0.02	0.25	—	0.25	0.23	—	0.23	—	1,596	1,596	0.06	0.01	—	1,601
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.40	3.30	4.07	0.01	0.15	—	0.15	0.14	—	0.14	—	936	936	0.04	0.01	—	939
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.60	0.74	< 0.005	0.03	—	0.03	0.03	—	0.03	—	155	155	0.01	< 0.005	—	155
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Paving (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.58	1.33	10.8	13.4	0.02	0.50	—	0.50	0.46	—	0.46	—	2,404	2,404	0.10	0.02	—	2,412
Paving	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.92	1.14	< 0.005	0.04	—	0.04	0.04	—	0.04	—	204	204	0.01	< 0.005	—	205
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	33.8	33.8	< 0.005	< 0.005	—	33.9
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/1/2031	2/28/2031	7.00	59.0	—
Grading	Grading	3/1/2031	4/30/2031	7.00	61.0	—
Building Construction	Building Construction	5/1/2031	11/30/2031	7.00	214	—
Paving	Paving	12/1/2031	12/31/2031	7.00	31.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Demolition	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Off-Highway Trucks	Diesel	Average	1.00	8.00	376	0.38
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Building Construction	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Paving	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Paving	Graders	Diesel	Average	1.00	8.00	148	0.41

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	0.00	18.5	LDA,LDT1,LDT2

Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	0.00	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	0.00	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	0.00	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	—	—
Grading	0.00	1,000	43.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.92

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Asphalt Surfaces	0.92	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2031	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.96	annual days of extreme heat
Extreme Precipitation	5.90	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	20.5	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	—
AQ-PM	—
AQ-DPM	—
Drinking Water	—
Lead Risk Housing	—
Pesticides	—
Toxic Releases	—
Traffic	—
Effect Indicators	—
CleanUp Sites	—
Groundwater	—
Haz Waste Facilities/Generators	—
Impaired Water Bodies	—

Solid Waste	—
Sensitive Population	—
Asthma	—
Cardio-vascular	—
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	—
Housing	—
Linguistic	—
Poverty	—
Unemployment	—

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	89.34941614
Employed	19.02989863
Median HI	97.69023483
Education	—
Bachelor's or higher	88.59232645
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	93.63531374
Active commuting	12.16476325
Social	—

2-parent households	42.29436674
Voting	82.35596048
Neighborhood	—
Alcohol availability	89.4649044
Park access	38.81688695
Retail density	42.06339022
Supermarket access	2.399589375
Tree canopy	71.42307199
Housing	—
Homeownership	65.75131528
Housing habitability	87.501604
Low-inc homeowner severe housing cost burden	64.24996792
Low-inc renter severe housing cost burden	88.91312717
Uncrowded housing	62.10701912
Health Outcomes	—
Insured adults	89.59322469
Arthritis	0.0
Asthma ER Admissions	99.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	77.8
Cognitively Disabled	87.2
Physically Disabled	55.6

Heart Attack ER Admissions	99.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	93.4
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	99.5
SLR Inundation Area	38.8
Children	43.1
Elderly	11.5
English Speaking	77.4
Foreign-born	54.6
Outdoor Workers	85.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	79.5
Traffic Density	81.9
Traffic Access	23.0
Other Indices	—
Hardship	5.4
Other Decision Support	—
2016 Voting	60.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	—
Healthy Places Index Score for Project Location (b)	90.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	see construction assumptions
Construction: Off-Road Equipment	see construction assumptions
Construction: Trips and VMT	construction mobile calculated outside of CalEEMod.
Construction: Dust From Material Movement	see construction assumptions

Topanga Lagoon Restoration Project

Appendix N-4

Noise Technical Appendix

1. Construction Noise Modeling

Topanga Lagoon Restoration Project

1. Construction Noise Modeling

Project: Topanga Lagoon Restoration - Project + Option 2

Construction Noise Impact on Sensitive Receptors

				R1					R2					R3				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Demolition/Renovation & Temp Parking Provisions					***78***	***74***		**0**		***73***	***68***				***84***	***80***		
Excavator	2	81	40%	100	78	74	77	0	200	72	68	71	0	50	84	80	83	0
Mounted Impact Hammer (hoe ram)	1	90	20%	620	68	61	64	0	1165	63	56	59	0	650	68	61	64	0
Front End Loader	1	79	40%	1840	48	44	47	0	2685	44	40	43	0	1350	50	46	49	0
Dozer	1	82	40%	620	60	56	59	0	1165	55	51	54	0	650	60	56	59	0
Grader	1	85	40%	1840	54	50	53	0	2685	50	46	49	0	1350	56	52	55	0
Paver	1	77	50%	620	54	51	54	1	1165	50	47	50	0	650	55	52	55	0
Roller	2	80	20%	1840	50	43	46	2	2685	48	41	44	0	1350	54	47	50	0
Unsuitable Material Replacement					***75***	***72***		**0**		***69***	***66***		**0**		***81***	***77***		**0**
Excavator	1	81	40%	100	75	71	74	0	200	69	65	68	0	50	81	77	80	0
Other Equipment	1	85	50%	620	63	60	63	0	1165	58	55	58	0	650	63	60	63	0
Front End Loader	1	79	40%	1840	48	44	47	0	2685	44	40	43	0	1350	50	46	49	0
Dozer	1	82	40%	620	60	56	59	0	1165	55	51	54	0	650	60	56	59	0
Grader	1	85	40%	1840	54	50	53	0	2685	50	46	49	0	1350	56	52	55	0
Relocate Utilities					***75***	***71***		**0**		***69***	***65***		**0**		***81***	***77***		**0**
Excavator	1	81	40%	100	75	71	74	0	200	69	65	68	0	50	81	77	80	0
Dump Truck	1	76	40%	620	54	50	53	0	1165	49	45	48	0	650	54	50	53	0
Front End Loader	1	79	40%	1840	48	44	47	0	2685	44	40	43	0	1350	50	46	49	0
Construct Temporary Road/Bridge					***79***	***75***		**0**		***73***	***69***		**0**		***85***	***81***		**0**
Excavator	1	81	40%	100	75	71	74	0	200	69	65	68	0	50	81	77	80	0
Other Equipment	1	85	50%	620	63	60	63	0	1165	58	55	58	0	650	63	60	63	0
Front End Loader	1	79	40%	1840	48	44	47	0	2685	44	40	43	0	1350	50	46	49	0
Dozer	1	82	40%	100	76	72	75	0	200	70	66	69	0	50	82	78	81	0
Grader	1																	
Construct Temporary Road/Bridge					***83***	***76***		**0**		***77***	***70***		**0**		***89***	***82***		**0**
Jackhammer	1	89	20%	100	83	76	79	0	200	77	70	73	0	50	89	82	85	0
Forklift	1	75	10%	620	53	43	46	0	1165	48	38	41	0	650	53	43	46	0
Crane	1	81	16%	1840	50	42	45	0	2685	46	38	41	0	1350	52	44	47	0
Tractor	1	84	40%	620	62	58	61	0	1165	57	53	56	0	650	62	58	61	0
Generator	1	81	50%	1840	50	47	50	0	2685	46	43	46	0	1350	52	49	52	0
Construct Temporary Road/Bridge					***74***	***68***				***68***	***62***				***80***	***73***		
Dozer	1	82	40%	1840	51	47	50	0	2685	47	43	46	0	1350	53	49	52	0
Grader	1	85	40%	620	63	59	62	0	1165	58	54	57	0	650	63	59	62	0
Paver	1	77	50%	620	55	52	55	0	1165	50	47	50	0	650	55	52	55	0
Roller	1	80	20%	100	74	67	70	0	200	68	61	64	0	50	80	73	76	0
Demolition NB Road/Bridge					***78***	***74***				***72***	***68***				***84***	***80***		
Excavator	2	81	40%	100	78	74	77	0	200	72	68	71	0	50	84	80	83	0
Mounted Impact Hammer (hoe ram)	1	90	20%	620	68	61	64	0	1165	63	56	59	0	650	68	61	64	0
Front End Loader	1	79	40%	1840	48	44	47	0	2685	44	40	43	0	1350	50	46	49	0
Construct NB Road/Bridge					***75***	***71***				***69***	***65***				***81***	***77***		
Excavator	1	81	40%	100	75	71	74	0	200	69	65	68	0	50	81	77	80	0
Other Equipment	1	85	50%	620	63	60	63	0	1165	58	55	58	0	650	63	60	63	0
Front End Loader	1	79	40%	1840	48	44	47	0	2685	44	40	43	0	1350	50	46	49	0
Dozer	1	82	40%	620	60	56	59	0	1165	55	51	54	0	650	60	56	59	0
Grader	1	85	40%	1840	54	50	53	0	2685	50	46	49	0	1350	56	52	55	0
Construct NB Road/Bridge					***83***	***76***				***77***	***70***				***89***	***82***		
Jackhammer	1	89	20%	100	83	76	79	0	200	77	70	73	0	50	89	82	85	0
Forklift	1	75	10%	620	53	43	46	0	1165	48	38	41	0	650	53	43	46	0
Crane	1	81	16%	1840	50	42	45	0	2685	46	38	41	0	1350	52	44	47	0
Tractor	1	84	40%	620	62	58	61	0	1165	57	53	56	0	650	62	58	61	0

				R1					R2					R3				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Construct NB Road/Bridge					***76***	***72***				***70***	***66***				***82***	***78***		
Dozer	1	82	40%	100	76	72	75	0	200	70	66	69	0	50	82	78	81	0
Grader	1	85	40%	620	63	59	62	0	1165	58	54	57	0	650	63	59	62	0
Paver	1	77	50%	1840	46	43	46	0	2685	42	39	42	0	1350	48	45	48	0
Roller	1	80	20%	620	58	51	54	0	1165	53	46	49	0	650	58	51	54	0
Demolition SB Road/Bridge					***78***	***74***				***72***	***68***				***84***	***80***		
Excavator	2	81	40%	100	78	74	77	0	200	72	68	71	0	50	84	80	83	0
Mounted Impact Hammer (hoe ram)	1	90	20%	620	68	61	64	0	1165	63	56	59	0	650	68	61	64	0
Front End Loader	1	79	40%	1840	48	44	47	0	2685	44	40	43	0	1350	50	46	49	0
Construct SB Road/Bridge					***75***	***71***				***69***	***65***				***81***	***77***		
Excavator	1	81	40%	100	75	71	74	0	200	69	65	68	0	50	81	77	80	0
Other Equipment	1	85	50%	620	63	60	63	0	1165	58	55	58	0	650	63	60	63	0
Front End Loader	1	79	40%	1840	48	44	47	0	2685	44	40	43	0	1350	50	46	49	0
Dozer	1	82	40%	620	60	56	59	0	1165	55	51	54	0	650	60	56	59	0
Grader	1	85	40%	1840	54	50	53	0	2685	50	46	49	0	1350	56	52	55	0
Construct SB Road/Bridge					***83***	***76***				***77***	***70***				***89***	***82***		
Jackhammer	1	89	20%	100	83	76	79	0	200	77	70	73	0	50	89	82	85	0
Forklift	1	75	10%	620	53	43	46	0	1165	48	38	41	0	650	53	43	46	0
Crane	1	81	16%	1840	50	42	45	0	2685	46	38	41	0	1350	52	44	47	0
Tractor	1	84	40%	620	62	58	61	0	1165	57	53	56	0	650	62	58	61	0
Construct SB Road/Bridge					***70***	***66***				***64***	***60***				***76***	***72***		
Dump Truck	1	76	40%	100	70	66	69	0	200	64	60	63	0	50	76	72	75	0
Dozer	1	82	40%	620	60	56	59	0	1165	55	51	54	0	650	60	56	59	0
Grader	1	85	40%	1840	54	50	53	0	2685	50	46	49	0	1350	56	52	55	0
Paver	1	77	50%	620	55	52	55	0	1165	50	47	50	0	650	55	52	55	0
Roller	1	80	20%	1840	49	42	45	0	2685	45	38	41	0	1350	51	44	47	0
Demolition Temporary Bridge					***78***	***74***				***72***	***68***				***84***	***80***		
Excavator	2	81	40%	100	78	74	77	0	200	72	68	71	0	50	84	80	83	0
Mounted Impact Hammer (hoe ram)	1	90	20%	620	68	61	64	0	1165	63	56	59	0	650	68	61	64	0
Front End Loader	1	79	40%	1840	48	44	47	0	2685	44	40	43	0	1350	50	46	49	0
Construct DBH Facilities(Lifeguard HQ/Helipad)					***83***	***76***				***77***	***70***				***89***	***82***		
Jackhammer	1	89	20%	100	83	76	79	0	200	77	70	73	0	50	89	82	85	0
Forklift	1	75	10%	620	53	43	46	0	1165	48	38	41	0	650	53	43	46	0
Crane	1	81	16%	1840	50	42	45	0	2685	46	38	41	0	1350	52	44	47	0
Tractor	1	84	40%	620	62	58	61	0	1165	57	53	56	0	650	62	58	61	0
Seepage Pit (Option 2)					***75***	***71***				***69***	***65***				***81***	***77***		
Excavator	1	81	40%	100	75	71	74	0	200	69	65	68	0	50	81	77	80	0
Grader	1	85	40%	620	63	59	62	0	1165	58	54	57	0	650	63	59	62	0
Pumps	1	81	50%	1840	50	47	50	0	2685	46	43	46	0	1350	52	49	52	0
Lagoon Grading					***75***	***71***				***69***	***65***				***81***	***77***		
Excavator	1	81	40%	100	75	71	74	0	200	69	65	68	0	50	81	77	80	0
Grader	1	85	40%	620	63	59	62	0	1165	58	54	57	0	650	63	59	62	0
Other Equipment	1	85	50%	1840	54	51	54	0	2685	50	47	50	0	1350	56	53	56	0
Restore Beach Area					***72***	***68***				***66***	***62***				***78***	***74***		
Tractor/Loader/Backhoe	1	78	40%	100	72	68	71	0	200	66	62	65	0	50	78	74	77	0
Grader	1	85	40%	620	63	59	62	0	1165	58	54	57	0	650	63	59	62	0
Visitor Center Site Preparation					***72***	***68***				***66***	***62***				***78***	***74***		
Tractor/Loader/Backhoe	1	78	40%	100	72	68	71	0	200	66	62	65	0	50	78	74	77	0
Grader	1	85	40%	620	63	59	62	0	1165	58	54	57	0	650	63	59	62	0
Visitor Center Grading					***79***	***75***				***73***	***69***				***85***	***81***		
Grader	1	85	40%	100	79	75	78	0	200	73	69	72	0	50	85	81	84	0
Dozer	1	82	40%	620	60	56	59	0	1165	55	51	54	0	650	60	56	59	0
Tractor/Loader/Backhoe	1	78	40%	1840	47	43	46	0	2685	43	39	42	0	1350	49	45	48	0
Visitor Center Building Construction					***75***	***67***				***69***	***61***				***81***	***73***		
Crane	1	81	16%	100	75	67	70	0	200	69	61	64	0	50	81	73	76	0
Forklift	2	75	10%	620	56	46	49	0	1165	51	41	44	0	650	56	46	49	0
Tractor/Loader/Backhoe	2	78	40%	1840	50	46	49	0	2685	46	42	45	0	1350	52	48	51	0
Visitor Center Paving					***79***	***75***				***73***	***69***				***85***	***81***		
Concrete Mixer Truck	4	79	40%	100	79	75	78	0	200	73	69	72	0	50	85	81	84	0
Paver	1	77	50%	620	55	52	55	0	1165	50	47	50	0	650	55	52	55	0
Roller	1	80	20%	1840	49	42	45	0	2685	45	38	41	0	1350	51	44	47	0
Tractor/Loader/Backhoe	1	78	40%	620	56	52	55	0	1165	51	47	50	0	650	56	52	55	0
Visitor Center Architectural Coating					***72***	***68***				***66***	***62***				***78***	***74***		
Compressor (air)	1	78	40%	100	72	68	71	0	200	66	62	65	0	50	78	74	77	0
Overlapping Phases																		
Demolition & Temp Parking Provisions/Unsuitable Material Replacement						**76.1**					**70.2**					**81.9**		
Demolition & Temp Parking Provisions/Unsuitable Material Replacement/Relocate Utilities						**77.3**					**71.3**					**83.1**		
Relocate Utilities/Construct Temporary Road and Bridge						**76.3**					**70.3**					**82.2**		
Relocate Utilities/Construct Temporary Road and Bridge						**78.2**					**72.2**					**84.2**		
Vistor Center Building construction/Pacing.Architectural Coating						**76.3**					**70.3**					**82.4**		
Maximum Combined Noise Levels						**78.2**					**72.2**					**84.2**		

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Topanga Lagoon Restoration - Option 3

Construction Noise Impact on Sensitive Receptors

				R1					R2					R3				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Demolition/Renovation & Temp Parking Provisions					***63***	***58***				***80***	***76***				***77***	***73***		
Excavator	2	81	40%	650	62	58	61	0	81	80	76	79	0	115	77	73	76	0
Mounted Impact Hammer (hoe ram)	1	90	20%	2388	56	49	52	0	2100	58	51	54	0	2000	58	51	54	0
Front End Loader	1	79	40%	4300	40	36	39	0	3000	43	39	42	0	3400	42	38	41	0
Sewer - Grading					***60***	***56***				***80***	***76***				***74***	***70***		
Excavator	1	81	40%	650	59	55	58	0	81	77	73	76	0	115	74	70	73	0
Other Equipment	1	85	50%	2388	51	48	51	0	2100	53	50	53	0	2000	53	50	53	0
Front End Loader	1	79	40%	4300	40	36	39	0	3000	43	39	42	0	3400	42	38	41	0
Dozer	1	82	40%	2388	48	44	47	0	81	78	74	77	0	2000	50	46	49	0
Grader	1	85	40%	4300	46	42	45	0	2100	53	49	52	0	3400	48	44	47	0
Sewer - Building Construction					***67***	***60***				***85***	***78***				***82***	***75***		
Jackhammer	1	89	20%	650	67	60	63	0	81	85	78	81	0	115	82	75	78	0
Forklift	1	75	10%	2388	41	31	34	0	2100	43	33	36	0	2000	43	33	36	0
Crane	1	81	16%	4300	42	34	37	0	3000	45	37	40	0	3400	44	36	39	0
Tractor	1	84	40%	2100	52	48	51	0	2388	50	46	49	0	2000	52	48	51	0
Sewer - Paving					***61***	***56***				***78***	***74***				***75***	***71***		
Dozer	1	82	40%	650	60	56	59	0	81	78	74	77	0	115	75	71	74	0
Grader	1	85	40%	2388	51	47	50	0	2100	53	49	52	0	2000	53	49	52	0
Paver	1	77	50%	4300	38	35	38	0	3000	41	38	41	0	3400	40	37	40	0
Roller	1	80	20%	2100	48	41	44	0	2388	46	39	42	0	2000	48	41	44	0
Maximum Combined Noise Levels						**60.0**					**77.8**					**74.8**		

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Table 1. CA/T equipment noise emissions and acoustical usage factors database.

CA/T Noise Emission Reference Levels and Usage Factors						
filename: EQUIPLST.xls						
revised: 7/26/05		Acoustical	Spec 721.560	Actual Measured	No. of Actual	Actual Combined
	Impact	Use Factor	Lmax @ 50ft	Lmax @ 50ft	Data Samples	Lmax @ 50ft
Equipment Description	Device ?	(%)	(dBA, slow)	(dBA, slow)	(Count)	(dBA, slow)
				(samples averaged)		
Other Equipment	No	50%	85	-- N/A --	0	85
Auger Drill Rig	No	20%	85	84	36	84
Tractor/Loader/Backhoe	No	40%	80	78	372	78
Bar Bender	No	20%	80	-- N/A --	0	80
Blasting	Yes	#VALUE!	94	-- N/A --	0	94
Boring Jack Power Unit	No	50%	80	83	1	83
Chain Saw	No	20%	85	84	46	84
Clam Shovel (dropping)	Yes	20%	93	87	4	87
Compactor (ground)	No	20%	80	83	57	83
Compressor (air)	No	40%	80	78	18	78
Concrete Batch Plant	No	15%	83	-- N/A --	0	83
Concrete Mixer Truck	No	40%	85	79	40	79
Concrete Pump Truck	No	20%	82	81	30	81
Concrete Saw	No	20%	90	90	55	90
Crane	No	16%	85	81	405	81
Dozer	No	40%	85	82	55	82
Drill Rig Truck	No	20%	84	79	22	79
Drum Mixer	No	50%	80	80	1	80
Dump Truck	No	40%	84	76	31	76
Excavator	No	40%	85	81	170	81
Flat Bed Truck	No	40%	84	74	4	74
Forklift	No	10%	75			75
Front End Loader	No	40%	80	79	96	79
Generator	No	50%	82	81	19	81
Generator (<25KVA, VMS signs)	No	50%	70	73	74	73
Gradall	No	40%	85	83	70	83
Grader	No	40%	85	-- N/A --	0	85
Grapple (on backhoe)	No	40%	85	87	1	87
Horizontal Boring Hydr. Jack	No	25%	80	82	6	82
Hydra Break Ram	Yes	10%	90	-- N/A --	0	90
Impact Pile Driver	Yes	20%	95	101	11	101
Jackhammer	Yes	20%	85	89	133	89
Man Lift	No	20%	85	75	23	75
Mounted Impact Hammer (hoe ram)	Yes	20%	90	90	212	90
Pavement Scarafier	No	20%	85	90	2	90
Paver	No	50%	85	77	9	77
Pickup Truck	No	40%	55	75	1	75
Pneumatic Tools	No	50%	85	85	90	85
Pumps	No	50%	77	81	17	81
Refrigerator Unit	No	100%	82	73	3	73
Rivit Buster/chipping gun	Yes	20%	85	79	19	79
Rock Drill	No	20%	85	81	3	81
Roller	No	20%	85	80	16	80
Sand Blasting (Single Nozzle)	No	20%	85	96	9	96
Scraper	No	40%	85	84	12	84
Shears (on backhoe)	No	40%	85	96	5	96
Slurry Plant	No	100%	78	78	1	78
Slurry Trenching Machine	No	50%	82	80	75	80
Soil Mix Drill Rig	No	50%	80	-- N/A --	0	80
Tractor	No	40%	84	-- N/A --	0	84
Vacuum Excavator (Vac-truck)	No	40%	85	85	149	85
Vacuum Street Sweeper	No	10%	80	82	19	82
Ventilation Fan	No	100%	85	79	13	79
Vibrating Hopper	No	50%	85	87	1	87
Vibratory Concrete Mixer	No	20%	80	80	1	80
Vibratory Pile Driver	No	20%	95	101	44	101
Warning Horn	No	5%	85	83	12	83
Welder	No	40%	73	74	5	74

Appendix P

Topanga Lagoon Restoration Project Water and Sediment Quality Study Technical Report (ESA 2023) and Water Quality Pre-Construction Baseline Report (RCDSMM and Bay Foundation 2022)

The Appendix herein contains supporting information referenced in the Final Environmental Impact Report. This appendix contains highly detailed figures and other graphic information which are difficult to translate for screen reading software; therefore, the appendix has not been translated into an auditory format. If you have a disability and/or have difficulty accessing any material in this document, please contact us by mail, email, or telephone, and we will work with you to make all reasonable accommodations. Please indicate 1) the nature of the accessibility need; 2) your preferred format; 3) the material you are trying to access and its location within this document; and 4) how to reach you if questions arise while fulfilling your request.

TOPANGA LAGOON RESTORATION PROJECT

Water and Sediment Quality Study Technical Report

Prepared for
Resource Conservation District
of Santa Monica Mountains

February 2024

ESA



TOPANGA LAGOON RESTORATION PROJECT

Water and Sediment Quality Study Technical Report

Prepared for
Resource Conservation District
of Santa Monica Mountains

February 2024

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SECTION 1
Introduction and Background

1.1 Introduction

The California Department of Parks and Recreation (CDPR) has prepared an Environmental Impact Report (EIR) as Lead Agency pursuant to the requirements of the California Environmental Quality Act (CEQA) in coordination with Los Angeles County Department of Beaches and Harbors (DBH) and the California Department of Transportation (Caltrans). The EIR assesses the potential effects of implementing the Topanga Lagoon Restoration Project (hereinafter referred to as "Project"). The Project involves the expansion of the Topanga Creek and Lagoon ecosystem, the replacement of the aging PCH bridge (SR-1 #53-0035), and the relocation of DBH facilities on Topanga Beach under threat of sea level rise (SLR). The Project also evaluates beneficial reuse options for excavated sediment to be placed at a nearshore location near the Project area. Topanga Creek is listed on the Regional Water Quality Control Board (RWQCB) 303(d) list for lead in the upper watershed and bacteria within the Topanga Lagoon and Topanga Beach area. The proposed restoration will include excavation, grading, and disposal of existing lagoon sediment.

Four alternatives were identified to restore the Topanga Lagoon. Three Action (Build) Alternatives and one No Action/Managed Decline or No Build Alternative. These alternatives allow consideration of the benefits and challenges of the different restoration approaches, and a final "preferred" alternative will be selected at the end of the environmental review process that best meets the Project's needs. This Water and Sediment Quality Study Technical Report (WSDQSTR) has been prepared in support of the Project and provides a summary of the existing water and sediment quality conditions as a basis to assess both the water and sediment quality benefits due to the Project and potential impacts to the environment from the Project.

1.2 Project Description

The Project is located on the unincorporated Pacific Ocean coastline at the base of the Santa Monica Mountains of Los Angeles County, California within the Santa Monica Mountains National Recreation Area. The Project area includes two publicly managed areas, lower Topanga State Park managed by CDPR, and Topanga Beach managed by DBH. The closest access to the Project area is from the Pacific Coast Highway (PCH) and Topanga Canyon Boulevard (TCB) (**Figure 1**).

1.2.1 Topanga Lagoon

Topanga Lagoon is in the Topanga Creek watershed within both Topanga State Park and Topanga Beach, at the terminus of Topanga Creek. Topanga Creek drains an 18-square-mile watershed in the Santa Monica Mountains to the Pacific Ocean. It conveys flood flows to the lagoon during rain events and low flows during dry weather. A beach berm, which typically develops during summer wave conditions, seasonally restricts direct flow into the Pacific Ocean. The beach berm is breached during storms with sufficient flow volumes and velocities, and during combined large coastal storm wave and tide events. This episodically allows seawater to inflow into the lagoon, thus creating a connection, and fish passage opportunities (Moffatt & Nichol 2022a). The lagoon crosses under the PCH Caltrans bridge.

Once over 30 acres, the Topanga Lagoon is currently 0.56-acre, and constrained by 30 feet of fill from construction of the PCH bridge on both the east and west sides. Construction of the 1933 bridge destroyed roughly 93 percent of the original lagoon wetland habitat area. Despite the existing use patterns and restrictions, Topanga Lagoon still hosts a robust population of the federally endangered tidewater goby (*Eucyclogobius newberryi)* and the only currently reproducing population of the federally endangered steelhead trout (*Onchorynchus mykiss*) within the Santa Monica Mountains (CDPR and Resource Conservation District of the Santa Monica Mountains [RCD] 2022). The lagoon habitat is significantly degraded due to the importation of fill dirt used to support the PCH bridge that impeded the natural hydrologic connection to the ocean. The current configuration is too constrained to support a healthy ecosystem. The Project would expand the existing lagoon footprint to approximately 7 to 10 acres.

1.2.2 Pacific Coast Highway Bridge

The PCH opened in the late 1920s as part of the Roosevelt Highway, a 1,400-mile road that traced the western margin of the United States. The Roosevelt Highway represented the first direct link between Newport Beach and Laguna Beach and between Ventura and Santa Monica. Passing directly through many beach towns, the Roosevelt Highway was renamed Pacific Coast Highway in 1941 (KCET 2012). The original alignment of PCH in 1920's included an approximately 250 ft bridge that spanned the large lagoon. In 1933, the road within the Project area was moved north, widened and a 79-foot-long bridge (53 0035, Post Mile 40.6-41.2) was constructed over Topanga Lagoon to replace the original longer bridge (Caltrans 2003).

The PCH bridge does not currently qualify for removal based on condition, although it was built in 1933. However, it's replacement is listed as the top priority fish passage restoration project for Caltrans District 7 in the California Fish Passage Assessment Database (PAD 716891) and is also identified as a priority recovery action by the National Oceanic and Atmospheric Administration (NOAA) Southern California Steelhead Recovery Plan (2012). In addition, Caltrans is contributing Independent Quality Assurance efforts to support the Proposed Project to end of construction at no cost because the project benefits the environment, the region, the economy, and the State Highway System. In coordination with Caltrans, the Proposed Project would lengthen the PCH bridge to 460 ft to accommodate the restoration and expansion of the lagoon.



SOURCE: NearMap, 2022-02-03 (Aerial); ESA, 2022

Topanga Lagoon Restoration Project

Figure 1

Project Location

ESA

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1.2.3 Topanga Beach

Topanga Beach is located just south of where TCB meets the Pacific Ocean at PCH. Topanga Beach includes an ocean frontage of 21.5 acres, receives approximately 750,000 visitors each year and is popular with surfers due to the orientation of the beach (DBH 2021). Topanga Beach is accessible via Bus 534 at stop PCH and TCB and provides a metered parking lot, beach wheelchairs, restrooms, a picnic area, and showers. Like other beaches along the coastline, future SLR is a threat to Topanga Beach. According to the high estimates of SLR scenario, beach erosion analysis suggests that Topanga Beach could lose the entire beach by 2040 (Noble 2016). To protect essential visitor services at Topanga Beach, the Proposed Project would relocate the beach parking lot, lifeguard headquarters and restroom, and helipad inland and upslope.

1.3 Project Objectives and Purpose

The objectives of the Proposed Project are as follows:

- Expand the lagoon ecosystem to improve estuarine hydrologic functions and to protect endangered species.
- Enhance coastal resilience for essential facilities in the Project area.
- Optimize beneficial reuse of excavated sediment by increasing sediment replenishment via nearshore placement and long-term conveyance increased by a wider bridge to the littoral cell while maintaining the integrity of the surf break.
- Protect the surf break and beach recreation.
- Improve water quality and restore coastal wetland habitat and species diversity within the Topanga Creek watershed.
- Increase safety and coastal access for pedestrians and cyclists, including for visitors with disabilities.
- Improve evacuation and emergency service routes through the Project area.
- Improve and enhance coastal access and recreational facilities.
- Manage and maintain the lagoon ecosystem consistent with the guidelines in the Topanga State Park General Plan.
- Replace the narrow 1933 PCH bridge to accommodate lagoon restoration and recovery of anadromous steelhead trout.
- Establish a visitor-serving “Gateway Corner” at the northwest corner of the intersection of PCH and TCB, consistent with the Topanga State Park General Plan goal of providing a coastal gateway to the park.
- Manage historic and archaeological resources in the Project area consistent with the guidelines in the Topanga State Park General Plan

The purpose for the Project is to: restore the ecosystem, especially habitat for two federally protected species, the tidewater goby and the steelhead trout; and protect and enhance visitor services by providing resiliency against SLR and beach erosion. The Project provides habitat improvement but also addresses future coastal resilience and SLR planning.

1.4 Existing Water Quality

The Project area is located in the Santa Monica Bay Watershed Management Area (WMA). The two largest watersheds within the WMA are Malibu Creek and Ballona Creek. The smaller Topanga Creek Watershed is located partway between Malibu and Ballona. Many of the beaches within the WMA are impaired for bacteria, while the nearshore and offshore zones are impaired due to polychlorinated biphenyls (PCBs) and dichloro-diphenyl-trichloroethane (DDT).

The State Water Resources Control Board and Los Angeles County Regional Water Board manage surface water quality in the Project area by establishing statewide water quality control policies and regulations. The *Los Angeles County Regional Water Board's Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (Basin Plan) contains the Region's water quality regulations and programs to implement the regulations. The Basin Plan is a resource for the Regional Board and others who use water and/or discharge wastewater in the Los Angeles Region. Following adoption by the Regional Board, the Basin Plan and subsequent amendments are subject to approval by the State Water Board, the State Office of Administrative Law, and the United States Environmental Protection Agency (USEPA).

A Total Maximum Daily Load (TMDL) is a numerical determination of the maximum amount of a given pollutant that a surface water can absorb and still meet the water quality standards that protect human health and aquatic life. Waterbodies that do not meet water quality standards are identified as "impaired" for the particular pollutants of concern and TMDLs must be developed, adopted and implemented to reduce those pollutants and clean up the waterbody. A TMDL determines a pollutant reduction target and allocates load reductions necessary to the source(s) of the pollutant.

Topanga Beach is State 303(d) listed as impaired for Indicator Bacteria from a nonpoint source. A TMDL has been established since 2003 for Topanga Beach. Topanga Creek does not have an established TMDL but is also State 303(d) listed as impaired for lead from an unknown source. Pollutant assessments for Topanga Beach and Topanga Creek are listed in **Table 1**. Water and sediment quality sampling and monitoring at Topanga Lagoon has occurred since the 2000s (**Table 2)**.

TABLE 1
303(D) POLLUTANT ASSESSMENTS IN TOPANGA BEACH AND TOPANGA CREEK

Water Body	Pollutant	Source
Topanga Canyon Creek	Lead (Metals)	A Source Unknown
Topanga Beach	Indicator Bacteria (Pathogens)	Nonpoint Source
Topanga Beach*	DDT (Dichlorodiphenyltrichloroethane) (Pesticides)	A Source Unknown
Topanga Beach*	PCBs (Polychlorinated biphenyls) (Toxic Organics)	A Source Unknown

* The Santa Monica Bay Watershed Management Area (WMA) is listed as impaired due to DDT and PCBs in the nearshore and offshore zones (RWQCB 2022a). Topanga Beach is within the Bay, which is why it is included in the 303(d) listing.

TABLE 2
PRIOR WATER AND SEDIMENT QUALITY STUDIES

Report	Date	Author
Water Quality Pre-Construction Baseline Report	June 2022	RCD and The Bay Foundation
Water Quality Study	October 2004	RCD
A Regional Survey of the extent and magnitude of eutrophication in Mediterranean estuaries of southern California, USA	August 2013	McLaughlin et al
Topanga Source ID Study	October 2014	Dagit et al
Long-term monitoring of molecular markers can distinguish different seasonal patterns of fecal indicating bacteria sources	March 2015	Riedel et al
Jurisdictional Delineation Report	August 2020	WRA
Ecohydrology Report: Fish Passage, Fish Habitat Suitability, and Habitat Zone Elevations	January 2022	ESA
Beneficial Reuse Soil Characterization	April 2022	GeoPentech
Initial Site Assessment	May 2022	Geocon
Technical Report for Hydraulics, Sediment Transport and Sea Level Rise Analyses	June 2022	Moffatt & Nichol
Sediment Beneficial Reuse Study	October 2022	Moffatt & Nichol
Revised Draft Sampling and Analysis Plan	April 2023	Moffatt & Nichol

1.5 Prior Water and Sediment Quality Studies

1.5.1 Water Quality Pre-Construction Baseline Report (RCD and The Bay Foundation 2022)

The Water Quality Pre-Construction Baseline Report compiles several study periods and focuses specifically on the lower creek and lagoon area. This report documents the conditions prior to restoration in order to eventually evaluate the success of the restoration effort once complete. The report discusses methods and results of bacteria monitoring, in-situ data sonde monitoring, grab sample and nutrient monitoring, algae monitoring, and water temperature monitoring. In addition to the compilation of previous studies, this report includes results of its own monitoring conducted by the Bay Foundation: in-situ data sonde monitoring conducted from June to November 2021 using a Hach Hydrolab HL7 multiparameter data sonde, monthly grab samples collected beginning in October 2021, and water temperature monitoring using a HOBO Tidbit v2 temperature logger from January 2020 to December 2021.

Results are summarized below, as presented in the report:

- "Fecal Indicator Bacteria (FIB) grades reported by Heal the Bay for Topanga Beach at the mouth of Topanga Lagoon are variable and even with low rainfall years the wet season grades are frequently low. Summer dry season grades vary with rainfall and higher rain years correspond to lower grades.

- Surface salinity levels in the main body of Topanga Lagoon were mostly low, with a few higher saline events observed when overwash or tidal exchange occurred. No stratification has been documented. Between 2012-2014, mean salinity was 1.5 ppt, with a maximum of 5 ppt and minimum of 0 ppt. This pattern continues to be observed with little to no stratification of salinity documented and is consistent with the data gathered by the Hach HydroLab H7 data sonde in 2021.
- Although average pH (7.6-8.2) was slightly on the alkaline side, even maximum recorded levels (7.9-8.5) remained within the tolerance limit range for most aquatic species. Again, this pattern appears to be holding with both our 2020-2021 grab sample and sonde data.
- Water temperature documented by the Hach Hydrolab HL7 showed diurnal cycles ranging from a low of 12 °C in the fall to a high of almost 29 °C in August 2021. Additional water temperature data collected by the HOBO Tidbits in the main lagoon and further upstream of the PCH bridge where there is riparian canopy cover shows a wider temperature difference.
- Dissolved Oxygen levels in Topanga Lagoon vary diurnally but typically remain above 5 mg/l.
- Overall turbidity ranged between 0-25 NTU with spikes that could be a result of people, dogs or birds stirring up the sediments.
- Electrical Conductivity values ranged from a low of 2 up to over 30 µS between July – November 2021.
- An Oxygen Reduction Potential value of between +300-500 mV is considered healthy. The data from July – November 2021 falls within this range.
- Nitrate levels in Topanga Lagoon and creek were consistently well below the 1 ppm threshold for concern for aquatic species (EPA 2012) in 2012-2014, with a single maximum reading of 0.18 ppm in December 2013. The standard for drinking water is <10 ppm. Levels of nitrate greater than 3.5 ppm are thought to contribute to increased algal production and eutrophication in Southern California streams. Natural background readings vary depending on underlying geologic conditions but can range from 0.0- 0.08 ppm (EPA 2012). The pending TMDL limit for Malibu Creek is <1 ppm (EPA 2012). Compared to both maximum and average levels documented at Topanga Lagoon (max=0.87, mean=0.14) in 2003-2004, levels in 2021 (max = 0.22, mean = 0.12 (n=3)) are even lower and consistent throughout the creek and lagoon.
- Nitrite-N can have serious health effects for infants and is the cause of the blue baby syndrome (EPA 2014). The tolerance levels for aquatic species are not well documented. The target for nitrite–N is 1 ppm (RWQCB 1994 with 2011 updates). All sites within Topanga Lagoon and creek are consistently well below that threshold with a maximum of 0.05 ppm and mean of 0.01 ppm (n=30) recorded between 2012-2014. Although there are only 3 samples from 2021, the maximum recorded was 0.04 ppm with a mean of 0.03 ppm in the main lagoon. Samples upstream were similarly low (maximum 0.04 ppm, mean of 0.03 ppm).
- Between 2008-2009, discrete total nitrogen (TN) and total phosphorus (TP) samples were collected in Topanga Lagoon and analyzed via persulfate digest and colorimetrically using an auto analyzer during both wet and dry weather conditions. The calculated annual TN load was 187 kg, which was the lowest recorded of all 23 estuaries (range=187- 48,018kg Tijuana River Estuary) sampled in southern California. The annual TP of 25 kg was also the lowest recorded and matched only by Bolsa Chica and the range was from 25-82,988 kg at the Tijuana River Estuary (McLaughlin et al. 2013).

- Common sources of orthophosphate levels exceeding 0.65 ppm in freshwater include organic elements from septic systems, graywater systems and inorganic sources like fertilizers and soaps from detergents. Natural readings range from 0.0-0.65 ppm.
- Maximum orthophosphate levels exceeded the target of 0.10 ppm for all locations throughout Topanga Lagoon and Creek at some point during the 2012-2014 study when the maximum level occurred during a first flush event (0.16 ppm 1/24/13) in Topanga Lagoon. The non-storm event maximum at the lagoon was 0.93 ppm (3/6/2014) with a mean of 0.07 ppm). Mean level of 0.11 ppm was documented in 2003-2004 at Topanga Lagoon with a maximum of 0.37 ppm (Dagit et al. 2004). Levels in 2021 range between 0.1 and 0.28 ppm.
- Algae cover was recorded in Topanga Lagoon in a variety of methods over the years. Macrocystis was observed floating (unattached) in Topanga Lagoon, especially following high tide/overwash or breach events. *Cladophora sp*. and *Phyllospadix sp*. were occasionally observed as well. *Ruppia sp*. were observed seasonally, with peak abundance in summer and early fall when 100 % of the substrate could be covered.
- Based on the 2008-2009 data, Topanga Lagoon was ranked 11 of 23 estuaries, which puts it in the mid-range of overall condition for southern California based on the metrics of peak season macroalgal abundance, annual mean phytoplankton biomass and 10 percentile dissolved oxygen (McLaughlin et al. 2013)." (RCD and The Bay Foundation 2022)

1.5.2 Water Quality Study (RCDSMM 2004)

The Topanga Creek Watershed Water Quality Study Final Report was a cooperative effort between the RCD and the Los Angeles County Department of Public Works Watershed Planning Division to document conditions in the Topanga Creek Watershed. Ten sites throughout the watershed were monitored monthly or weekly from October 2003-2004. Site 1 was located at Topanga Lagoon knee deep off the east wing wall and monitored weekly. Data collection included physical (site conditions and water temperature), chemical (salinity, dissolved oxygen [DO], pH, conductivity, Nitrate-Nitrogen, Ammonia, Phosphates, and turbidity) and biological parameters (algae, total and fecal coliform bacteria and enterococcus, Bacterial DNA and Viral Pathogens). Levels of sediment input into the creek were measured indirectly via turbidity. This study did not include sampling for heavy metals, pesticides, total suspended solids or any other potential pollutants because the previous study in 1999-2001 did not suggest that any of these parameters were a problem. Site 1 results are summarized below:

- Site Conditions: Out of 55 sample dates, there were two occasions, each associated with storm events, when color changes or foam were noted at Site 1.
- Water Temperature: The maximum, minimum, and average water temperatures recorded at Site 1 had yearly averages of 20.7, 16.75, and 18.55 degrees Celsius, respectively.
- Water Depth: The maximum, minimum, and average depths recorded were 90, 25, and 50.50 cm, respectively.
- Salinity: The maximum, minimum, and average Salinity recorded were 13, 0, and 3.2 ppt, respectively.
- Dissolved Oxygen: The maximum, minimum, and average Dissolved Oxygen Ranges recorded were 19.65, 5.55, and 11.07 DO mg/l, respectively.
- pH: The maximum, minimum, and average pH recorded were 8.3, 7, and 7.67, respectively.

- Conductivity: The maximum, minimum, and average Conductivity recorded were 9200, 1180, and 2417 uS, respectively.
- Nitrate-Nitrogen: The maximum, minimum, and average Nitrate recorded were 0.87, 0, and 0.14 ppm, respectively.
- Ammonia-Nitrogen: The maximum, minimum, and average Ammonia recorded were >1, 0, and 0.11 ppm, respectively.
- Phosphates (Ortho-phosphates): The maximum, minimum, and average Phosphates recorded were 0.37, 0, and 0.11 ppm, respectively.
- Turbidity: The maximum, minimum, and average Turbidity recorded were 44.7, 0.55, and 2.53 NTU, respectively. Overall, turbidity was variable in the lagoon and appeared related to flow and algal levels.
- Algae: Algae cover was recorded for the lagoon as a whole. The growth of algae appeared to be more related to seasonal weather trends and amount of canopy cover rather than to nutrient availability. Of the 55 dates sampled, Site 1 was observed with 18 days with no algae, 10 days with Light (<5%) algae, 7 days with Moderate (5-25%) algae, 17 days with High (25-50%) algae, and 3 days with Dense (>50%) algae. The average density was 1.55. High levels of bacteria are often found associated with over 25% algal cover.
- Total and Fecal Coliform Bacteria Enterococcus: Site 1 and had 71% total coliform, 43% fecal coliform and 71% enterococcus exceedances.
- Bacterial DNA and Viral Pathogens: Samples collected from Site 1 in December 2003 tested positive for detection of Human Enterococcus.

1.5.3 A Regional Survey of the extent and magnitude of eutrophication in Mediterranean estuaries of southern California, USA (McLaughlin et al 2013)

This study assessed the magnitude and extent of eutrophication at 27 segments in 23 estuaries in the Southern California Bight between October 2008 and 2009, including Topanga Lagoon. Three indicators were measured (macroalgae biomass and cover, phytoplankton biomass, and DO concentration) to categorize eutrophic condition in each estuary. The Topanga Lagoon segment was ranked as high in peak macroalgal abundance and annual mean phytoplankton biomass and moderate in 10^{th} percentile DO. The annual total nitrogen load of the Topanga Lagoon was ranked as 1 of the 27 segments studied. The overall rank for the Topanga Lagoon was 11 out of 27 (one being highest condition and 27 being the lowest condition).

1.5.4 Topanga Source ID Study (Dagit et al 2014)

The Topanga Source Identification Study was done to analyze the locations where bacterial exceedances of fecal indicator bacteria (FIB) occurred and to identify the possible sources of the fecal contamination in lower Topanga Creek and at Topanga Beach. The study also presents Best Management Practices to potentially reduce, mitigate, or eliminate the fecal contaminant inputs to improve water quality at Topanga Beach.

Sampling was conducted at 14 locations in the Topanga watershed, with most being located in the lower watershed from the ocean upstream to Topanga Bridge. Sampling was conducted at the first flush rain events between 2012 and 2014. Microbial source tracking technology was used, which can help identify unique sources of fecal pollution. The study identified four hypotheses to test and presented their results. These results are summarized below.

- The upper watershed is not contributing to the exceedances observed at Topanga Beach. Based on the data collected thus far, FIB levels in the creek upstream of the lagoon do not appear to correlate with exceedances observed at Topanga Beach.
- Concentrations of FIB and nutrients decrease as the creek flows downstream from town through the Narrows.
- From Owl Falls to Scratchy Trail and Topanga Bridge, benthic macroinvertebrate species diversity increases as the creek flows downstream. However, overall SCC-IBI scores are low throughout Topanga Creek.
- Testing of the septic systems along PCH indicated that the system at the Ranger residence at the Topanga Ranch Motel was possibly leaking, so repairs were completed in summer 2013. It is no longer leaking. The system at the Feed Bin was also a potential source of leachate and requires repair and further testing to evaluate the input potential into Topanga Creek. The other systems within Topanga State Park do not appear to be leaking, nor does the County Lifeguard facility.
- Contributions from Topanga Lagoon are correlated with FIB levels in the ocean during rain events and when the lagoon is connected to the ocean directly.
- Dogs and gulls are a significant source of fecal contamination to the lagoon and ocean and likely contribute to exceedances of Enterococci (ENT) state water quality standards at the ocean and lagoon sites.
- Human marker was detected infrequently in the creek, lagoon and ocean.

The study also includes a physical habitat assessment and nutrient and in-situ testing to analyze the physical and chemical water quality conditions in the main stem of the creek, and along Topanga Beach and Lagoon. The summary of these results, as presented in the study, are listed below.

- Rainfall was below normal for both years the study took place, and significant rain events were few and far between. Therefore, flow was consistently low throughout the study period as well.
- The average wetted width of the creek remained fairly constant throughout the study but average depths decreased in some locations in 2014.
- Water temperature, pH, and specific conductivity were relatively stable and consistent with previous data collected (Dagit et al 2004, 2000-2012 RCDSMM unpublished data).
- Habitat types remained consistent during the course of the study with riffles, runs and glides dominant in the lower reach of the creek (below 3600 m) and a more complex mix of flow habitats (cascade/fall, riffle, run, glide and pool) found upstream. None of the flow habitats in study reaches were dry during either year.

- Geomorphology and gradient affect the types of flow habitats present, with the lower gradient reach below 3600 m (< 3%) being dominated by run-riffle complexes and the upper gradient (3-6%) being pool dominated.
- Smaller substrates such as fines and gravel were more frequent in the lower reach, whereas larger substrate such as cobbles, boulder, and bedrock were more frequent in the upper reach, which has a higher gradient (> 3%).
- Instream habitat complexity includes abundance levels of filamentous algae, aquatic macrophytes, boulders, woody debris, undercut banks, overhanging vegetation, living tree roots and artificial structures. In 2014, both the lower and upper reaches had greater habitat complexities than in 2013 despite the low flows.
- The proportions of cover values for several riparian vegetation types were also estimated for the lower and upper reaches. Trees and saplings > 5m had the highest proportion of sparse cover in both the lower and upper reaches.
- Overall, both reaches of Topanga Creek have relatively stable banks that can support a complex assemblage of aquatic organisms. The higher level of fines and gravel in the lower reach are highly mobile. Snorkel survey and habitat typing focused on habitat for endangered steelhead trout documented the pulses of sediment moving downstream with storm events over time (Dagit and Krug 2011). While the specific location of the sediment slugs varies over time, and results in decreased pool habitat in certain reaches, the overall amount of pool habitat and refugia for fish remained fairly constant, despite a very wet year in 2005. Overall, channel morphology has also remained fairly constant over time (Dagit and Krug 2011).
- In-situ parameters (water temperature, dissolved oxygen, pH, conductivity, salinity) were, in general, within the standard tolerance ranges for wildlife.
- Nutrient and algae levels were, in general, low throughout the study period, with only occasional exceedances.
- On average, nitrate and orthophosphate levels decrease from Owl Falls (OF, 6500 m; the site closest to town) downstream to the lagoon but this decline is more pronounced between OF and Scratchy Trail (4800 m)
- On average, Brookside Drive (BR, 1700 m) had the highest levels of Ammonia.
- Owl Falls had the highest nutrient levels and Scratchy Trail has the lowest nutrient levels on average.

While the report finds that human marker was detected infrequently in the creek, lagoon and ocean, it notes the following as a recommended best management practice (BMP) for Topanga Beach:

> "Continue coordinated enforcement to reduce the number of homeless and transients camping in and around the beach and under the PCH underpass. A mass balance calculation of input of one direct deposit to the lagoon (~200g of human feces) was calculated to result in an exceedance of ENT (Riedel et al. 2014 submitted). Direct deposits were observed at both the lagoon and beach on multiple occasions during the study. Direct deposits associated with the transient population is again an enforcement issue but one that could potentially reduce exceedances." (Dagit et al 2014)

In summary in regard to bacteria sources at the beach, this study concluded that:

- The upper watershed is not contributing to the exceedances observed at Topanga Beach. Based on the data collected thus far, FIB levels in the creek upstream of the lagoon do not appear to correlate with exceedances observed at Topanga Beach.
- Contributions from Topanga Lagoon are correlated with FIB levels in the ocean during rain events and when the lagoon is connected to the ocean directly.
- Dogs and gulls are a significant source of fecal contamination to the lagoon and ocean and likely contribute to exceedances of ENT state water quality standards at the ocean and lagoon sites.
- Human marker was detected infrequently in the creek, lagoon and ocean. However, a single "direct deposit" of human feces to the lagoon resulted in an exceedance of ENT.

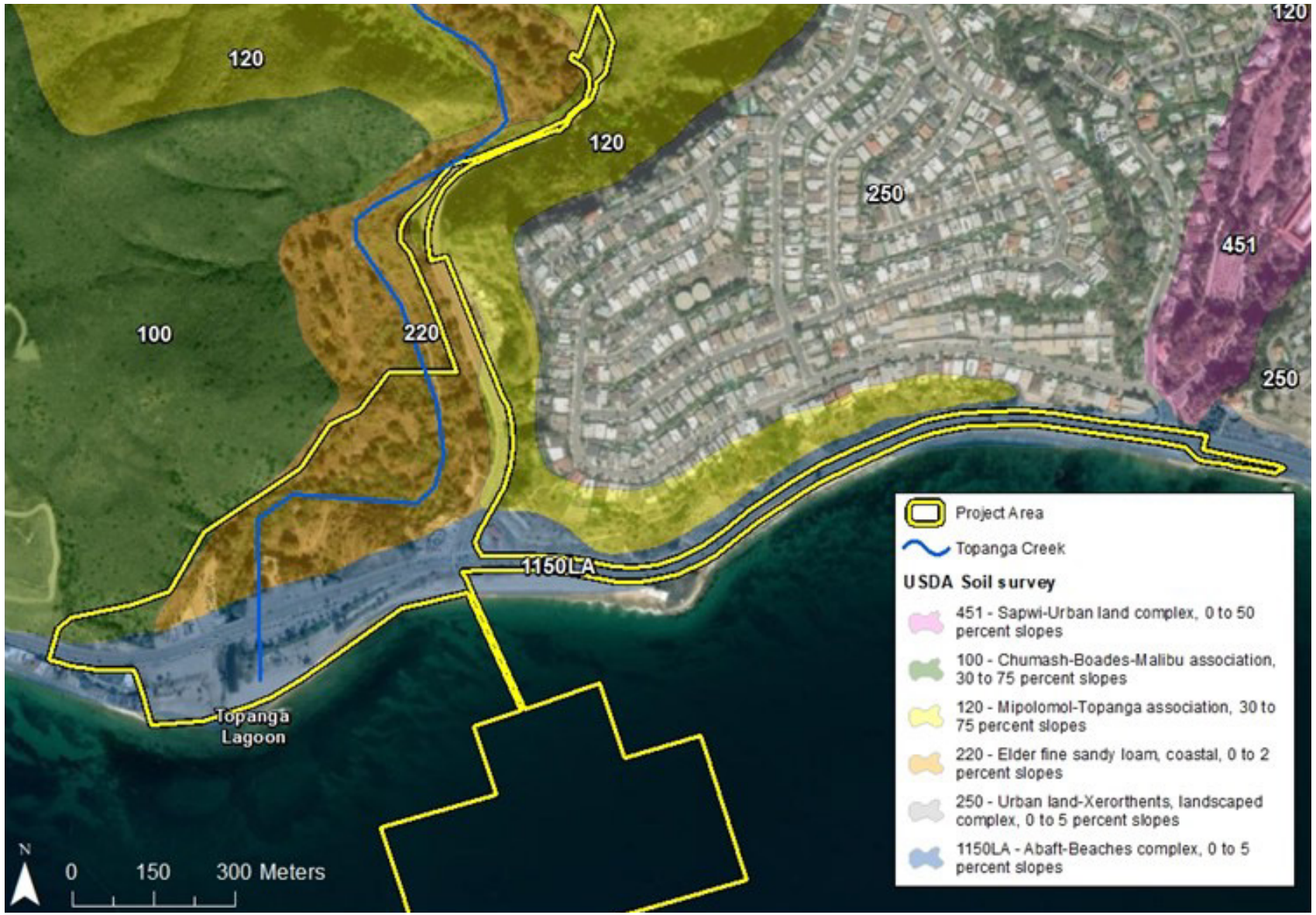
1.5.5 Long-term monitoring of molecular markers can distinguish different seasonal patterns of fecal indicating bacteria sources (Riedel et al 2015)

This microbial source tracking study used a dog-, a gull- and two human-associated molecular markers at 10 sites over 21 months to identify FIB sources at Topanga Beach. Per the study, "Historical data suggest that episodic discharge from the lagoon at the mouth of Topanga Creek is the main source of bacteria to the beach. A decline in creek FIB/markers downstream from upper watershed development and a sharp increase in FIB/markers at the lagoon sites suggest sources are local to the lagoon. At the lagoon and beach, human markers are detected sporadically, dog marker peaks in abundance mid-winter, and gull marker is chronically elevated. Varied seasonal patterns of FIB and source markers were identified showing the importance of applying a suite of markers over long-term spatial and temporal sampling to identify a complex combination of sources of contamination." (Riedel et al 2015)

1.5.6 Jurisdictional Delineation Report (WRA 2020 and ESA 2023)

The 2020 Jurisdictional Delineation Report describes the methods and results of a delineation of aquatic resources with the Project area. The WRA conducted the delineation on January 16, 2020, to identify wetlands and non-wetland waters potentially subject to jurisdiction by the U.S. Army Corps of Engineers under Section 404 of the CWA and/or Section 10 of the Rivers and Harbors Act. This report also identifies wetlands and other features potentially subject to the jurisdiction of the California State Water Resources Control Board under the Porter-Cologne Act.

The delineation site visit included soil sample collection and analysis to determine if hydric soils were present. The report includes an analysis of the soil types present in the study area, indicating that the study area contains four soil types: Abaft-Beaches complex, 0 to 5 percent slopes; Elder fine sandy loam, coastal, 0 to 2 percent slopes; Chumash-Boades-Malibu association, 30 to 75 percent slopes; and Mipolomol-Topanga association, 30 to 75 percent slopes. Descriptions of each soil series, as stated in the report, are provided below and the distribution of these soil types is depicted in **Figure 2**.



D201901073.01 - Topanga Lagoon CEQA NEPA\05 Graphics-GIS-Modeling-USE AZURE\Illustrator

SOURCE: Project Boundary (E PD, Moffat & Nichol, RCDSM M 9/20/2023), NRCS Web Soil Survey, 2021
Service Layer Credits: Esri, HERE, Garmin, Intermap, Increment P corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Topanga Lagoon Restoration Project

Figure 2
Soils Map

ESA

Abaft-Beaches complex, 0 to 5 percent slopes:

The Abaft series consists of very deep, excessively drained soils that formed in sands from mixed sources. Abaft soils are on stabilized dunes and beach areas along the coast. Slopes range from 0 to 25 percent. A representative profile for this series consists of a pale brown (10YR 6/3) stratified loamy sand surface layer 5 inches thick. This layer is underlain by pale brown (10YR 6/3) stratified loamy sand and brown (10YR 4/3); 2 percent clay that extends to a depth of 25 inches.

Elder fine sandy loam, coastal, 0 to 2 percent slopes:

The Elder series consists of very deep and deep, well-drained soils that formed in alluvial material derived from mixed rock sources. Elder soils are on alluvial fans and in flood plains and have slopes of 0 to 15 percent. A representative profile for this series consists of a dark gray (10YR 4/1) fine sandy loam surface layer 23 inches thick. This layer is underlain by gray (10YR 5/1) sandy loam that extends to a depth of 36 inches and light brownish gray (10YR 6/2) fine sandy loam layer that extends to 72 inches.

Riverwash is a mixture of sand, gravel, and cobblestones that contains little or no silt and clay. It is the loose mass of material that occupies stream channels and is exposed at low water. Riverwash is subject to movement in spring during periods of runoff and during stream flooding

Chumash-Boades-Malibu association, 30 to 75 percent slopes:

The Chumash soils consist of very shallow and shallow to soft bedrock, well-drained soils that formed in residuum and colluvium derived from shale and sandstone. Chumash soils are on hills and mountains. Slopes are 5 to 75 percent. Chumash soils have a yellowish-brown (10YR 5/4) gravelly loam layer on the soil surface from 0 to 23 inches.

The Boades series consists of shallow to soft bedrock, well-drained soils that formed in residuum and colluvium derived from bedded shale and sandstone. Boades soils are on hills and mountains. Slopes are 5 to 75 percent. Boades series soils have a brown (10YR 5/3) loam layer on the soil surface up to 14 inches with highly fractured, bedded, weathered shale with fractures 1 to 2 inches apart, and with about 10 to 15 percent soil in fractures with common very fine roots that extends to 60 inches.

The Malibu series consists of moderately deep to soft bedrock, moderately well-drained soils that formed in residuum and colluvium derived from inter-bedded shale and sandstone. Malibu soils are on hills and mountains. Slopes are 4 to 75 percent. A representative profile for this series consists of a brown (10YR 5/3) loam surface layer 19 inches thick. This layer is underlain by reddish-brown (5YR 4/4) clay layer that extends to a depth of 27 inches and highly fractured, bedded, weathered shale and sandstone with about 10 to 15 percent soil in fractures up to 60 inches.

Mipolomol-Topanga association, 30 to 75 percent slopes:

The Mipolomol series consists of very shallow or shallow to fractured bedrock, well-drained soils that formed in residuum and colluvium derived from bedded shale and sandstone. Mipolomol soils are on hills and mountains. Slopes are 30 to 75 percent. Mipolomol series soils have a brown

(10YR 5/3) channery loam layer on the soil surface layer 12 inches thick with highly fractured bedded shale with fractures 1 to 3 inches apart, and with about 5 to 10 percent soil in fractures with few very fine roots that extends to 20 inches.

The Topanga series consists of shallow to fractured bedrock, well-drained soils that formed in residuum and colluvium derived from bedded shale and sandstone. Topanga soils are on hills and mountains. Slopes are 30 to 75 percent. A representative profile for this series consists of a grayish brown (10YR 5/2) gravelly loam surface layer 15 inches thick. This layer is underlain by yellowish-brown (10YR 5/4) gravelly clay loam that extends to 18 inches.

1.5.7 Ecohydrology Report (ESA 2022)

As part of the Topanga Lagoon Ecohydrology Study (ESA 2022), ESA analyzed the Topanga Lagoon mouth opening and closing dynamics to inform the restoration design. To accomplish this, ESA developed and ran a lagoon mouth dynamics and water level model. ESA's lagoon hydrology/mouth morphology model, or Quantified Conceptual Model (QCM), provided a greater understanding of existing mouth dynamics as well as analyzed breach conditions, estimating daily mouth conditions, and assessing the impact of restoration on lagoon and mouth function.

The results of the QCM showed that compared to existing conditions, the Alternative 2 grading design increases the wetted lagoon volume perched above the tides. In this alternative, streamflow may take longer to fill the larger lagoon volume before breaching the sand berm separating the lagoon from the ocean. As a result, there is potential for some increase in the duration of lagoon mouth closure during wet season. The model shows no change in closure during the dry season.

For Alternatives 3 and 4, the grading design also increases the wetted lagoon volume perched above the tides, though not as significantly as Alternative 2. In Alternatives 3 and 4, the lagoon expansion is above most lagoon water levels. Therefore, the modeling shows no significant change in lagoon volume or opening and closure for Alternatives 3 and 4 compared to existing conditions.

1.5.8 Beneficial Reuse Soil Characterization (GeoPentech 2022)

This investigation reviewed existing subsurface data and collected additional subsurface data to characterize the physical properties of the soils proposed to be removed by the Project. The results of this study are intended to assist with the evaluation of the soil's acceptability for beach replenishment or ocean disposal. Additional subsurface data collected for this investigation included ten hollow stem auger boreholes completed between December 20 and 22, 2021 and laboratory testing of selected samples from the 2021 borings. Laboratory testing included moisture content, dry density, Atterberg limits, No. 200 sieve wash, and grain size distribution. Geotechnical testing was also completed.

Geologic and subsurface conditions were determined to include artificial fill and Beach Deposits. Groundwater was observed during current and previous field investigations, with groundwater surface generally encountered in the Beach Deposits between elevations +1 to +3 ½ feet MSL.

Laboratory testing resulted in the average particle-size curve as a silty/clayey sand with gravel. The statistical summary of the fill sieve analysis is shown in **Table 3** below.

TABLE 3
SIEVE STATISTICAL SUMMARY OF FILL MATERIAL

	Percent Passing		
Sieve Size	**Minimum**	**Maximum**	**Mean**
No. 4 (4.75 mm)	56.6%	95.6%	75.8%
No. 30 (0.60 mm)	38.3%	84.8%	56.9%
No. 200 (0.075 mm)	17.7%	59.3%	29.5%

1.5.9 Initial Site Assessment Report (Geocon 2022)

An Initial Site Assessment of the Project was performed February 16, 2021 with the primary goal to determine the potential presence of "recognized environmental conditions" (RECs) defined as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions." (Geocon West 2022) The 2022 report includes a review of the GeoPentech 2003 Initial Site Assessment Report of the Topanga Lagoon Restoration, which is summarized as reporting, "no known or potential sources of hazardous waste were identified either within the limits of the project or within areas immediately adjacent to the project limits. No RECs were identified."

The 2022 Initial Site Assessment Report concluded the following:

- The historic use of the property currently occupied by Oasis Imports as a service station, and the absence of records indicating the USTs have been removed, the potential presence of USTs represents an environmental concern for the Project Study Area.
- The potential for ADL in shallow soil in the shoulders of the roads due to the historical use as an automotive thoroughfare represents an environmental concern for the Project Study Area.
- There is a potential for ACM and LCP to be present within or on historical structures and the existing bridge structure. Additionally, asbestos and lead-containing paint may be present in surface soil adjacent to the dilapidated structures on the Topanga Ranch Motel property.
- Yellow traffic striping and pavement markings applied before 2005 potentially contained lead chromate pigment. Given that there is no assurance that striping and markings applied before 2005 have been completely removed or worn away, traffic striping and pavement markings observed within the Project Study Area generally have the potential to contain lead or chromium.

- Pole-mounted transformers have the potential to contain fluid that includes PCBs.
- Relocation or replacement of guard rails, power poles, fencing, and roadside signs on wooden posts may generate treated wood waste if the wooden posts are unable to be reused.

1.5.10 Technical Report for Hydraulics, Sediment Transport and Sea Level Rise Analyses (Moffatt & Nichol 2022a)

This report includes technical analyses on hydrology and hydraulics, sediment transport, sea-level rise (SLR) impacts, beach morphology, and fish passage assessment for the Project. The sediment transport analysis assesses sedimentation in Topanga Lagoon for alternative comparisons. This analysis included updating a previously developed and calibrated Mike11 one-dimensional model to reflect the latest topographic changes and compute the sediment transport under the four restoration alternatives. SLR impacts to the lagoon sedimentation are also considered and discussed. The results of the sediment transport modeling are summarized below, as presented in the report.

- The upper reach of the creek upstream of MM2 (Route 27 Bridge) is under a scour mode due to the steep slope. The scour volume increases with flow intensity, but it is not impacted by SLR or proposed lagoon grading.
- The lower reach downstream of MM2 is under a deposition mode due to flatter slopes. The sedimentation within lower Topanga Creek varies with flow conditions, but the overall deposition volume is very similar among alternatives with the exception of Alternative 2 under the high flow condition. The latter has slightly less sediment deposition volume, or more sediment being transported to the lagoon.
- The lagoon is under a deposition mode during average flow conditions, but more of a pass-through system under the high flow conditions. Alternative 2 has the largest deposition volume in the lagoon area among the four alternatives under both average and high flow conditions. The slightly larger deposition volume is mainly due to the increased lagoon area since the deposition depth of Alternative 2 is similar to other alternatives.
  - Under the high flow condition, the sediment deposition volume in the lagoon from high to low is Alternative 2, Alternative 3, Alternative 1, and Alternative 4.
  - Under the average flow condition, the sediment deposition volumes in the lagoon are very similar for all alternatives with slight differences. The sediment volume from high to low is Alternative 2, Alternative 3, Alternative 4, and Alternative 1.
- Sediment delivery to the ocean: during high flow storm events, the high-velocity flow erodes more sediment from the creek and watershed and transports more sediment from upstream to the ocean. The proposed grading does not change the sediment delivery appreciably. Alternative 2 slightly reduces the sediment delivery to the ocean, but not enough to cause any changes to offshore bathymetry since sediment delivery to the ocean from the Topanga watershed is minimal.
- SLR Impacts:
  - Sediment deposition volume in the lagoon increases with SLR for all alternatives and for both average and high flow periods.
  - Sediment delivery to the ocean decreases with increased SLR. Alternative 4 maintains slightly more delivery among the proposed alternatives, followed by Alternative 3, and

then Alternative 2. But the difference between alternatives is negligible and is not expected to cause any impact to the littoral cell.

– The reach upstream of MM2 is not impacted by SLR.

Table 4 provides a summary and comparisons of 1D sedimentation model results among the alternatives.

TABLE 4
1-D MODEL RESULTS COMPARISONS AMONG ALTERNATIVES AND SLR IMPACTS

Item	Order by Alternative	SLR Impact
Sediment Accretion in Lagoon[1]	Alternative 2 > Alternative 3 > Alternative 1 > Alternative 4	Increased sediment deposition with SLR. Alt 2 is most resilient to SLR

NOTE: The deposition depth in Alternative 2 is similar to Alternative 1 and Alternative 3 due to its larger lagoon footprint. Alternative 4 has relatively less lagoon deposition in depth than the other three alternatives.

1.5.11 Sediment Beneficial Reuse Study (Moffatt & Nichol 2022b)

This study analyzes and presents options for the sediment excavated from this restoration project. The sediment excavated from this restoration project may be used to benefit the surrounding coastal region by renourishing the shoreline. This study presents three sediment reuse options and the equipment required, schematics, and logistics of each option. The three options presented are:

Option 1: Mechanical Removal and Hydraulic Nearshore Placement

Under this option, fill material would be removed from the Project area through nearshore ocean placement. Placing the material in the nearshore in the approximately 35-acre area would be environmentally beneficial because it would allow naturally driven processes (waves, longshore drift, and tidal currents) to disperse it to the surrounding littoral zone and beaches, nourishing them with additional sand and pebbles/cobbles, while silts and clays move farther offshore. For these natural processes to take place, the material must be placed within the closure depth of the region (approximately 30 feet). Placement west of the Topanga Lagoon mouth and east of Mastro's Point was considered, but given the presence of important marine habitats, concerns about avoiding any impacts on the surf break, and construction limitations, the current area was selected.

Sidescan sonar survey, underwater video, and diver surveys were used to identify suitable sandy areas (**Appendix H,** *Topanga Marine Habitat Characterization Study*). The bottom substrate within the proposed placement area is primarily sand and the range of contours facilitates transport downcoast. The actual methods of placing materials within the nourishment area would be dictated by modeled dispersal and degradation rates, potential for turbidity, placement geometry, and the intent to minimize impacts on Essential Fish Habitat and other sensitive marine habitats.

Hydraulic nearshore placement would require that material be trucked on the beach to a staging area on the east side of Topanga Beach, where a sump pit or hopper would be used to mix the material into a slurry.[1] Seawater would be pumped directly into the container or pit using a small submersible pump on the end of an intake line. This intake line would be screened so that organisms, debris, or other materials would not be impinged on the screen or pumped in from the ocean. A crawler crane would adjust the position of the pump within the sump pit or hopper to pump the slurry through a submerged discharge line to the nearshore placement site. There could be sediment buildup at the end of the discharge line, so a small derrick barge and support tug would adjust the seaward end of the line as needed to prevent line burial and clogs. The pipe would be temporarily anchored and placed on risers as needed to prevent any unintended impacts on sensitive marine resources. It is anticipated that the maximum thickness of sediment at the placement point would be a mound 5–20 feet high that would be distributed throughout the dispersal area and slope down as it is washed away by wave action, longshore drift, and tides.

Sediments are expected to migrate downcoast, transported by the current toward the narrow beach at Coastline Drive. Based on data from the Coast of California Storm and Tidal Waves, movement of sediments would not affect the Topanga Point surf break, as the placement site is downcoast of the point. The beaches downcoast from Topanga Lagoon are fairly narrow and experience regular seasonal and episodic erosion, and as such, any sediment added to the respective littoral cell would beneficially provide erosional protection and add recreational space for the public.

Option 2: Mechanical Removal and Upland Landfill Disposal

Should trucks be used to transport some or all of the material to either the Calabasas, Sunshine, or Scholl Canyon Landfill, two different navigation routes would be used. For material heading to the Calabasas Landfill, trucks would be staggered to either travel west on PCH and north on Malibu Canyon Road or travel east on PCH to Interstate 10 (Santa Monica Freeway), then west on U.S. Highway 101, to reduce traffic congestion and the need for highway crossings. Trucks heading to either the Sunshine or Scholl Canyon Landfill would use PCH east to Interstate 10 (Santa Monica Freeway) and then Interstate 405 north to U.S. Highway 101 east.

The potential exists for as much as the top 3 feet of soil below the pavement approaches to the bridge to be contaminated with ADL. If ADL is shown to be present by soil testing at the time of excavation, this soil would be disposed of off-site at a hazardous materials landfill. Soils removed below a depth of 3 feet in a roadway excavation are assumed to be clean based on soil characterization studies and do not require any special handling.

Excavation and disposal of the maximum amount of excavated historic fill materials is anticipated to take up to 146 working days and approximately 32,000 truck trips. Construction would close portions of the beach for five to seven months, but a temporary access-way out to the surf break would be maintained at all times.

[1] A *hopper* is a metal sediment containment box that would be roughly 40 feet by 15 feet and placed on the beach.

Excavation and disposal work would be scheduled to avoid the busy summer months from Memorial Day to Labor Day and avoid grunion breeding season, as well as steelhead migration or other sensitive species needs. Ideally the excavation would be conducted in the fall before the rainy season, as this timing would both minimize impacts on the beach and facilitate movement with the onset of winter storms.

Note that nearshore placement is nearshore ocean placement.

1.5.12 Revised Draft Sampling and Analysis Plan (Moffatt & Nichol 2023)

The Revised Draft Sampling and Analysis Plan (SAP) describes methods and procedures to evaluate sediment from the proposed Topanga Lagoon Restoration project for its suitability for placement in the nearshore ocean. The SAP details the physical and chemical testing to determine suitability of the excavated material for nearshore ocean placement. Sampling of the proposed nearshore placement site and proposed project excavation site was conducted in 2022. Physical testing found that the median grain size of the fill material is within the range of existing sediments. Chemical testing found that the sediment quality was acceptable. The SAP concludes that the excavated fill should be considered for nearshore placement at the proposed site. It provides two placement alternatives (shifting placement site into deeper water, away from habitats and/or hauling to a landfill) in the case that the fine sediment content be considered too high for placement or numerical modeling shows “considered environmental impact to surrounding habitat.” Direct placement on the beach was assessed but deemed unfeasible due to differences in color and angularity between the material and existing beach sands.

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SECTION 2
Water and Sediment Quality Benefits due to Restoration under Project Build Alternatives

2.1 Summary of Restoration (Build) Alternatives

Under all Project Build Alternatives, the seasonally wetted and riparian habitat areas would be expanded from the existing 0.56 acre, to 7 to10 acres, while the more upland/transition areas would increase from the existing 21.4 acres to between 23 and 24 acres, depending on which alternative is selected. This would require removing much of the historically imported fill on-site to create a more natural topography and expanded open space area. The existing wetted lagoon area and riparian habitats would be protected with grading starting at the outer edge of existing riparian trees, preserving the current lagoon banks and the majority of the existing riparian willows and native hardwoods. The majority of native trees would be retained throughout the Project area, and the natural breaching pattern of the lagoon would be protected by grading outside the footprint of the existing wetted lagoon and landward of the beach berm at its mouth.

Under all Project Build Alternatives, the area of Topanga Beach for recreational users would increase slightly. The construction footprint includes the Topanga Beach lagoon/ocean interface on the landward side of the bar-built sand berm and extends approximately 350 feet upstream into Topanga Creek with removal of fill on both the west and east sides. Under all Project Build Alternatives, the fill material would either be trucked off site for disposal or beneficially reused in a near-shore placement location, subject to approval by the United States Army Corps of Engineers (USACE).

Under all Project Build Alternatives, the length of the existing 79-foot Caltrans bridge would be expanded to accommodate a widened lagoon riparian area, which would lower flow velocities to improve adult steelhead migration opportunities and increase refugia areas for tidewater gobies and juvenile steelhead, as well as the quantity and quality of lagoon habitats. To provide for a wider lagoon and improve fish migration and refugia, the existing Caltrans bridge would be replaced with a longer bridge. The main span of the new bridge would increase to 200 feet, with secondary side spans of 130 feet on either side, increasing the total bridge span length to 460 feet. This expanded length reduces flood impacts (M&N 2022), provides space for the creek and lagoon to evolve in response to SLR and provides pedestrian access under the roadway on both sides of the lagoon, as only access on the east side is currently available. The existing alignment of the bridge and PCH roadway is maintained for two of the Project Build Alternatives but is relocated slightly to the north in the Alternative 4, as discussed below.

The new bridge would continue to accommodate two lanes in each direction with no expansion of roadway capacity. Traffic flows will also be protected during construction by way of a temporary roadway and bridge alignment. All utilities would be continued during construction, and eventually relocated underground or attached to the new bridge. All phases of construction and staging for the new bridge would be similar under each alternative.

Under all Project Build Alternatives, Native American cultural sites would be protected in place, retaining an appropriate cover over the pre-contact period surface of no less than 2 to 4 feet, and necessarily limiting the lowering of the riparian bottomland surface to actual historic elevations.

Coastal access would be maintained during construction and improved under all Project Build Alternatives. This includes the creation of a trail system through the Project area and provision of pedestrian access under PCH on the east and west sides of the lagoon. Improved parking would be provided along the PCH and TCB corridors. A permeable emergency route from PCH to the beach level would be constructed on the west side of the lagoon to allow lifeguard access to both limit vehicle usage along the lagoon berm and provide access to the western beach even during times when the lagoon mouth is open. Parking at the beach level would be similar to existing conditions, and would only be accessible to staff, emergency vehicles, and disabled visitor parking spaces. The areas around the existing bus stops would be improved to be more welcoming to public transportation users.

Under all Project Build Alternatives, key DBH facilities on Topanga Beach would be relocated further from the ocean to protect structures from SLR. The existing lifeguard headquarters, beach restroom, and helipad would be demolished and rebuilt closer to the realigned access road, and at a higher elevation. The new buildings would be of similar size and materials to the existing building. A small two-car garage for staff would be added in the improvements. The new helipad site would re-locate to the east side of the lagoon for improved access by the lifeguards and emergency responders. The size, setbacks and built elements of the new helipad would conform to all Federal Aviation Administration and Los Angeles County requirements. The permitted onsite wastewater treatment system (OWTS) that services the beach restroom would remain to support the new facility unless a sewer hookup becomes available. The existing parking lot would be modified depending on the alternative. Americans with Disabilities Act (ADA) and staff parking and access at the beach level is retained in all alternatives.

A plan for determining the future configuration of the historic Topanga Ranch Motel is included in each of the Project Build Alternatives, as are potential locations for park facilities, concessions, and parking on CDPR property. Currently the Proposed Project area accommodates authorized and unauthorized parking opportunities. The Proposed Project would modify the parking opportunities, reducing the current free but unauthorized roadside parking on PCH along the bridge deck, and create additional parking spaces in designated areas adjacent along TCB. Some free parking on PCH would remain but would be reduced compared to existing conditions. **Table 5** provides a summary of restoration in acres under all Project Alternatives.

TABLE 5
RESTORATION IN ACRES UNDER ALTERNATIVES

Item	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Restoration area, total	0	13.6 acres	9.8 acres	10.8 acres
Restoration area, wetted	0	9.5 acres	7.1 acres	7.1 acres
Beach area	4.16 acres	4.39 acres	4.42 acres	4.56 acres
Fill Removal for Lagoon expansion	0	256,000 CY	166,000 CY	210,000 CY
Total Pervious Area	4.34 acres	18.8 acres	15.17 acres	16.64 acres
Total Impervious area	7.34 acres	6.03 acres	6.25 acres	6.56 acres

2.2 Water and Sediment Quality Benefits due to Restoration Alternatives

The restoration alternatives are intended to expand the lagoon ecosystem to improve estuarine hydrological and ecological functions, protect endangered species, and restore habitat and species within the Project area. Restoring and improving habitats and hydrological and ecological functions is expected to improve water and sediment quality conditions in the lagoon.

Overall, Alternative 2 will create new expanded wetted lagoon, riparian, and transition zone habitat. Alternatives 3 and 4 will expand and restore riparian and transition habitat above the existing lagoon. The restored riparian and transition zone habitat in Alternatives 2, 3, and 4 are expected to enhance the existing lagoon habitat and allow the lagoon to expand with future SLR, thereby creating lagoon habitat. Alternative 4 realigns the PCH bridge to the north and is therefore expected to improve overall habitat resiliency and increase beach area with SLR compared to other alternatives. These overall habitat benefits are assessed in the Topanga Lagoon Alternatives Analysis Report (M&N 2022b).

Based on similar case studies and the peer-reviewed literature, wetlands have been shown to be able to improve water quality. The project consists of expanding the wetland footprint through removal of historical infill, creating rain gardens as BMP solutions to improve treatment of stormwater from developed areas, and improving the ecological and hydrological conditions of the current wetlands and integrating the project with recreational features (CNA, 2022). The wetland restoration alternatives being considered are not designed to be flow-through treatment wetland systems, where nutrient removal would occur as water is diverted into specially designed treatment wetlands. However, wetlands along the side of riverbanks (riverine wetlands) have been documented to remove nutrients, although not at rates as high as those documented for specially designed treatment wetlands (Land et al. 2013).

Of the four alternatives, Alternative 2 provides the greatest increase in lagoon, wetland, and riparian habitats and greatest reduction in flow velocity in the lagoon. It also provides the largest lagoon and transition zone, and therefore could provide the most wetland and emergent and riparian vegetation to remove nutrients and assist in nutrient cycling. Expanded riparian habitats in Alternatives 3 and 4 are also expected to remove nutrients and assist in nutrient cycling to a

lesser extent. Excessive nutrients in coastal lagoons typically lead to algae blooms, which can affect water quality parameters, such as pH and dissolved oxygen. For instance, when algae and plants are photosynthesizing during the day, dissolved oxygen levels will be high, however, when they respire at night, or die, oxygen is depleted (RCDSMM and The Bay Foundation, 2022). The restoration alternatives therefore have the potential to remove nutrients and improve water quality conditions, including dissolved oxygen levels.

Aquatic organisms, especially steelhead trout, typically require a consistent level of 5 mg/L or above of dissolved oxygen to survive, and when levels drop below this, it can be detrimental to the aquatic wildlife (RCDSMM and The Bay Foundation 2022). Steelhead use of coastal lagoons in southern California seems less prevalent than in central California (ESA 2022). This is likely because in southern California, temperature increases and water quality and quantity decline to the point of lagoons being uninhabitable to even steelhead (Hayes and Kocik 2014). Juvenile steelhead have not been documented rearing in the Topanga lagoon. Dagit et al. (2018) concluded that "the size and condition of the lagoon is such that it likely does not promote rapid growth and based on the low number of fish ever observed in the lagoon, it's likely that fish do not spend too much time in the lagoon, but rather move through it quickly into the ocean." If juveniles do end up trapped and/or rearing in the closed lagoon, the restoration alternatives are expected to increase nutrient removal, improve water quality conditions including dissolved oxygen levels, and therefore improve conditions for juvenile steelhead and other aquatic organisms.

Note that the Topanga Lagoon Restoration Ecohydrology Report (ESA 2022) studied lagoon mouth opening and closure dynamics and showed that restoring and expanding the wetted lagoon volume perched above the tides in Alternative 2 increases the duration of mouth closure during the wet season. Alternative 2 is predicted to have an overall increase in duration of mouth closures because the increased lagoon volume takes longer to fill with streamflow and wave overwash before the lagoon breaches. This expanded area reduces storm flow velocities, improves adult steelhead passage when the lagoon is connected, creates fish habitat and improves refugia for juvenile steelhead and tidewater goby. For Alternatives 3 and 4, the grading design also increases the wetted lagoon volume perched above the tides, though not as significantly as Alternative 2. In Alternatives 3 and 4, the lagoon expansion is above most lagoon water levels. Therefore, there is no significant change in lagoon volume or opening and closure compared to existing conditions and less improvement to fish passage opportunities, fish habitat and refugia compared to Alternative 2. The study also notes that sea level rise is predicted to have a larger impact on mouth closure than restoration actions, with more mouth closure with sea level rise (ESA 2022).

SECTION 3
Potential Impacts

The water and sediment quality data summary presented in Section 1 and Section 2 provides the basis for the following assessment of the potential impacts from the Project on the environment during and following construction. Potential temporary impacts related to Project construction are discussed first followed by the potential long-term impacts following restoration completion. The discussion includes both identification of potential impacts and proposed measures to address them.

3.1 Potential Temporary Impacts from the Project During Construction

Would the construction of the project violate any water quality standards or waste discharge requirements?

Construction of the Project could cause the migration of sediments and soils during excavation, grading, and placement activities into receiving waters through dust emissions, construction equipment, and stormwater runoff or direct discharge into receiving waters, which would violate water quality standards and waste discharge requirements. However, the 401 Permit and Construction General Permit would require implementation of BMPs such as erosion and sediment controls, dust controls, controls for off-site sediment migration from construction equipment, and stormwater pollution prevention measures.

The Project would be required to comply with these permit requirements to control stormwater discharges from the construction site. To obtain coverage under this permit, the Project must electronically file a Stormwater Pollution Prevention Plan (SWPPP), and other compliance-related documents prior to construction. The SWPPP will need to identify BMPs that must be implemented to reduce construction effects on receiving water quality based on potential pollutants. BMPs will need to be identified that are directed at implementing both sediment and erosion control measures as well as other measures to control potential chemical contaminants. Examples of typical construction BMPs include scheduling or limiting certain activities to dry periods, installing sediment barriers such as silt fence and fiber rolls, and maintaining equipment and vehicles used for construction. Non-stormwater management measures include installing specific discharge controls during certain activities, such as paving operations, and vehicle and equipment washing and fueling. The SWPPP will also need to include descriptions of the BMPs to reduce pollutants in stormwater discharges after all construction phases have been completed at the site (post-construction BMPs). Project construction activities would be consistent with the Construction General Permit; compliance is required by law and the provisions of the permit and BMPs for construction and post-construction phases have proven effective in protecting water

quality at construction sites and down-gradient receiving waters. The Project would be required to comply with the 401 Permit and Construction General Permit to prevent impacts to receiving waters from sediment migration and direct discharges as detailed in a SWPPP and therefore, there would be no potential impacts.

Other potential water quality construction impacts would be with the installation of the 180-foot-long by 31-foot-wide temporary bridge made of prefabricated steel truss structure adjacent to the existing southbound lane of PCH and relocating utilities. The temporary bridge would accommodate two lanes of traffic while the new bridge is under construction. It would take approximately six months to construct and would be built to avoid having footings in the lagoon.

Once the temporary bridge is completed and traffic diverted, the old bridge would be removed in stages to facilitate construction of the new bridge, first northbound and then southbound. Prior to demolition of the old bridge, the area within the footprint of the bridge culvert would be dewatered. This would be accomplished by excluding fish from the work area to an appropriate adjacent upstream habitat supervised by a qualified biologist, then utilizing aquadams, portadams, or a cofferdam on either side of the culvert in lieu of driving sheet piles to mitigate the acoustic impacts. This control would be set up within a few feet of the culvert to lessen the temporary impact to the waterway. Pumps would be used to keep the work area dry during demolition. Water would be pumped into a staging pond for infiltration and eventual release into the ocean following water quality testing.

Shoring would be installed directly behind the culvert on both sides to support the soil underneath the active vehicular lane. The bridge deck and abutments would be removed with concrete saws and excavators with hoe-ram attachment to demolish the thick slabs supporting the culvert. Construction debris would be hauled off-site for disposal.

Piles would be cut three feet below the finished mudline or deeper. The latter would depend on the potential scour depth and/or scour impacts to the proposal piles. The second phase would be similar to the first. When completed, the water controls would be removed.

The construction of the temporary bridge, new bridge and removal of the old bridge will be subject to a 401 Permit and Construction General Permit and compliance with all permit requirements would result in less than significant impacts.

Would the on-site sediments that are excavated and placed in a permitted marine placement site impact water quality?

The Project would excavate sediments to increase the footprint of the lagoon and restore habitat. The sediment excavated as part of the project may be designated for placement in an off-site landfill or placed strategically in the nearshore to renourish the shoreline. Prior studies have assessed on-site sediment quality, including the Beneficial Reuse Soil Characterization (GeoPentech 2022). The Sediment Beneficial Reuse Study (Moffatt & Nichol 2022b) summarizes the sediment beneficial reuse options for the Project. Two 9-acre ocean disposal sites are proposed east of Topanga Point roughly 600 feet offshore of Topanga Beach.

The Revised Draft Sampling and Analysis Plan (SAP) (Moffatt & Nichol 2023) describes methods and procedures used to evaluate sediment from the proposed Topanga Lagoon Restoration project for its suitability for placement in the nearshore. The SAP details the physical and chemical testing that will be conducted to determine suitability of the excavated material for nearshore placement. Sampling of the proposed nearshore placement site and proposed project excavation site was conducted in 2022, physical and chemical testing was completed, and the SAP concludes that the excavated fill should be considered for nearshore placement at the proposed site.

The SAP notes the concern over potential impacts from nearshore sediment placement to nearshore habitat conditions. Preliminary efforts to avoid impacts were made, including locating the placement site outside of ecological resources and also at a far enough distance from the direction of longshore transport that would potentially move the sediment towards identified habitat to the West. However, a quantitative analysis would be required to accurately assess these concerns. A modeling study to better understand the potential movement of the placed sediment and its potential impacts will be performed to supply this detailed information. Should this upcoming study conclude that there are potential impacts to sensitive aquatic resources from the placement of fill in the proposed nearshore location, adaptive measures will be taken to avoid impacts. This may include a phased timeline to dredge discharge, adjusting discharge locations, and/or discharge rates. The SAP goes on to provide two placement alternatives (shifting placement site into deeper water, away from habitats and/or hauling to a landfill) in the case that the fine sediment content be considered too high for placement or numerical modeling shows significant environmental impact to surrounding habitat. Therefore, there would be no adverse impact as a result of nearshore placement.

3.2 Potential Impacts from the Project Post-Construction

Would the operations of the project violate any water quality standards or waste discharge requirements?

The Project would change impervious surfaces at the site. Alternative 2 would result in an overall reduction of impervious area while Alternatives 3 and 4 would result in an overall increase in impervious surfaces relative to existing conditions. The Project increases pervious areas by using design features such as decomposed granite. The Project's impervious surfaces, such as the new parking areas, sidewalks, and other elements, are designed to route runoff into new rain gardens. This combination of design features results in 85th percentile storm event flows conveyed in the post-development conditions generally matching the pre-development conditions. Therefore, the tributary storm water runoff from this project will not adversely affect persons, downstream properties or drainage facilities and is in adequate conformance with the LA County design criteria, guidelines, policies and procedures (CNA, 2022).

Would the project increase bacteria in the lagoon or at the beach?

The 2014 Topanga Source ID Study concluded that the upper watershed is not contributing to the bacteria exceedances observed at Topanga Beach. However, contributions from Topanga Lagoon are correlated with bacteria levels in the ocean during rain events and when the lagoon is connected to the ocean directly (Dagit et al, 2014). The 2014 Topanga Source ID Study also noted that dogs and gulls are a significant source of fecal contamination to the lagoon and ocean. The creation of additional wetlands under the Project may lead to an increase in bird and gull use of lagoon habitat, which could increase bacteria in the lagoon and ocean.

The expanded and restored seasonally wetted lagoon and riparian habitat areas under the Project Alternatives are expected to provide water quality treatment benefits. Restored vegetated wetland is expected to provide nutrient uptake and removal (Land et al, 2013) and reduce bacteria levels. Therefore, while an increase in bird and gull use may increase bacteria input to the lagoon, the expanded restored lagoon habitat may also reduce bacteria levels in the lagoon. The water quality treatment benefits of the restored vegetated wetland habitat is expected to outweigh the potential increase in bacteria inputs due to increase in bird and gull use.

The 2014 Topanga Source ID Study showed that while human marker was detected infrequently in the creek, lagoon and ocean, a single “direct deposit” of human feces to the lagoon resulted in an exceedance of ENT (Dagit et al, 2014). The Project’s proposed improvements to public access may help with achieving greater enforcement of the no dog and no camping on the beach rules, which could reduce dog and human sources (RCD and The Bay Foundation, 2022).

The Project would restore vegetated lagoon habitats that are expected to provide increased treatment of bacteria. Additionally, the Project’s improvements to public access may result in fewer violations of the no dog and no camping rule, reducing bacteria from “direct deposits.” Therefore, the Project is not anticipated to increase bacteria in the lagoon or at the beach and is not anticipated to negatively affect the implementation of the Bacteria TMDL at Topanga Beach.

Note that potential changes to the Topanga Beach surf break are assessed in the Surf Quality Impact Assessment for Topanga Lagoon Restoration (Integral Consulting Inc. 2023).

SECTION 4
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WATER QUALITY PRE-CONSTRUCTION BASELINE REPORT
TOPANGA LAGOON RESTORATION PROJECT
Topanga, CA



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EXECUTIVE SUMMARY

Topanga Creek has been listed by the Regional Water Quality Control Board 303(d) list for lead in the upper watershed and bacteria at Topanga Beach. No other pollutants of concern have been listed for the watershed. Topanga Creek has no storm water conveyance systems per se, but storm water is "conveyed" and enters the creek in a variety of ways. The data provided in this report compiles several study periods (2003-2004, 2008-2009, 2020-present) and focuses specifically on the lower creek and lagoon area only and data from 2022 will be added to the final report.

Fecal Indicator Bacteria (FIB) grades reported by Heal the Bay for Topanga Beach at the mouth of Topanga Lagoon are variable and even with low rainfall years the wet season grades are frequently low. Summer dry season grades vary with rainfall and higher rain years correspond to lower grades.

Surface salinity levels in the main body of Topanga Lagoon were mostly low, with a few higher saline events observed when overwash or tidal exchange occurred. No stratification has been documented. Between 2012-2014, mean salinity was 1.5 ppt, with a maximum of 5 ppt and minimum of 0 ppt. This pattern continues to be observed with little to no stratification of salinity documented and is consistent with the data gathered by the Hach HydroLab H7 data sonde in 2021.

Although average pH (7.6-8.2) was slightly on the alkaline side, even maximum recorded levels (7.9-8.5) remained within the tolerance limit range for most aquatic species. Again, this pattern appears to be holding with both our 2020-2021grab sample and sonde data.

Water temperature documented by the Hach Hydroloab HL7 showed diurnal cycles ranging from a low of 12 ^{o}C in the fall to a high of almost 29^{o}C in August 2021. Additional water temperature data collected by the HOBO Tidbits in the main lagoon and further upstream of the PCH bridge where there is riparian canopy cover shows a wider temperature difference.

Dissolved Oxygen levels in Topanga Lagoon vary diurnally but typically remain above 5 mg/l.

Overall turbidity ranged between 0-25 NTU with spikes that could be a result of people, dogs or birds stirring up the sediments.

Electrical Conductivity values ranged from a low of 2 up to over 30 µS between July – November 2021.

An Oxygen Reduction Potential value of between +300-500 mV is considered healthy. The data from July – November 2021 falls within this range.

Nitrate levels in Topanga Lagoon and creek were consistently well below the 1 ppm threshold for concern for aquatic species (EPA 2012) in 2012-2014, with a single maximum reading of 0.18 ppm in December 2013. The standard for drinking water is <10 ppm. Levels of nitrate greater than 3.5 ppm are thought to contribute to increased algal production and eutrophication in Southern California streams. Natural background readings vary depending on underlying geologic conditions, but can range from 0.0- 0.08 ppm (EPA 2012). The pending TMDL limit for Malibu Creek is <1 ppm (EPA 2012). Compared to both maximum and average levels documented at Topanga Lagoon (max=0.87, mean=0.14) in 2003-2004, levels in 2021 (max = 0.22, mean = 0.12 (n=3)) are even lower and consistent throughout the creek and lagoon.

Nitrite-N can have serious health effects for infants, and is the cause of the blue baby syndrome (EPA 2014). The tolerance levels for aquatic species are not well documented. The target for nitrite–N is 1 ppm (LARWQCB 1994 with 2011 updates). All sites within Topanga Lagoon and creek are consistently well below that threshold with a maximum of 0.05 ppm and mean of 0.01 ppm (n=30) recorded between 2012-2014. Although there are only 3 samples from 2021, the maximum recorded was 0.04 ppm with a mean of 0.03 ppm in the main lagoon. Samples upstream were similarly low (maximum 0.04 ppm, mean of 0.03 ppm).

Between 2008-2009, discrete total nitrogen (TN) and total phosphorus (TP) samples were collected in Topanga Lagoon and analyzed via persulfate digest and colorimetrically using an auto analyzer during both wet and dry weather conditions. The calculated annual TN load was 187 kg, which was the lowest recorded of all 23 estuaries (range=187-348,018kg Tijuana River Estuary) sampled in southern California. The annual TP of 25 kg was also the lowest recorded and matched only by Bolsa Chica and the range was from 25-82,988 kg at the Tijuana River Estuary (McLaughlin et al. 2013).

Common sources of orthophosphate levels exceeding 0.65 ppm in freshwater include organic elements from septic systems, graywater systems and inorganic sources like fertilizers and soaps from detergents. Natural readings range from 0.0-0.65 ppm.

Maximum orthophosphate levels exceeded the target of 0.10 ppm for all locations throughout Topanga Lagoon and Creek at some point during the 2012-2014 study when the maximum level occurred during a first flush event (0.16 ppm 1/24/13) in Topanga Lagoon. The non- storm event maximum at the lagoon was 0.93 ppm (3/6/2014) with a mean of 0.07 ppm). Mean level of 0.11 ppm was documented in 2003-2004 at Topanga Lagoon with a maximum of 0.37 ppm (Dagit et al. 2004). Levels in 2021 range between 0.1 and 0.28 ppm.

Algae cover was recorded in Topanga Lagoon in a variety of methods over the years. *Macrocystis* was observed floating (unattached) in Topanga Lagoon, especially following high tide/overwash or breach events. *Cladophora* sp. and *Phyllospadix sp*. were occasionally observed as well. *Ruppia sp.* were observed seasonally, with peak abundance in summer and early fall when 100 % of the substrate could be covered.

Based on the 2008-2009 data, Topanga Lagoon was ranked 11 of 23 estuaries, which puts it in the mid-range of overall condition for southern California based on the metrics of peak season macroalgal abundance, annual mean phytoplankton biomass and 10 percentile dissolved oxygen (McLaughlin et al. 2013).

BACKGROUND

Review of historic maps indicates that Topanga Lagoon was almost 30 acres in size in the late 1800's. Since the 1930's, the Topanga Lagoon footprint has been less than 1 acre. It is a naturally bar-built lagoon, meaning it is closed off (disconnected) from the ocean by a beach sand berm for long periods of time. This results in ponded water in the lagoon area that has been the subject of extensive research over the years.

Topanga Creek has been listed by the Regional Water Quality Control Board 303(d) list for lead in the upper watershed and bacteria at Topanga Beach. No other pollutants of concern have been listed for the watershed. Topanga Creek has no storm water conveyance systems per se, but storm water is "conveyed" and enters the creek in a variety of ways.

The greater lagoon area is divided into a patchwork of ownerships and development, with many of the existing facilities showing signs of damage and that are projected to further deteriorate into the future. The northern portion of the lagoon area is owned by the California Department of Parks and Recreation (CDPR) as part of Topanga State Park. It includes remnants of the historic Topanga Ranch Motel and associated beach parking. Visitor services include a parking lot and restroom along with several concessions that lease space onsite. The aging PCH bridge owned by the California Department of Transportation (Caltrans) bisects the lagoon and constrains the size of its mouth and channel. The lifeguard tower, beach, restrooms, and parking areas south of the PCH are managed by Los Angeles County Department of Beaches and Harbors (DBH) and are currently experiencing significant impacts from coastal erosion and storm surges, which is projected to increase with sea level rise (SLR).

The open water areas of the lagoon are managed by both CDPR and DBH and are significantly degraded due to impaired/limited habitat and water quality concerns; unmanaged human use-syringes, human feces, and trash are commonly encountered. Bacterial exceedances have been chronic, and a study looking at the source of these fecal bacteria found that dogs and birds contribute the most, but that human feces can also be a factor (Dagit et al. 2014). The Los Angeles City Department of Sanitation Environmental Monitoring Division collects samples weekly as part of the requirements of their Municipal Separate Storm Sewer System Permit (MS4) and those data are compiled and reported by Heal the Bay via the online Beach Report Card. As part of several previous studies, grab samples were tested for nutrients, and a more focused look at eutrophication was conducted in 2008-2009.

Topanga Lagoon does not receive imported water nor is there groundwater extraction, and the hydrologic regime remains naturally rain driven. The sand bar at the mouth of the creek breaches only during storm events, leaving the lagoon as a primarily freshwater system with occasional overwash and tidal influence mostly during the winter months. This isolation from both the upstream creek inputs which flow sub-surface in summer and fall and ocean influences results in seasonal variability of water volume in the lagoon.

During summer and fall of the on-going drought, the lagoon has been reduced to a shallow pool with maximum depths of 120 cm and average depths of 50cm downstream of the PCH bridge, and surface water retreats inland towards the bridge during low flow, high temperature season. Upstream of the PCH bridge, the lagoon is constrained by steep fill banks for approximately 300 m and the average wetted width is approximately 5 m, with depths averaging 30 cm for much of the year. Above 300m it transitions into the main stem of Topanga Creek.

Water temperature is a focal concern that has been monitored for many years. The limited size of the open water area also exposes sensitive species to significant temperature changes with few retreat areas to use during drought, heat waves, and other extreme weather events.

To date steelhead smolts have rarely been observed in Topanga Lagoon, and there are no records of anadromous adults (Dagit et al. 2019). This species migrates from the ocean with a salinity of 34 ppt, to freshwater streams for spawning, thus tolerating a wide salinity range. Optimal temperatures for *O. mykiss* to support spawning, rearing, growth and smolt migration range from 10-16^{o}C, but physical acclimation and/or genetic selection may extend that up to as high as 22^{o}C (McEwan and Jackson 1996; Farrell et al. 2015; Richter and Kolmes 2005). Although increased summer water temperature can be a limiting factor for salmonids, *O. mykiss* especially in southern California are distinct in their ability to withstand higher temperatures; a critical thermal maximum of 26.7^{o}C has been reported by multiple sources (CDWR 1988; Carter 2005). Sloat and Osterback (2013) observed a thermal threshold for *O. mykiss* persistence in Santa Paula Creek of 31.5^{o}C.

Tidewater gobies have a wide tolerance for salinity levels from 0 to 42 parts per thousand (ppt) and water temperature levels from 8 to 25^{o}Celsius (Irwin and Soltz 1984, Swift et al. 1989, Spies and Steele 2016).

Arroyo chub (*Gila orcuttii*) are rarely observed in Topanga Lagoon but are abundant throughout the upper creek. They have a wide temperature tolerance (10-24^{o}C) and can also tolerate low levels of dissolved oxygen (Castleberry and Cech 1986, Feeney and Swift 2008).

The beach supports a significant run of California grunion *(Leuresthes tenuis*) and on occasion juveniles of these marine fishes have been found in Topanga Lagoon. There is limited data on tolerances of both motile juveniles and adult grunion but typically they

are found in waters having a salinity of at least 25 ppt although there are rare observations of presence with a salinity as low as 15 ppt (K. Martin, *personal communication*). They are not expected to tolerate the low salinity levels commonly found in the lagoon. No other fish species have been observed in Topanga Lagoon.

USFWS, CDFW and NMFS have all required that the existing wetted (perennial above-surface water) area of the lagoon be protected and maintained during construction. Therefore all the alternatives propose expanding wetland, transitional and upland habitat by grading radiating out from the edge of the existing wet limits. There is a balance between protecting existing fish habitat giving the opportunity for these elements to expand over time in response to changes in sea level inundation.

HISTORIC WATER QUALITY STUDIES

There have been two important comprehensive sampling and monitoring studies in the Topanga Creek Watershed. The first took place in 2003-2004 (Dagit et al. 2004) and the second more comprehensive Topanga Source Identification Study 2012-2014 (Dagit et al. 2014) used Microbial Source Tracking methods approved by the California Source Identification Project to identify the sources of Fecal Indicator Bacteria (FIB). Both studies found that although there were several "hot spots" in the upper watershed, total and fecal coliform bacterial exceedances were associated with storm events only by the time the water was tested at the Bridge on Topanga Canyon Blvd. that is located approximately halfway between the town and the ocean. Ocean exceedances were therefore coming from sources at the beach or lagoon and increased when there was a breach condition during storm events. The lagoon may serve either as a location where microbial levels may be increasing due to growth of FIB or to the presence of new inputs from dogs and birds.

Dog and gull marker levels indicated that these were a significant source of fecal contamination to the lagoon and ocean, and both dog and gull sources are likely contributing to exceedances of Enterococcus (ENT) and E. coli (EC) state water quality standards at the ocean sites. When ENT levels were in exceedance, gull marker levels were higher than when ENT levels were in compliance at BO, and TL. When dog marker levels in Topanga water samples were compared to levels at two reference beaches and one dog beach, dog marker levels at Topanga were similar to levels at the dog beach. No dog marker was detected at the two reference beaches sampled (Dockweiler and Malibu).

These results need to be examined in light of known transient encampments, which it was found could significantly skew results. A single "direct deposit" was sufficient to cause exceedances.

Depending on rainfall, Topanga Lagoon discharges episodically into the ocean as late as July. This correlation between Lagoon discharges and high FIB values in ocean water samples strongly suggested that Topanga Lagoon was the primary source of high FIB levels in the surf zone.

In addition to examining the FIB conditions, other variables such as nutrients (nitrates, nitrites, orthophosphates, ammonia), turbidity and algal cover were also documented. Again, the pattern indicated that nutrient levels decreased as the creek flowed downstream, and even the hot spots of the upper watershed remained on the low end of typical urban conditions.

Restoring ecological function to Topanga Lagoon by increasing the potential for wetland plants and processes to assist with reducing FIB levels was recommended.

From October 2008 – 2009, Topanga Lagoon was one of 23 estuaries in a regional study conducted by the Southern California Coastal Water Research Project (SCCWRP) to examine eutrophication. Macroalgae biomass and cover, phytoplankton biomass and dissolved oxygen concentration were monitored and used as indicators to examine seasonal trends in duration of hypoxic events.



Figure 1. Locations of water quality sampling efforts in Topanga Lagoon

PROJECT DESCRIPTION

The 30% design alternatives of Topanga Lagoon being considered during the CEQA/NEPA review were developed to emphasize important target elements of overall project goals that evolved based on extensive public, technical and landowner input. None of the alternatives propose impacting the archaeological resources and all are designed to protect existing lagoon habitat for tidewater gobies. Natural breaching patterns based on rainfall will also be preserved. The fill on the west side of the lagoon will be removed and provide opportunity for implementing dune habitat and living shoreline protections.

Additionally, there are design elements that are examined in each alternative that could potentially be incorporated into other alternatives. For example, the dendritic pattern of grading proposed on the west side of Alternative 2 could be used for Alternative 3 or 4 as well. Each of the proposed alternatives result in expanded wetted areas with opportunity for increased wetland, emergent, riparian, and upland transitional species.

Water quality is key to supporting all ecological functions and potentially reducing the number of FIB exceedances. Thus documenting the conditions prior to restoration will be key to evaluating the success of the restoration effort.

BACTERIA MONITORING

METHODS

LA City Environmental Monitoring Division collects grab samples to test for FIB, *Enterococcus* and *E. coli* in the surf zone in front of the lagoon mouth on Topanga Beach weekly in accordance with their MS4 Permit requirements. These results are shared with the public via the website managed by Heal the Bay (Beach Report Card www.beachreportcard.org).

Between 2012-2014, the RCDSMM Stream Team, in collaboration with Dr. Jenny Jay's lab at UCLA, conducted the Topanga Source Identification Study (TSID) and collected samples at the first flush (0.75" or more) storm event, twice monthly during the wet season (November – March) and once monthly during dry season (April- October).

Water samples collected from the Topanga Creek watershed were analyzed for fecal indication bacteria (FIB) levels and host-associated molecular markers for human, dog, horse, and gull. Details on the methods used are found in Dagit et al. (2014) but summarized briefly here.

To obtain FIB concentrations, Total Coliform (TC), *Escherichia coli* (EC), and enterococci (ENT) were measured with Colilert-18™ and Enterolert™ (IDEXX, Westbrook ME) reagents and protocols to determine the most probable number (MPN) of cells per 100 ml sample.

Two human-associated markers were measured using the HF183 Taqman (HF) (Haugland et al. 2010) and the BacHum Taqman (BH) assays (Kildare et al. 2007). Based on results from year one that showed strong correlation between HF and BH markers, only BH was used to confirm a human signal in samples positive for the HF183 marker (n=42) during the year two. Samples were also analyzed for animal sources with three additional markers. The Gull2 Taqman assay (Gull) was used to measure gull-associated marker and the DogBac Taqman assay (Dog) was used to measure dog-associated marker. A conventional endpoint PCR assay, HoF597 (Horse), was used to detect fecal inputs associated with horse waste. Marker selection was based on a previous multi-laboratory comparison study (Boehm et al. 2013).

RESULTS

As shown in Table 1, FIB grades for Topanga Beach at the mouth of Topanga Lagoon are variable and even with low rainfall years the wet season grades are frequently low.

Table 1. Summary of Beach Report Card Grades for Topanga Lagoon

Topanga Lagoon (aka SMB-1-18)	Summer Dry	Year round Dry	Year round Wet	Rainfall Summary (inches)
2002-03	A	B	F	17.92
2003-04	C	C	F	13.16
2004-05	A	C	F	61.58
2005-06	F	F	F	21.98
2006-07	F	D	F	4.62
2007-08	A	A	F	23.08
2008-09	B	C	F	15.16
2009-10	F	C	F	24.40
2010-11	F	F	F	31.44
2011-12	F	D	F	16.22
2012-13	B	C	F	9.99
2013-14	A	B	C	6.85
2014-15	A	F	F	13.49
2015-16	A	B	C	10.54
2016-17	B	C	F	26.34
2017-18	B	B	D	9.91
2018-19	A	C	D	32.55
2019-20	A	B	D	22.58
2020-21	A	A	C	5.66

TSID Summary

Based on TSID analysis, the lagoon is a source of FIB to the ocean. FIB levels were significantly increased when the lagoon was breached and connected to the ocean regardless of season. FIB in the surf zone do not primarily originate from an upstream creek source, except under extremely elevated FIB levels and high flow events (during first flush events). Dog and gull marker appear to be a significant source of FIB to the

lagoon and ocean and likely contribute to exceedances seen in FIB data. Human marker was detected infrequently in the lagoon and ocean at the mouth of Topanga Creek/lagoon.

Other impacts from transients, careless visitors, or dumping from RV's were observed throughout the study period. Human, dog, and bird feces were observed fairly consistently at Topanga Lagoon. The presence of bird feces (mainly gull) was not surprising. It is illegal for dogs to be on Topanga Beach, however dogs and their feces were observed frequently. Human feces were observed on several occasions in the pedestrian underpass below PCH, as well as along the creek and beach. Observations of human feces in the underpass often coincided with observations of transient activity. We also documented RV discharge along the shoulder of Topanga Canyon Blvd. that was associated with a strong urine smell, and suspected discharge into the culvert from the shoulder of PCH that connects directly to Topanga Lagoon.

IN-SITU DATA SONDE MONITORING

From June - November 2021, The Bay Foundation installed a Hach Hydrolab HL7 mulitparameter data sonde along the west bank in the main part of Topanga Lagoon as shown in Figure 1. The sonde continuously recorded temperature, pH, EC, turbidity, dissolved oxygen, ORP, and salinity at 30-minute intervals.

METHODS

Calibration and data uploading occurred monthly. Raw data was filtered to only include desired parameters (date-time object, date, time, temperature, pH, EC, turbidity, dissolved oxygen, ORP, salinity). Limits were imposed on data according to the HL Series Sensors manual (Hydrolab, 2019). EC limited to ≤ 100 mS/cm, turbidity limited to ≤ 3000 NTU, DO limited to ≤ 60 mg/L, ORP limited to ≥ -999 mV and ≤ 999 mV. Values outside of these ranges were replaced with NA values in R and blank cells in excel. No limits on remaining parameters (pH, temperature, salinity) as no values approached limits were imposed. The data frame was cleaned to represent time only in which sonde was deployed in water. Data values during transport before and after deployment were removed.

Due to density of data, graphs were prepared for three periods of deployment:

- 2021-07-13 10:00:00 and 2021-08-10 10:00:00.
- 2021-08-16 14:50:00 and 2021-09-23 08:00:00
- 2021-09-23 10:00:00 and 2021-11-02 10:00:00

Plots were created in ggplot2 (Wickham H, 2016). Trend-lines were generated with generalized added model (GAM and y ~ s(x, bs = "cs"), the default smoothing method in ggplot2 when visualizing data with 1000 + observations.

RESULTS

Data sonde results are presented in graphs based on the reporting period. These will be consolidated into a single graph for 2021 in the final version of this report.

Salinity

Topanga Lagoon is predominantly freshwater during the enclosed summer season, reaching into the low range of brackish by reaching up to 5ppt when overwash occurs. Salinity data collected from deployment to 08/19/2021 appears anomalous and will be omitted from analysis. Figure X. shows the range of salinity recorded by monitoring period from July – November 2021.

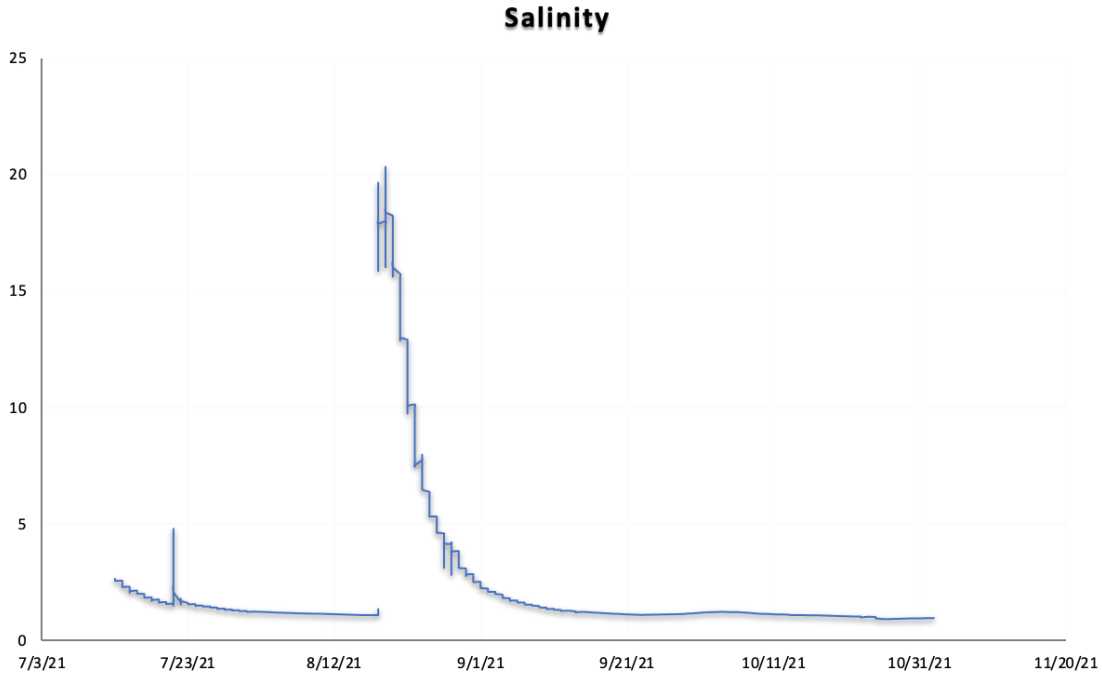


Figure 2. Salinity 7/16/2021 – 11/2/2021 from the data sonde in main lagoon. Note that the spike in August 2021 may be a result of calibration problems**.**

pH

The range of pH observed in Topanga Lagoon varied from a low of 7.5 to a high of 8.9 during the July – November 2021 deployment.

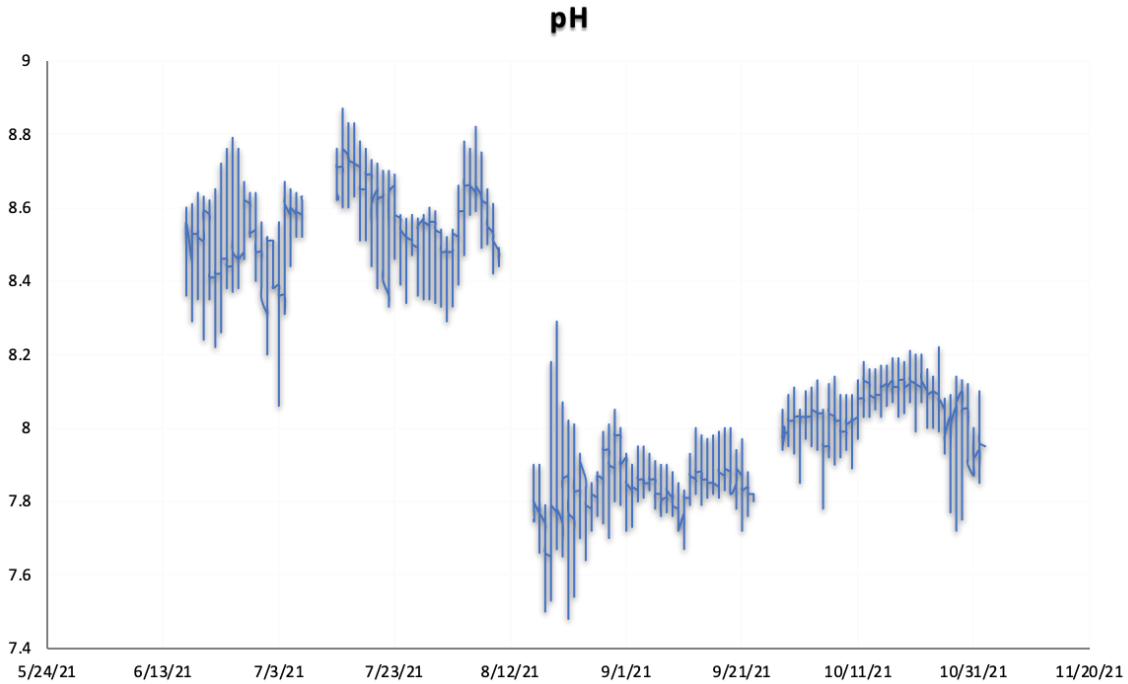


Figure 3. pH 6/16/2021 – 11/4/2021 from the data sonde in main lagoon

Water Temperature

Water temperature showed diurnal cycles ranging from a low of 12 ºC in the fall to a high of almost 29ºC in August 2021.

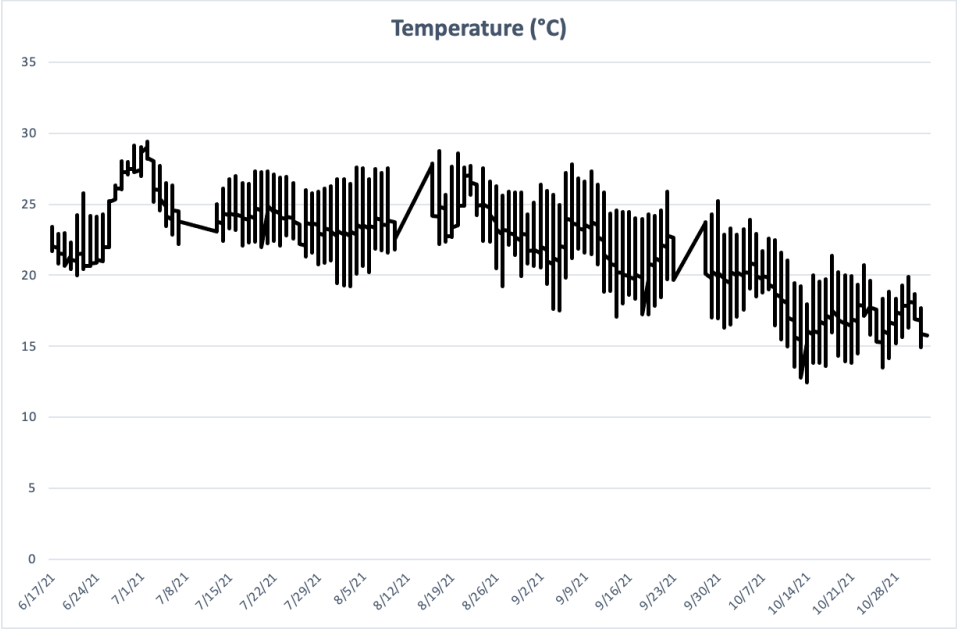


Figure 4. Water Temperature 6/16/2021 – 11/4/2021 from the data sonde in main lagoon.

Dissolved Oxygen

Dissolved oxygen (DO) levels naturally vary during the day, and are typically highest in the middle to late in the day when plants and algae are photosynthesizing, and lowest in the early morning, after plants and algae have been respiring throughout the night. The Los Angeles Regional Water Quality Control Plan (LARWQCB 1994 with 2011 updates) has a water quality objective of greater than 5 mg/l for any single determination in cold water, and greater than 7 mg/l for all waters, except where natural conditions cause lesser concentrations.

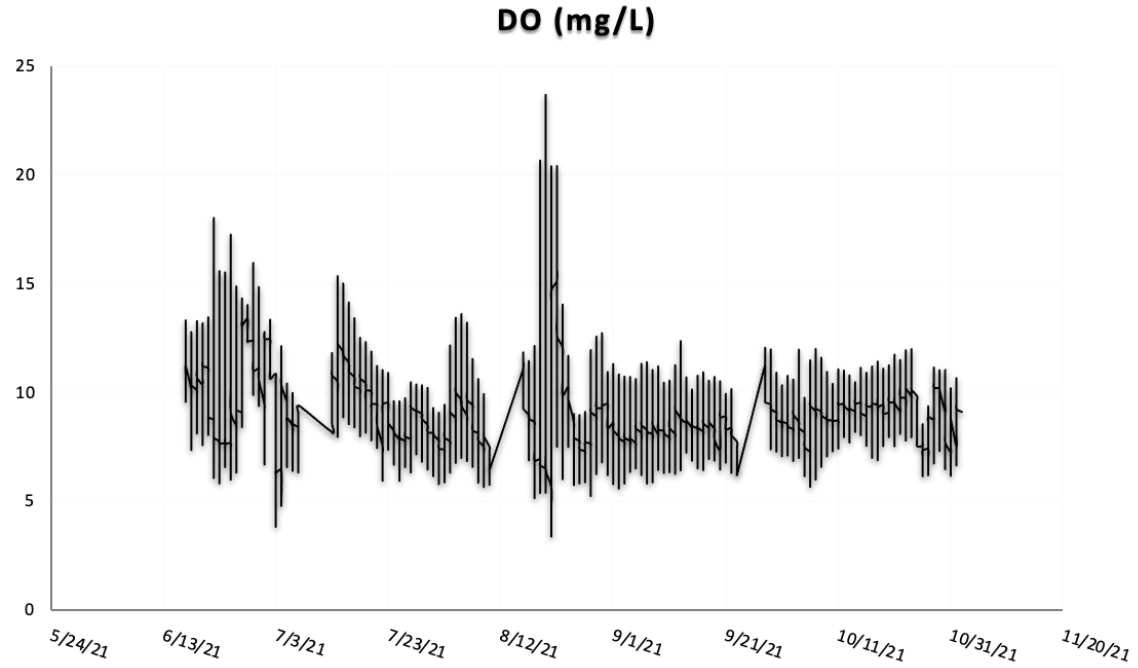


Figure 5. Dissolved Oxygen 6/17/2021 – 11/4/2021 from the data sonde in main lagoon.

Turbidity

Overall turbidity ranged between 0-25 NTU with spikes that could be a result of people, dogs or birds stirring up the sediments. Turbidity was recorded as 4,306.3 NTU on 10/31/2021 12:00, which exceeds the Hydrolab limit of 3,000 NTU. This observation was excluded from the dataset and marked as NA.

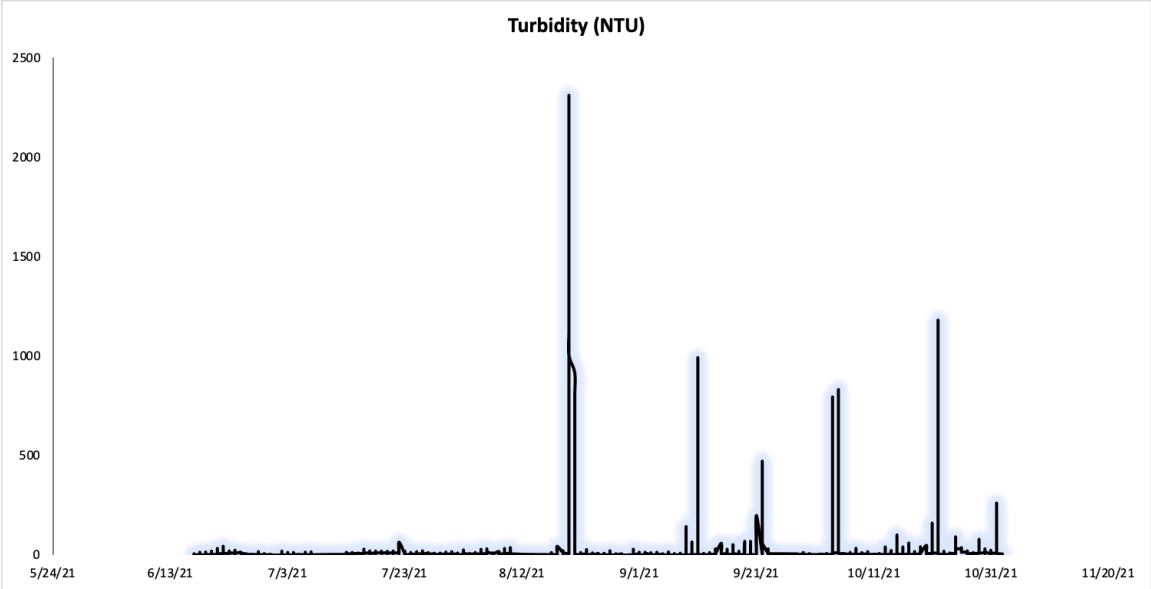


Figure 6. Turbidity in the main body of Topanga Lagoon July – November 2021

Electrical Conductivity (EC)

The ability to conduct an electrical current is based on the level of salts or other chemicals dissolved in water. This measurement is used to calculate the amount of total dissolved salts (TDS), which in turn provides insight into the electrical conductivity of the water. The standard EC for drinking water is less than 400 µS. Freshwater values range from 0-1500 µS and ocean water is typically 50,000 µS. During the deployment of the sonde values ranged from a low of 2 up to over 30 µS between July – November 2021.

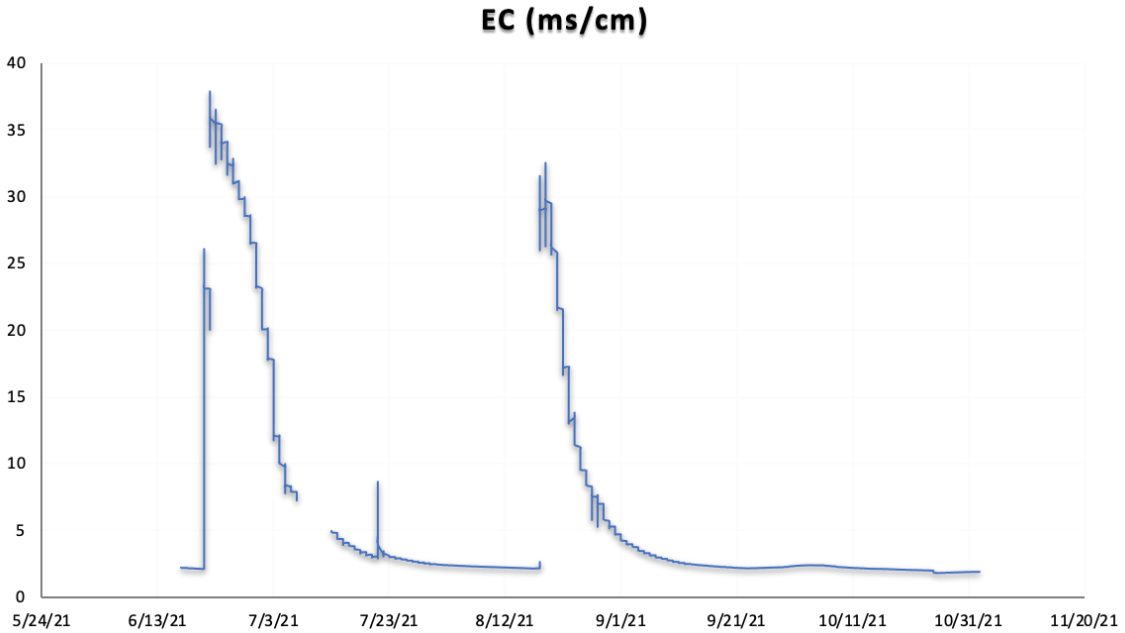


Figure 7. EC in the main body of Topanga Lagoon July – November 2021

Oxygen Reduction Potential (ORP)

ORP is considered to be an important indicator of pollution levels by measuring the oxidizing or reducing potential of water. The voltage between a platinum measuring electrode and a reference electrode can be either positive, which indicates an oxidizing environment or negative, which indicates a reducing environment and is measured in millivolts (mV). ORP is affected by temperature and drinking water is usually between+200-+600 mV. An ORP value of between +300-500 mV is considered healthy. The data from July – November 2021 falls within this range.

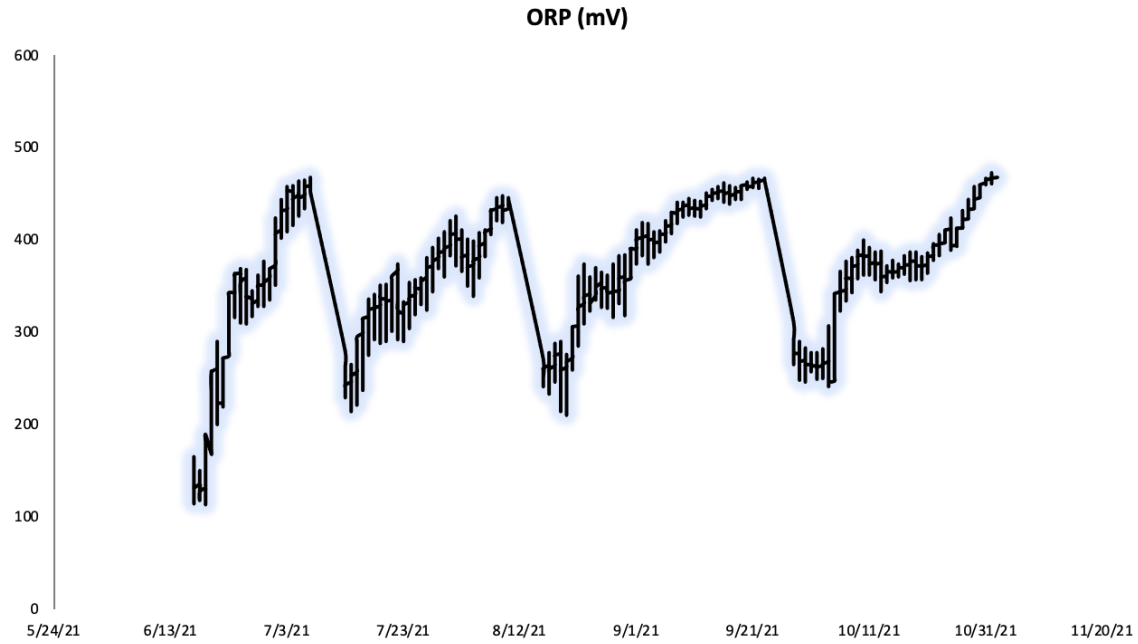


Figure 8. ORP in the main body of Topanga Lagoon July – November 2021

GRAB SAMPLE AND NUTRIENT MONITORING

Aquatic health of Topanga Lagoon and creek is influenced by numerous factors. Aquatic species typically tolerate levels of nutrient loading that are lower than drinking water standards used to evaluate water quality. For instance, the drinking water standard used by the Regional Water Quality Control Board to regulate discharge from sewage treatment facilities for nitrogen–N is 10 mg/L. By comparison, the EPA limit for freshwater aquatic systems for nitrogen-N is 1 mg/L (EPA 2012).

Eutrophication describes the excessive growth of algae and plant matter due to the increased input of factors needed to photosynthesize, such as nutrients. Eutrophication occurs naturally in freshwater ecosystems over time with sedimentation; however, the

process has been accelerated in many places due to nearby human activity. Input of nutrients can be from point (e.g., culverts) or non-point (e.g., runoff) sources.

Additionally, excessive nutrients typically lead to algae blooms, which can affect in-situ water quality parameters, such as pH and dissolved oxygen. For instance, when algae and plants are photosynthesizing during the day, dissolved oxygen levels will be high, however, when they respire at night, or die, oxygen is depleted. Aquatic organisms especially steelhead trout typically require a consistent level of 5 mg/L or above of dissolved oxygen to survive, and when levels drop below this, it can be detrimental to the aquatic wildlife (LARWQCB 1994 with 2011 updates).

METHODS

From 2012-2014, water samples were collected in the field monthly during the dry season (April – October) and bi-weekly during the wet season (November – March), and at the first flush rain event (> 0.75") in 500 mL bottles. Bottles were rinsed three times and filled and capped underwater. Nutrient testing (nitrate-N, nitrite-N, orthophosphates, ammonia-N) of grab samples was done within six hours of collection using a LaMotte SMART3 Colorimeter. Turbidity was tested using a LaMotte Turbidimeter 2020we.

In-situ parameters measured included water temperature, pH, salinity, conductivity, and dissolved oxygen. Water temperature (ºC) and dissolved oxygen (mg/L and % saturated) were tested using a handheld YSI 55 DO meter. Conductivity (µS/cm) and pH were tested using handheld Oakton probes (waterproof ECTestr11 and waterproof pHTestr 30, respectively). Salinity (ppm) was tested using a handheld refractometer (ATC 300011 SPER SCIENTIFIC salt refractometer). Air temperature was measured using a mercury thermometer.

Beginning in October 2021, monthly grab samples have been collected and tested for nitrate-N, nitrite-N, and orthophosphates, along with in-situ data using the same tools as listed above.

RESULTS

The raw data for these samples are detailed in Appendix A.

Salinity

Surface salinity levels in the main body of Topanga Lagoon were mostly low, with a few higher saline events observed when overwash or tidal exchange occurred. No stratification has been documented. Between 2012-2014, mean salinity was 1.5 ppt, with a maximum of 5 ppt and minimum of 0 ppt. This pattern continues to be observed with little to no stratification of salinity documented and is consistent with the data gathered by the HydroLab data sonde in 2021. Samples taken at the upper lagoon site (80m upstream of PCH bridge) occasionally are slightly brackish (7 ppt in December 2021 following a breach event) but generally under 1 ppt. Thus, Topanga Lagoon is primarily a

freshwater dominated system, with brackish conditions only occurring during and immediately following a breach event with tidal overwash.

pH

pH levels throughout the creek and lagoon remained fairly consistent in 2012-2014 and did not fluctuate significantly. Most aquatic species prefer a pH range between 6.5-9 in freshwater systems, which is also the range for the RWQCB Water Quality Objective. Although average pH (7.6-8.2) was slightly on the alkaline side, even maximum recorded levels (7.9-8.5) remained within the tolerance limit range for most aquatic species. Again, this pattern appears to be holding with both our 2020-2021 grab sample and sonde data.

Conductivity

At standard temperatures, conductivity is a measure of the number of dissolved ions in the water, and is recorded as µS/cm (microsiemens per centimeter). Ranges are usually from 0.5-3.0 µS/cm for distilled water, with potable water ranging from 30-1500 µS/cm and seawater up to 53,000 µS/cm. No specific water quality range is included in the Water Quality Control Plan Los Angeles Region. This measurement is an indirect way to evaluate the amount of dissolved salts in the water that are conductors. In conjunction with pH and salinity, conductivity is used to evaluate inputs from groundwater sources or sewage.

During the 2012-2014 study, the mean conductivity in the lagoon based on 30 samples was 3576 µS/cm, with a maximum of 10250 µS/cm and minimum of 2000 µS/cm Grab samples collected in 2020- 2021 ranged from 1324 µS/cm to a high of 1780 µS/cm. This is within the same range as EC data collected by the HydroLab data sonde.

Nitrate - N

The nitrate levels in Topanga Lagoon and creek were consistently well below the 1 ppm threshold for concern for aquatic species (EPA 2012) in 2012-2014, with a single maximum reading of 0.18 ppm in December 2013. The standard for drinking water is <10 ppm. Levels of nitrate greater than 3.5 ppm are thought to contribute to increased algal production and eutrophication in Southern California streams (Luce and Abramson 2005). Natural background readings vary depending on underlying geologic conditions, but can range from 0.0- 0.08 ppm (EPA 2012). The pending TMDL limit for Malibu Creek is <1 ppm (EPA 2012). Compared to both maximum and average levels documented at Topanga Lagoon (max=0.87, mean=0.14) in 2003-2004, levels in 2021 (max = 0.22, mean = 0.12 (n=3)) are even lower and consistent throughout the creek and lagoon.

Nitrite - N

Nitrite-N can have serious health effects for infants, and is the cause of the blue baby syndrome (EPA 2014). The tolerance levels for aquatic species are not well documented. The target for nitrite–N is 1 ppm (LARWQCB 1994 with 2011 updates). All sites within Topanga Lagoon and creek are consistently well below that threshold with a maximum of 0.05 ppm and mean of 0.01 ppm (n=30) recorded between 2012-2014. Although there are

only 3 samples from 2021, the maximum recorded was 0.04 ppm with a mean of 0.03 ppm in the main lagoon. Samples upstream were similarly low (maximum 0.04 ppm, mean of 0.03 ppm).

Between 2008-2009, discrete total nitrogen (TN) and total phosphorus (TP) samples were collected in Topanga Lagoon and analyzed via persulfate digest and colorimetrically using an auto analyzer during both wet and dry weather conditions. The calculated annual TN load was 187 kg, which was the lowest recorded of all 23 estuaries (range=187-348,018kg Tijuana River Estuary) sampled in southern California. The annual TP of 25 kg was also the lowest recorded and matched only by Bolsa Chica and the range was from 25-82,988 kg at the Tijuana River Estuary (McLaughlin et al. 2013).

Orthophosphate

Common sources of orthophosphate levels exceeding 0.65 ppm in freshwater include organic elements from septic systems, graywater systems and inorganic sources like fertilizers and soaps from detergents. Natural readings range from 0.0-0.65 ppm.

Maximum orthophosphate levels exceeded the target of 0.10 ppm for all locations throughout Topanga Lagoon and Creek at some point during the 2012-2014 study when the maximum level occurred during a first flush event (0.16 ppm 1/24/13) in Topanga Lagoon. The non- storm event maximum at the lagoon was 0.93 ppm (3/6/2014) with a mean of 0.07 ppm). Mean level of 0.11 ppm was documented in 2003-2004 at Topanga Lagoon with a maximum of 0.37 ppm (Dagit et al. 2004). Levels in 2021 range between 0.1 and 0.28 ppm.

Ammonia -N

Most aquatic species are quite sensitive to increased levels of ammonia, with toxicity occurring between 1-25 ppm. The Water Quality Control Plan Los Angeles Region utilizes the EPA pH adjusted range of 2.5 – 10.5 ppm with a target of <0.4 ppm. The most common sources of ammonia –N in freshwater systems are human effluent and animal wastes.

Between 2012-2014, the maximum level documented was 0.70 ppm (02/07/14) during non-first flush conditions. The mean of 0.06 ppm (n=30) and minimum of 0 ppm suggest that ammonia is not a significant issue in Topanga lagoon.

Turbidity

The amount of suspended particles, phytoplankton, pollutants, and other materials is measured as turbidity. Not only does turbidity affect water clarity, it can also increase heat absorption and impair breathing and foraging of aquatic animal species (Yamamoto 2010). The Los Angeles Region Basin Plan objective for turbidity is a mix of numeric and narrative: “The secondary drinking water standard for turbidity is 5 NTU. Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in natural turbidity attributable to controllable water quality factors shall not exceed the following: where natural turbidity is between 0 and 50 NTU, increases

shall not exceed 20%; where natural turbidity is greater than 50 NTU, increases shall not exceed 10%."

Other than a few incidents of high turbidity observed at Topanga Lagoon such as the maximum level documented on 3/24/2014 of 10.31 NTU, mean levels (2.86 NTU (n=30)) have been below the drinking water standard of 5 NTU. Turbidity levels in the main body of Topanga Lagoon associated with storm events (max = 44.7 NTU, mean = 2.53 NTU) were significantly higher in 2003-2004 than in 2012-2014. Following the storm event in December 2021 turbidity increased (max = 36.15 NTU, mean = 6.41 NTU) but was significantly lower (under 2 NTU) during the dry condition.

ALGAE MONITORING

In order to track the presence and abundance of algae in the lagoon, two types of algae data were taken. During each sampling event between 2008-2009, and again in 2012-2014, a visual estimate of percent cover and random point contact method data were collected.

METHODS

Algae cover was recorded in Topanga Lagoon during monthly snorkel surveys using a visual estimate of percent cover for the lagoon as a whole, with the observations generally made from the bank above or from the east bank, which provided a good view of the whole lagoon area south of the PCH bridge.

Additional more quantitative algae monitoring took place between October 2008-2009 as part of the SCCWRP Eutrophication Study (McLaughlin et al. 2013). Macroalgal biomass and cover were measured at three 30-50 m transects and percent cover at ten randomly selected points along each transect were taking using the point intercept method with 0.5 square meter quadrats. Biomass samples were cleaned and both wet and dry weights collected. Phytoplankton biomass was estimated using both fluorescent measurements from the YSI 6600 data sonde probe and via discrete grab samples taken every other month and then filtered to determine chlorophyll a concentration.

Documentation of algae species and relative abundance was also done as part of the tidewater goby surveys in June and November 2020 and April, June and November 2021.

RESULTS

Macrocystis was observed floating (unattached) in Topanga Lagoon, especially following high tide/overwash or breach events. *Cladophora* sp. and *Phyllospadix sp*. were observed in Topanga Lagoon occasionally as well. *Ruppia sp.* were observed seasonally, with peak abundance in summer and early fall when 100 % of the substrate could be covered.

Based on the 2008-2009 data, Topanga Lagoon was ranked 11 of 23 estuaries, which puts it in the mid-range of overall condition for southern California based on the metrics of peak season macroalgal abundance, annual mean phytoplankton biomass and 10 percentile dissolved oxygen (McLaughlin et al. 2013).

WATER TEMPERATURE MONITORING

Water temperature is a concern for fish because they typically maintain body temperatures that match that of their surrounding environment. To date, *O. mykiss* have been observed only rarely in Topanga Lagoon and only for short periods of time (<1 day) as they outmigrate. However, the lagoon is consistently important habitat for endangered tidewater gobies (*Eucyclogobius newberyii*). *E. newberyii* have a wider temperature and dissolved oxygen tolerance than *O. mykiss,* and, despite the higher average temperatures in the lagoon, thrive there and extend approximately 300 meters upstream (RCDSMM, *unpublished data*). Tidewater gobies have a wide tolerance of water temperature levels from 8 to 25ºC (Irwin and Soltz 1984, Swift et al. 1989, Spies and Steele 2016).

Optimal temperatures for *O. mykiss* to support spawning, rearing, growth and smolt migration range from 10-16ºC, but physical acclimation and/or genetic selection may extend that up to as high as 22ºC (McEwan and Jackson 1996; Farrell et al. 2015; Richter and Kolmes 2005). Although increased summer water temperature can be a limiting factor for salmonids, *O. mykiss* especially in southern California are distinct in their ability to withstand higher temperatures; a critical thermal maximum of 26.7ºC has been reported by multiple sources (CDWR 1988; Carter 2005). Sloat and Osterback (2013) observed a thermal threshold for *O. mykiss* persistence in Santa Paula Creek of 31.5ºC.

Critical thermal maximum is based on acclimatization over a relatively short time period and is considered higher than what a fish could tolerate for hours to days and still swim. The temperature at which limited growth, mortality, and other negative effects are induced can be influenced not only by acclimation temperature, but also covariate stressors such as low dissolved oxygen content, and food availability (Boughton et al. 2007; Farrell et al. 2015). Abundant food availability has been attributed to continued growth past in higher temperatures (Spina 2007; Krug et al. 2012). However, if food resources become limited, then tolerance of higher temperatures decreases (Sloat and Osterback 2013). Incipient lethal temperatures are identified as the temperature at which over 50% of fish exposed to that temperature die.

Most studies examine effects of increased maximum temperatures, but few studies have examined the effect of gradually increasing minimum temperatures, which could raise the lower limit of temperature ranges needed for recovery from either short-term or chronic sub-lethal exposure to high temperatures, as well as potentially alter the composition of BMI communities that provide important food resources, and increase habitat suitability for competitive invasive species. The effects of exposure to sub-lethal temperatures are not well studied, but a behavioral response to warm temperatures suggests that *O. mykiss* will move to refugia locations that have cooler temperatures if they are available (Sloat

and Osterback 2013). Increased levels of diseases are also associated with warmer water temperatures (Noga 2000). For instance, the common ectoparasitic protozoan *Ichthyophthirius multifiliis*, (usually referred to as Ich) is widespread in freshwater systems and associated with increased stress and impaired immunity (Noga 2000).

METHODS

Based on the recommendations of the Technical Advisory Committee, and in the interest of more comprehensively documenting temperature patterns in both the very exposed main lagoon body with limited shade provided only by the steep fill banks compared to the more riparian tree shaded portion of the lagoon upstream of the PCH bridge, a HOBO Tidbit v2 temperature logger was installed on the west side of the main lagoon in January 2020. Both this logger and the one located in upper Topanga Lagoon (80 m above PCH bridge) record at 30-minute intervals. Both water and air temperature at the upper lagoon location (80 m upstream of the PCH bridge) has been monitored since 2014. Data was uploaded monthly during snorkel surveys and data managed according to QAQC protocols.

RESULTS

Water temperatures collected between 2012-2014 were mostly comparable in the lower and upper lagoon except for during a period of time from April to June 2014 when temperatures were considerably higher in the lower lagoon. The first flush temperatures ranged between 12.6-14.2 ^{o}C, while the non-storm event mean was 16.3 ^{o}C with a maximum of 22.5 ^{o}C and minimum of 7.4 ^{o}C.

During July 2020, water temperature in the main lagoon exceeded 35 ^{o}C and continued to fluctuate from 20-35 ^{o}C into September (Figure x). This corresponded with a shallow depth and stagnant condition due to the drought. In general, the main lagoon area temperatures range between 7-25 ^{o}C. This is well within the tolerance range of tidewater gobies (ADD) but on the high end of the preferred temperature range for southern steelhead (ADD).

The duration of time when water temperatures are challenging for aquatic species is also important. Figure X. shows that temperatures between 21-25 ^{o}C were higher in summer/fall 2020, and substantially lower in 2021, although the lagoon experienced lengthy time periods in both years that are on the upper end of thermal tolerance for both tidewater gobies and southern steelhead.

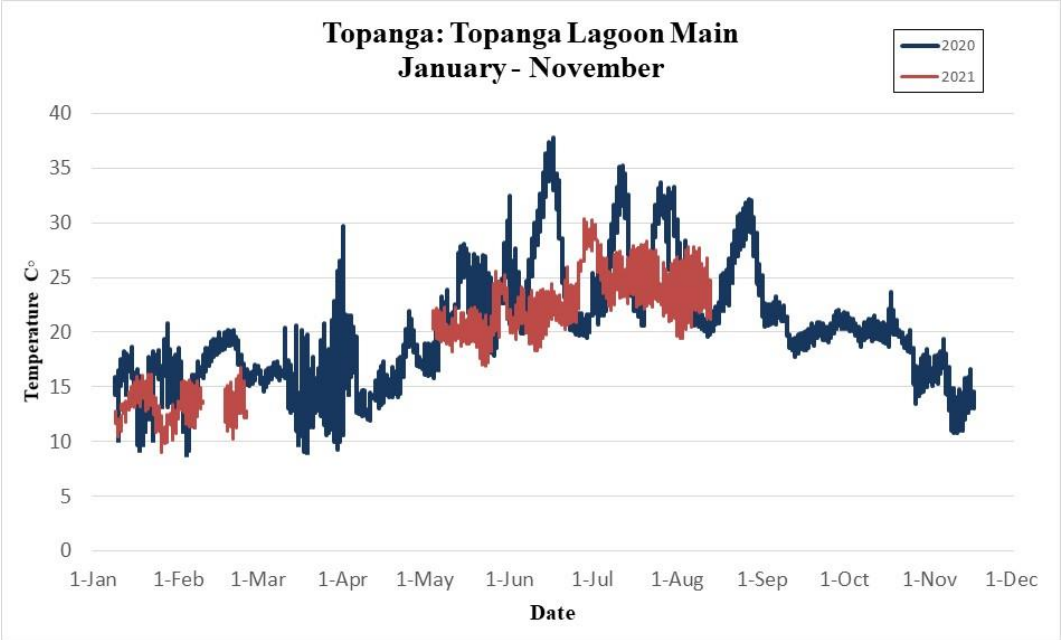


Figure 9. Water temperatures measured in Topanga Lagoon January 2020 – December 2021

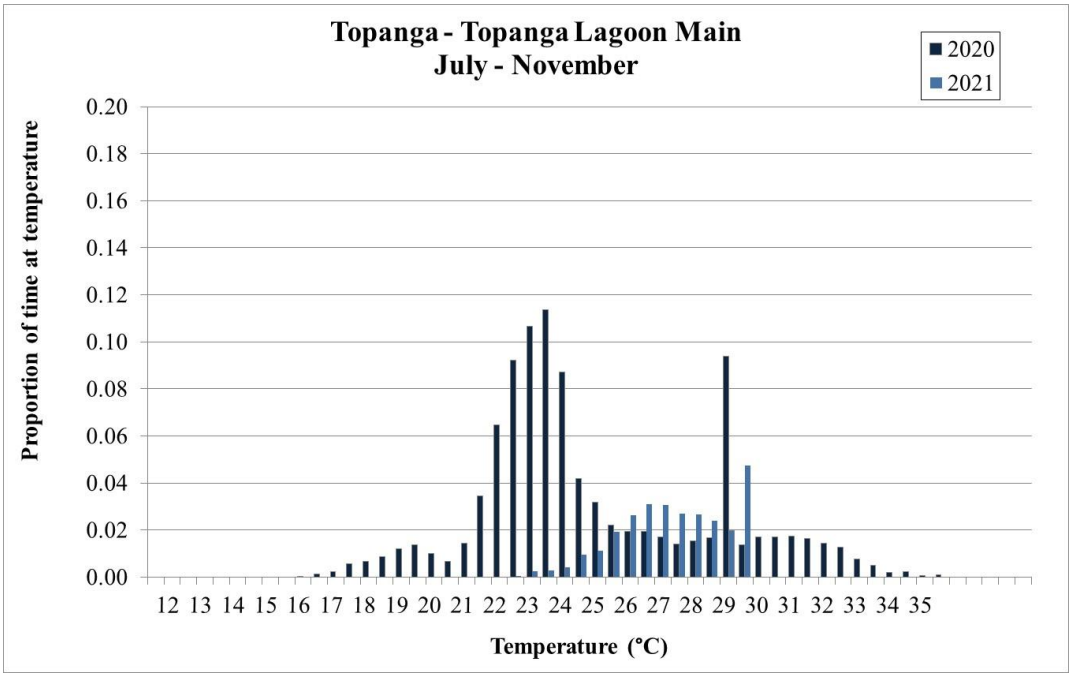


Figure 10. Percent time at each water temperature measured in Topanga Lagoon July 2020 – November 2021

The pattern of water temperatures in the upper lagoon site where the wetted channel has approximately 60% canopy cover tells a different story (Figure X). The water temperature rarely exceeded 25 ºC and the diurnal difference during spring through fall remains mostly within the preferred temperature range for tidewater gobies, and although slightly on the higher tolerance end for steelhead, definitely could support juvenile rearing.

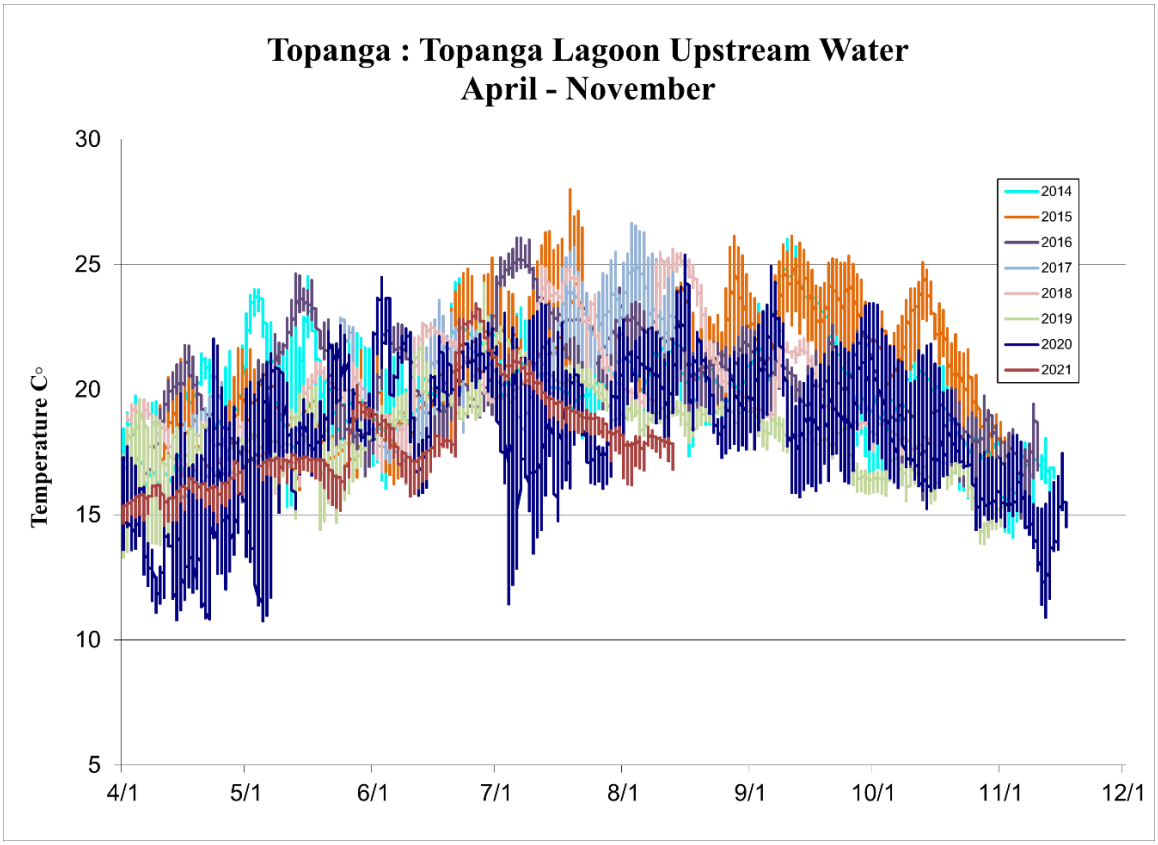


Figure 11. Water temperatures measured in Topanga Lagoon Upstream (80m) annually from April 2014 – December 2021

The proportion of time when temperatures exceeded 20 ºC was substantially less than that observed in the main body of the lagoon as shown in Figure .X. It is interesting to observe that the diurnal difference between daily high and low temperatures is contracting, which results in less cool recovery time overnight.

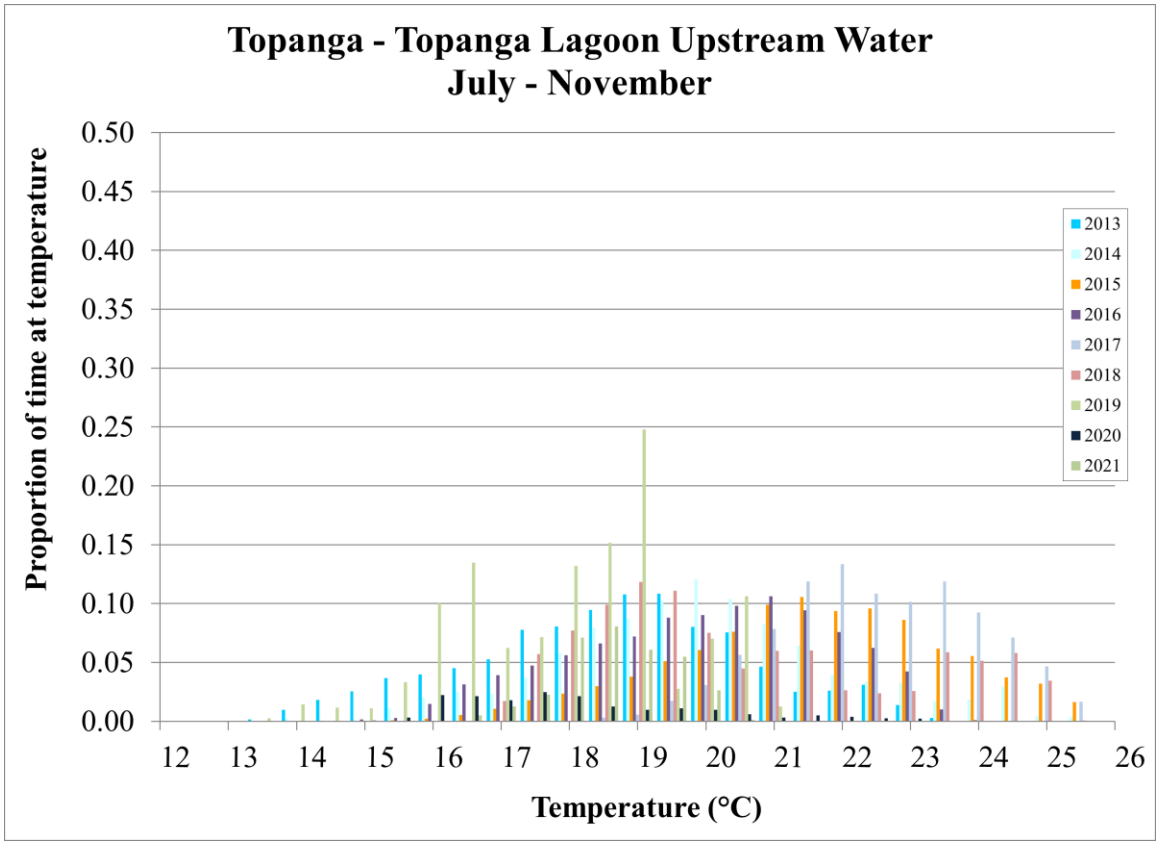


Figure 12. Percent time at each water temperature measured in Topanga Lagoon Upstream (80m) annually from July 2013 – November 2021

QA/QC PROTOCOLS

A variety of quality assurance/quality control measures were taken to assure quality data was collected and managed correctly. A complete Topanga Source ID Study Quality Assurance/Quality Control Plan (April 2013) provided all details and includes measures to ensure the accuracy, precision and completeness of all data collected. These standards of practice were implemented throughout the study in 2012-2014 and 2021- present.

All staff were trained how to use, calibrate and maintain the water quality testing equipment, as well as how to properly collect nutrient, bacteria samples, flow and algae data in the field. Additional training covered downloading and processing the HOBO temperature logger data. Sonde calibration, data upload and post-processing QAQC was done by SCCWRP (2013-2014) and The Bay Foundation (2021-present).

RECOMMENDATIONS

Alternative 2 provides the largest lagoon footprint, and therefore could provide the most wetland, emergent and riparian vegetation to assist in shading the water to moderate temperatures, and providing nutrient cycling. Alternatives 3 and 4 do not expand the

wetted areas and are not expected to provide as much potential water quality benefit. Bacteria levels are not expected to change substantively in any alternative as the primary bird source will remain and could possibly increase. Reduction of dog and human sources could be achieved with greater enforcement of the no dog or camping on the beach rules.

Vector Control issues and management have been problematic at some previous lagoon restoration sites. Refinement of the alternatives to incorporate state of the science and Best Management Practices into the final preferred alternative to prevent future problems.

Pre-Construction

- Continue baseline monthly, in-situ and grab samples for nutrients, seasonal sonde deployment and water temperature monitoring to document conditions prior to construction.

During Construction

Implement Best Management Practices required by all permits including but not limited to:

- Daily turbidity and dissolved oxygen sampling
- Deployment of water temperature loggers
- Oversight monitoring of construction activities and implementation of all Storm Water Protection and water diversion requirements.

Post-Construction

- Implement post-construction monthly in-situ and grab samples, seasonal sonde deployment and water temperature monitoring to document conditions for five years to document changes over time.

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APPENDIX A
MONTHLY GRAB SAMPLE DATA

Site 1: Main Lagoon									
DATE	10/26/2021	11/16/2021	12/16/2021	1/5/2022	2/7/2022	3/8/2022	4/5/2022	5/3/2022	6/8/2022
TIME	13:40	13:12	9:00	15:03	12:00	13:00	13:30	14:30	12:30
BERM CONDITION	closed	closed	open, not connected	open, connected	open, not passable	open	open, not connected	closed	closed
AIR TEMP	18	20	12	20	20	20	24	19	18
SALINITY	0	6	23	1	0	1	0	0	0
CONDUCTIVITY	1780	1160	#N/A	1720	1710	310	5.4	3.04	3.2
pH	7.2	8.66	7.34	8.73	8.44	8.23	8.17	8.65	8.3
WATER TEMPERATURE(degrees C)	20.9	19.2	11.1	13.7	17.5	19.1	20.1	21.6	21.7
DISSOLVED OXYGEN(mg/l)	1.45	4.39	#N/A	#N/A	#N/A	#N/A	5.13	6.05	3.43
WATER DEPTH cm		20	10	20	110/40	15	80	20	10
Site 2: Upstream of Bridge									
DATE	10/26/2021	11/16/2021	12/16/2021	1/5/2022	2/7/2022	3/8/2022	4/5/2022	5/3/2022	6/8/2022
TIME	14:10	13:43	9:27	15:21	12:00	13:18	13:58	14:40	12:45
BERM CONDITION	closed	closed	open, not connected	open, connected	open, not connected	open	open, not connected	closed	closed
AIR TEMP	19.7	20	12	19	20	19	22	18	18
SALINITY	0	6	23	0	0	1	0	0	0
CONDUCTIVITY	1790	11	#N/A	#N/A	#N/A	1910	2.2	2.9	3
pH	8.35	8.55	7.65	8.57	7.96	8.08	8.1	8.96	8.52
WATER TEMPERATURE(degrees C)	20.9	16.7	9.8	13.3	14.5	14.3	16.7	21	20.6
DISSOLVED OXYGEN(mg/l)	1.54	3	#N/A	#N/A	#N/A	#N/A	9.42	7.47	2.93
WATER DEPTH cm	30	20	25	25	90/40	15	60	40	30
Site 3: 80m									
DATE	10/26/2021	11/16/2021	12/16/2021	1/5/2022	2/7/2022	3/8/2022	4/5/2022	5/3/2022	6/8/2022
TIME	14:35	13:58	9:53	15:37	12:00	13:32	14:15	15:07	13:10
BERM CONDITION	closed	closed	open, not connected	open, connected	open, not connected	open	open, not connected	closed	closed
AIR TEMP	18	20	12	20	18	20	23	19	18
SALINITY	0	2	7	0	0	0	0	0	0
CONDUCTIVITY	1910	2.9	#N/A	#N/A	1680	1840	1.67	1710	2.3
pH	7.48	7.44	7.31	8.64	8.02	7.67	8.01	8.2	8.09
WATER TEMPERATURE(degrees C)	19.2	16.6	12.1	12.4	15.5	16.3	17.8	18.5	18.5
DISSOLVED OXYGEN(mg/l)	0.02	#N/A	#N/A	#N/A	#N/A	#N/A	6.7	9.66	3.51
WATER DEPTH cm	30	20	55	20	80/40	60	60	40	50

Nutrients table

		October	**November**	**December**	**January**	**February**	**March**	**April**	**May**	**June**
Lagoon Condition		Closed	Closed	Open	Open	Open	Open	Open	Closed	Closed
Nitrates										
Main Lagoon		0.22	0.02	0.13	3.87	0.17	0.03	0.14	0.11	0
Upstream of Bridge		0.26	0	0.15	3.66	0.31	0.03	0.07	0.05	0
80M		0.02	0.01	0.31	3.98	0.24	0.06	0.07	0.04	0.01
Nitrites										
Main Lagoon		0.04	0.02	0.03	0.05	0.03	0	0.02	0.04	0.03
Upstream of Bridge		0.04	0.01	0.02	0.07	0.01	0	0.03	0.07	0.03
80M		0.04	0.02	0.03	0.04	0.02	0.01	0	0.02	0
Phosphates										
Main Lagoon		0.1	0.08	0.12	0.12	0	0	0.08	0.1	0.11
Upstream of Bridge		0.28	0.02	0.16	0.03	0.06	0	0.08	0.08	0.07
80M		0.26	0.06	0.12	0.09	0.01	0.04	0.07	0.04	0.09
Turbidity										
Main Lagoon		1.6	0.71	4.9	1.53	2.06	4.3	3.45	0.75	6.07
Upstream of Bridge		0.46	0.81	36.15	5.22	0.79	4.01	3.08	0.4	4.19
80M		0.65	1.64	13.43	6.34	1.59	0.68	7.15	0.63	5.87

APPENDIX B
RESUMES

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Rosi Dagit, Sr. Conservation Biologist for the RCDSMM has coordinated a variety of research projects throughout the Santa Monica Mountains and Bay since 1987. As Principle Investigator for the Topanga Source Identification Study (2014), and several other watershed level water quality reports, she has trained staff and community volunteers to assist with collecting field data, implemented Quality Assurance/Quality Control Plans for managing data collection and analysis since 1998. She has numerous publications and technical reports summarizing this work.

Ms. Dagit has coordinated several habitat restoration efforts including the 2008 Rodeo Grounds Berm Removal, the Trancas Lagoon Restoration Feasibility Study (2015) and is currently Project Manager for the Topanga Lagoon Restoration Planning process in collaboration with State Parks.

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Chris Enyart is the Watershed Program Manager for The Bay Foundation (TBF) and has been with TBF over four years. Chris manages various habitat restoration projects throughout Santa Monica Bay, including TBF's Living Shoreline Projects as well as projects located at the LAX Dunes and Ballona Wetlands Ecological Reserve. Chris and his Program also support water quality monitoring in Malibu Lagoon and Topanga Lagoon. All these projects support the Santa Monica Bay National Estuary Program's strategic plan for the region. Prior to his work at TBF, Chris received his master's degree in Environmental Science from Loyola Marymount University (LMU). During his time at LMU, Chris conducted thesis research analyzing long-term recreational beach water quality at Santa Monica Bay beaches. Through his education and work, Chris has experience in restoration, scientific monitoring, reporting, research, contract management, permitting, public outreach, and administrative duties. He also supervises his department and staff at TBF as well as internship and research students through Loyola Marymount University's Coastal Research Institute.

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Akosa Ibekwe is the 2021-2022 Watershed Stewards Program Corpsmember serving with the RCDSMM. The Watershed Stewards Program (WSP) is dedicated to improving watershed health by actively engaging in restoration science, civic service, and community education while empowering the next generation of environmental stewards.

Before joining the RCDSMM, Mr. Ibekwe served with at the California Conservation Corps' Los Padres center where he worked in the native plant nursery, helped set up a long-term trail camp in Big Sur, and conducted instream surveys and participated in steelhead restoration projects with the Fisheries Habitat Restoration crew.

Since joining the RCDSMM he has participated in the RCD's educational programs and worked closely with Ms. Dagit monitoring the lagoons of the Santa Monica Mountains and conducting snorkel surveys and redd surveys in Topanga Creek.

Appendix S

Operations and Maintenance Plan

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TOPANGA LAGOON RESTORATION PROJECT

OPERATIONS & MAINTENANCE MANUAL

FINAL REPORT

Produced For Resource Conservation District of Santa Monica Mountains

December 2022

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This study is qualified in its entirety by, and should be considered in light of, these limitations, conditions and considerations.

Glossary

CDFW	California Department of Fish and Wildlife
CCC	California Coastal Commission
CEQA	California Environmental Quality Act
CSLC	California State Lands Commission
CZMA	Coastal Zone Management Act
DBH	Department of Beaches and Harbors
EIS	Environmental Impact Statement
EIR	Environmental Impact Report
MHT	Mean High Tide
NMFS	National Marine Fisheries Service
O&M	Operations and Maintenance
PCH	Pacific Coast Highway
PDS	Project Development Support
PDT	Project Development Team
PSR	Project Study Report
RCDSMM	Resource District of the Santa Monica Mountains
RWQCB	Regional Water Quality Control Board
SLR	Sea Level Rise
SWPPP	Storm Water Pollution Prevention Plan
T&E	Threatened and Endangered
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

1. INTRODUCTION

The objective of this Operations and Maintenance (O&M) Manual is to assist the land managers of the Topanga Lagoon Restoration Project to anticipate, plan, and conduct post-construction maintenance operations in perpetuity, as well as serve as a central reference document for the landowners. It is intended to be a "living document" such that, as more information becomes available, the operations manager may update the manual accordingly. The assignment of duties to each landowners is subject to change and will be finalized in an MOU agreement. The operations manager shall have the responsibility to keep this manual current.

The Topanga Lagoon Restoration site is a low-lying coastal lagoon surrounded by the steep hillside of the Santa Monica Mountains as well as upland development placed on fill in the vicinity of Pacific Coast Highway (PCH) and Topanga Beach. The Proposed Project is located within both Topanga Canyon State Park (Park), managed by California Department of Parks and Recreation (State Parks), and Topanga State Beach, managed by County of Los Angeles Department of Beaches and Harbors (DBH). Infrastructure at the lagoon includes PCH and the bridge, Topanga Beach Drive, the DBH beach lifeguard and restroom building, a garage for lifeguard vehicles, utilities, paved public parking lots and stairways that lead to the beach (east of the inlet), and an unpaved earthen area used for helipad and emergency beach access ramp (west of the inlet). The proposed project will also include a trail with interpretive signage and a picnic area. Each of these facilities will require routine maintenance and inspection.

Permits for this project are anticipated to contain special monitoring and reporting requirements for compliance. See the related sections in this manual to review potential permits anticipated for the project. Familiarization with the permits and strict adherence to their associated requirements is advised.

For Federal Consistency with the Coastal Zone Management Act (CZMA) of 1972, this document assumes that environmental permits for the Topanga Lagoon Restoration Project will be issued with two primary objectives: (1) the long-term protection, restoration, and enhancement of habitat resources in the lagoon; and (2) the identification and provision of effective adaptive management actions to be taken in the face of climate change and sea level rise (SLR).

1.1. GENERAL DESCRIPTION

Topanga Lagoon is a 0.56-acre shallow lagoon in the Topanga Creek watershed in Los Angeles County. It is a freshwater dominated bar-built lagoon and is periodically closed by a beach berm. The berm, which typically develops during summer wave conditions, restricts direct flow into the Pacific Ocean. The beach berm is breached during fluvial storms with sufficient flow volumes and velocities, and during combined large coastal storm wave and king tide events. This allows seawater to inflow into the lagoon. When the lagoon is open, it is a well-mixed hydraulic system in which seawater gets in during high tide and freshwater runoff drains from the upstream Topanga Creek watershed. The Project will maintain the natural storm driven breach pattern.

The overarching goal, or purpose, of the Topanga Lagoon Restoration Project is to protect and restore, then maintain via adaptive management, the Topanga Lagoon ecosystem and the adjacent uplands, integrating public access, recreation, and visitor serving needs while protecting important archeological and cultural resources. An additional overarching guiding principle of this project is to avoid direct impacts to sensitive biological, archeological/cultural and lagoon mouth/beach biological resources below the mean high tide (MHT) line) during the construction of the restoration. These two goals can be further refined into five categories of objectives:

A. Physical restoration of lagoon and bar-built estuarine hydrologic functions
B. Biological restoration of habitat and species within the project area
C. Preservation of important archeological, historic, and cultural resources
D. Integration of public access, emergency, and visitor services

E. Management and maintenance to ensure long-term viability of the restoration efforts

These objectives are further defined below.

1.1.1. Physical Objectives

A. Maintain the storm driven pattern of lagoon mouth breaching to enhance the health and ecological value of the bar-built lagoon.
B. Maintain the existing coastal littoral zone conditions along the beach face and important nearshore cobble shelf to avoid impacts to the surf break.
C. Improve water quality through restored wetland habitat, thereby reducing impacts due to high bacteria counts, algal blooms, and the potential for mosquito-borne disease.
D. Reduce current flood problems by lengthening the bridge, removing constraining fill materials, and restoring a more natural lagoon, wetland, and transitional habitat.
E. Provide adequate area for wetland including emergent, transitional, and upland habitats that will support important life phases for endangered and sensitive species including, but not limited to tidewater goby (*Eucyclogobius newberryi*), southern steelhead trout (*Oncorhynchus mykiss*), CA grunion (*Leuresthes tenuis*), and snowy plover (*Charadrius nivosus*).
F. Avoid, to the greatest extent possible, grading impacts to existing native resources while providing the opportunity for expansion of these resources into the future by incorporating managed retreat of developed areas and resiliency for SLR.

1.1.2. Biological Objectives

A. Restore a natural gradient of habitats that considers climate change, anticipated SLR, potential upstream migration, potential for improving water quality, and heterogeneity of habitats based on analysis of historic conditions augmented by modeling of present and potential future conditions.
B. Maintain and enhance existing habitats for native species, such as the sandy lagoon preferred by the federally endangered Tidewater Goby (E. newberryi) and optimize fish passage opportunities during the rainy season, as well as expand potentially suitable smolt gravel-bed habitat within the lagoon for Southern Steelhead Trout (O. mykiss). Reduce the presence of non-native invasive species within the project footprint.
C. Protect and enhance suitable beach habitat for endangered snowy plovers.
D. Develop and establish beach maintenance and grooming protocols that will preserve fish passage and protect breeding CA grunion (Leuresthes tenuis) and snowy plovers (Charadrius nivosus) if they colonize.

1.1.3. Archaeological, Historic, and Cultural Objectives

A. Avoid disturbance of archaeological or tribal cultural resources by using historical maps and technical information to define historical topography and lagoon/upland interface, and then, design around those areas having the potential to contain cultural materials and/or human remains.
B. Site new bridge footings outside known areas of concern to the greatest extent feasible.
C. Identify options to rehabilitate and reconstruct historical resources for visitor-serving amenities.
D. Develop an interpretive plan to share site history with the public.

1.1.4. Integration of Public Access, Emergency, and Visitor Services

A. Maintain public access to the restored lagoon and beach habitats that are consistent with resource protection needs and requirements.
B. Maintain public parking and enhance public transportation access opportunities.
C. Maintain and improve pedestrian access from the north side of PCH to the beach.

D. Examine the feasibility for overnight accommodations, including potential for adaptive reuse of the historic Topanga Ranch Motel.
E. Upgrade septic (or sewer) capacity for all visitor serving elements.
F. Maintain and improve emergency services (helipad, wildfire turnaround, lifeguard visibility, and access).
G. Promote educational opportunities consistent with resource protection needs and requirements.
H. Identify opportunities for other visitors serving concessions.

1.1.5. Management and Maintenance Objectives

A. Develop a cost-effective management and maintenance plan for supporting the proposed habitat enhancements, control of exotic species, and maintaining existing functional habitat for endangered fish species.
B. Design and implement a biological and hydrological monitoring program to assess the success of restoration efforts and to inform adaptive management decisions.
C. Identify potential sediment accretion areas and develop plans to avoid the need for future active sediment management. The lagoon receives sediment from the watershed and serves as sediment pathway over the long term. Some sediment settles in the lagoon during smaller storms. However, the most sediment is flushed out to the ocean during larger storm events. Hence, no periodic maintenance is expected.
D. Coordinate and memorialize responsibilities for maintenance related to the restored lagoon area (e.g. vegetation management, vector control, interpretive signage and programming, etc.) or areas under PCH bridge (cleaning, graffiti, homeless management, etc.) via a MOU between all landowners.

1.2. SITE HISTORY

Topanga Lagoon is a 0.56-acre lagoon in the Topanga Creek watershed in Los Angeles County, as shown in Figure 1 and Figure 2. Figure 2 shows the project boundary of the 43.4-acre study site. The existing site plan and physical features are shown in Figure 3. The historic lagoon at the mouth of Topanga Creek once covered almost 30 acres. In 1934, all but 1 acre was filled by Caltrans when PCH was re-aligned. This destroyed 93% of the lagoon wetland habitat area, completely changed existing biogeochemical processes, and severely impacted its function. This reduction in acreage resulted in devastating loss of habitat, nearly eliminating biodiversity of wetland flora, compromised water quality, and constrained flows that limit natural hydrologic and sedimentation processes from occurring. Existing downstream creek, lagoon, and PCH Bridge conditions severely limit flood conveyance to the sea, impede fish passage, prevent natural geomorphic processes from occurring, and generally limit the lagoon to function as a flood control conveyance feature rather than the genuinely sensitive and rare habitat area that it once was.

In 2001, State Parks acquired 1,625 acres of land in lower Topanga watershed, including a significant portion of the lagoon. The newly acquired land increased the extents of Topanga State Park from PCH to the hills of San Fernando Valley.

In 2002, the final Topanga Creek Watershed and Lagoon Restoration Feasibility Report was completed for the Resource Conservation District of the Santa Monica Mountains (RCDSMM and M&N 2002). The study provided the basis for coordinated restoration and management of Topanga Lagoon and other features unique to the watershed. The 2002 report also analyzed ways to improve water quality at Topanga Beach, improve habitat for endangered fish and other aquatic species, reduce the flood hazard within the lower watershed, and improve recreational opportunities without changing the surf break. Four lagoon restoration alternatives (including the no build alternative) were evaluated based on meeting those objectives and their modeling performance.

In 2004, the RCDSMM in association with State Parks, LA County DBH, and the California Coastal Conservancy completed a PSR/PDS report for Caltrans. The lagoon restoration alternatives presented in the report were developed in conjunction with a Project Development Team (PDT) consisting of public and

private groups. Reviewers of the report included the RCDSMM, State Parks, LA County DBH, Santa Monica Bay Restoration Commission, and the California Coastal Conservancy.

In 2019, RCDSMM began to build on previous studies and perform additional analysis including hydrologic/hydraulic modeling, sedimentation, fish passage / beach berm breaching, and SLR. The work is ongoing.



FIGURE 1. PROJECT VICINITY MAP

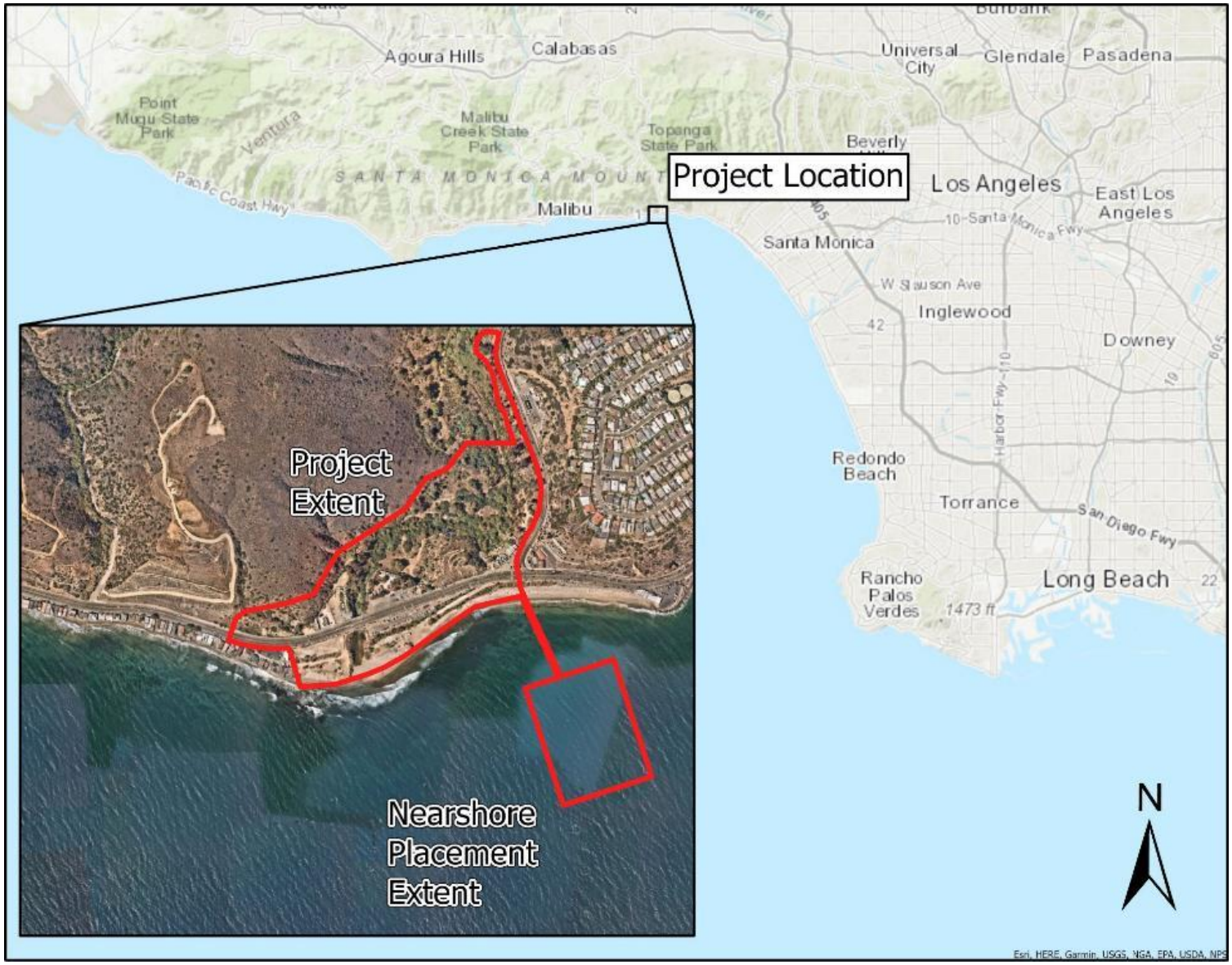


FIGURE 2. PROJECT LOCATION MAP

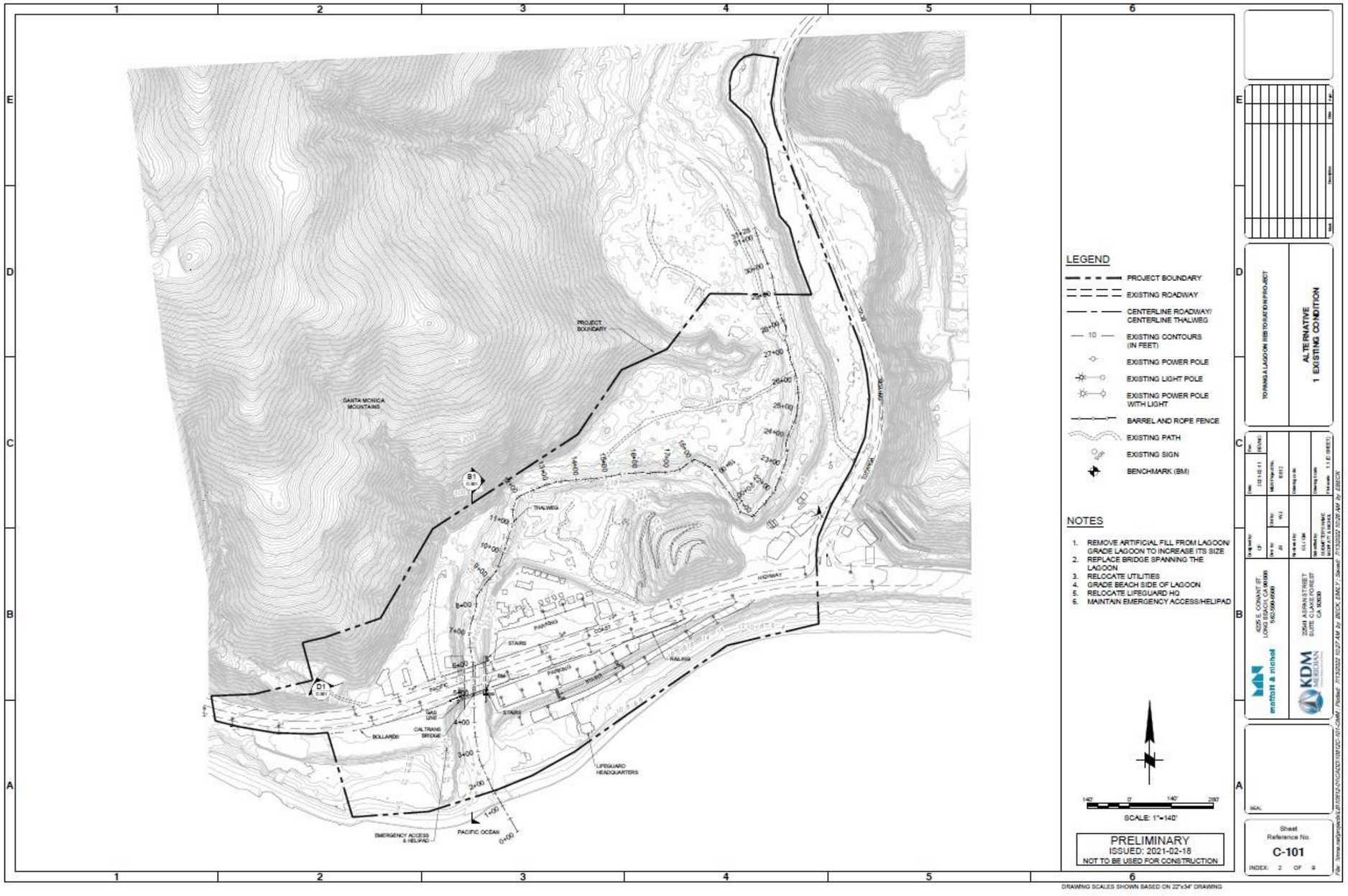


FIGURE 3. EXISTING SITE PLAN AND PHYSICAL FEATURES

1.3. PROJECT MILESTONES

Key project development milestones related to the restoration project include:

- 2001 – Property acquired by State Parks.
- 2000-2004 – Issues of concern identified, feasibility study and PSR/PDS for Caltrans Bridge completed.
- 2008 – Rodeo Grounds Berm Removal Project completed
- 2012 – Topanga State Park General Plan certified
- 2019 February Public and Stakeholder meetings
- 2019 June Started Project, Data compilation, initiate baseline monitoring, set up water
- level, temperature, and photo monitoring, etc.
- 2019 December Technical Advisory Committee Meeting
- 2020 January Landowner Meeting, Caltrans Meeting regarding 2004 PSR/PDS
- 2020 February Permitting Agency Meeting, Public Stakeholder Meeting
- 2020 June Technical Advisory Committee Meeting
- 2020 December Landowner and Technical Advisory Committee Meetings
- 2021 February Stakeholder meeting
- 2022 May Technical Advisory Committee Meeting
- 2022 June Public EIR Scoping meeting

1.4. OTHER PROJECT RECORDS

Additional documents needed for the project may include, but not be limited to, the following:

- Final EIR/EA
- 401 Water Quality Certification issued by the California Regional Water Quality Control Board
- Federal Consistency Determination Permit issued by the California Coastal Commission
- Federal 404 Permit Issued by U.S. Army Corps of Engineers (USACE)
- Federal and State Endangered Species Act Authorizations
- CDFW 1600 Streambed Alteration Agreement
- CSLC approval
- NPDES/WDR for water discharges
- SWPPP (to be prepared by the Contractor)
- CCC Coastal Development Permit
- Record Drawings
- Caltrans Maintenance Agreement(s)
- Site Characterization Studies, Technical Studies

1.5. KEY CONTACTS

1.5.1. Landowners

The project area is owned and managed by three organizations: State Parks, Los Angeles County DBH and California Department of Transportation (Caltrans). See Figure 4 for land ownership within the lower Topanga Creek watershed.



FIGURE 4. PARCELS AND LAND OWNERSHIP

Contact information for the three organizations is as follows:

California Department of Parks and Recreation, Angeles District
1925 Las Virgenes Road
Calabasas, CA 91302-1909
Contact: Danielle LeFer, Senior Environmental Scientist
(818) 880-0365
Danielle.LeFer@parks.ca.gov

County of Los Angeles Department of Beaches and Harbors
13837 Fiji Way
Marina Del Rey, CA 90292
(310) 454-4249
Contact: Edward Martinez, Beach Maintenance District Manager

California Department of Transportation
District 7, Los Angeles
100 South Main Street
Los Angeles, CA 90012
Contact: Rimma Tebeleva
(213) 269-1791
rimma.tebeleva@dot.ca.gov

1.5.2. Land Manager

Each landowner will identify and supervise appropriate onsite staff to monitor and patrol the project.

2. MONITORING AND REPORTING REQUIREMENTS

2.1. PERMIT COMPLIANCE

Topanga Lagoon contains "waters of the United States" subject to regulation under the Clean Water Act. A jurisdictional delineation, performed by WRA, Inc. in 2020, determined that the lagoon area contains approximately 4.63 acres of "waters of the United States" subject to regulation under Section 404 of the Clean Water Act (WRA 2020), including 0.59 acres of wetlands and 4.04 acres of non-wetland waters. A supplemental survey was conducted by State Parks staff for areas along Topanga Canyon Boulevard in 2022 and identified an additional 0.68 acres of wetlands, and 3.73 acres of non-wetland waters within the project area.

Activities proposed within portions of the Project area required federal permits issued by the U.S. ARMY Corps pursuant to Section 404 of the Clean Water Act, 33 U.S.C. Section 1344, and Section 10 of the River and Harbors Act of 1899, 33 U.S.C. Section 403. It is anticipated that several other permits will contain on-going monitoring and reporting requirements for the lifetime of the Project. See Table 1 for a list of the anticipated permits required for the Project.

TABLE 1. ANTICIPATED PERMITS REQUIRED

Recipient Permitting Agency	Permit Required
USACE	404 Permit
RWQCB	401 Certification
CCC	Coastal Development Permit
CDFW	1600 Streambed Alteration Agreement, ESA Authorization
CSLC	Approval
DMMT	SAP Report and Results Approval
SWRCB	NPDES/WDR, SWPPP
USFWS	Section 7 Biological Opinion
NMFS	Section 7 and 10

2.2. MITIGATION MONITORING PROGRAM

A Mitigation Monitoring Program will be prepared once a preferred alternative is identified during Project permitting and CEQA process. The responsibilities for implementing and completing elements of the Mitigation Monitoring Program will be outlined in a MOU between all landowners.

2.3. HABITAT MONITORING

Landowners will select a qualified fish and wildlife biologist to perform the biological monitoring program.

Biological monitoring will be conducted in compliance with permit requirements after completion of construction. Listed species will be monitored each year. Biological sampling will be conducted at fixed intervals as specified in this program.

2.3.1. Water Quality

Landowners will select a qualitied contractor to conduct post construction monitoring as required by permits. To include but not be limited to:

Salinity, pH, water temperature, dissolved oxygen, turbidity, electrical conductivity and oxidation reduction potential will be measured in conjunction with benthic and fisheries monitoring according to the protocols described in the Water Quality, Tidewater Goby and Steelhead Trout appendixes of the Biological Report (King, J. et. al 2022). Samples will continue to be collected along the west bank in the main part of Topanga Lagoon to provide post-construction comparison to baseline pre-construction levels.

Grab samples will be collected monthly and tested for nitrate-N, nitrite-N, and orthophosphates.

Additional monitoring protocols and methods and frequency are to be determined based on permitting requirements. See below for monitoring being completed by other parties.

In addition, bacteria monitoring is being completed by the L.A. City Environmental Monitoring Division through collection of grab samples at the mouth of Topanga Creek and this data set is updated regularly and posted online by Heal the Bay.

2.3.2. Terrestrial Vegetation Monitoring

The baseline composition and extent of vegetation has been documented in the Biological Report (King, J. et. al 2022). On the ground surveys following the same protocols used for the baseline surveys, augmented by aerial photography, will record wide-scale patterns of plant community distribution. Over time, these combined techniques should reveal the pattern of lagoon revegetation following construction.

The baseline map found in the Biological Report (King, J. et. al 2022) covers all vegetated areas within the project area. Vegetative communities were mapped using CDFW Natural Communities List and the Los Angeles County Habitat Mapping layers. Changes in acreage of each habitat type over time will be prepared according to permit requirements.

Other observations that will be recorded during the post-construction surveys to capture habitat distribution and health, diversity and presence of invasive species include, but are not limited to:

- Invasion by any non-native species considered to be nuisance or pest species such as giant reed or pampas grass:
- Die-offs of native vegetative communities that might be attributed to disease, anomalous oceanographic conditions, or insect damage;
- Shifts in species abundance, such as replacement of coastal salt marsh by freshwater species or the presence of new species such as increases in cordgrass;
- General growth and expansion patterns in the vegetative areas.
- Habitat types and rare plants.
- Post construction plant diversity, cover, and the type (perennial vs annual) and % of invasive species

In the 2022 Topanga Lagoon Ecohydrology Report, ESA estimated the range of elevations for each habitat type in the lagoon through analysis of habitat elevations, inundation frequency curves and salinity onsite to develop habitat zones for the purpose of mapping restored habitats with current sea level. These elevation zones are shown in Table 2. Inundation frequency curves and habitat elevation exceedance frequencies for Alternatives 2, 3, and 4 were used to develop expected habitat elevations for each alternative, shown in Figure 5 (ESA 2022).

TABLE 2. CURRENT CONDITIONS HABITAT ELEVATIONS (FEET NAVD)(ESA 2022)

Habitat Type	Bottom Elevation	Top Elevation
Upland/Coastal Sage Scrub	10-year WL, 17.2 min**	>10-year WL, 17.2 min**
Riparian/Upland Transition	16.2 or thalweg +7*	10-year WL, 17.2 min**
Riparian	9.6	16.2 or thalweg +7*
Emergent Marsh	6.1	9.6
Seasonally Exposed Unvegetated Flat	4.9	6.1
Seasonally Shallow Open Water	3.9	4.9
Open Water	Channel thalweg	3.9

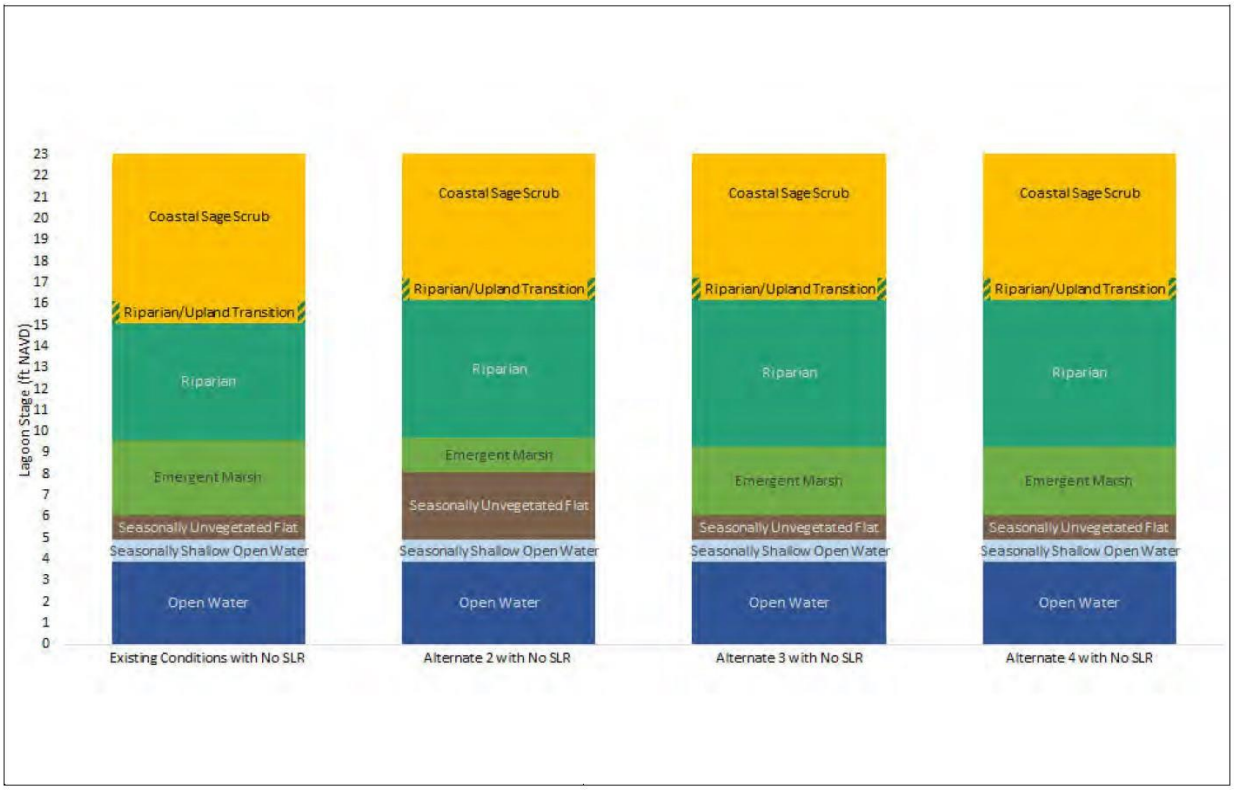


FIGURE 5. PROJECT ALTERNATIVES HABITAT ELEVATION ZONES COMPARISON (ESA 2022)

2.3.3. Aquatic Vegetation Monitoring

A baseline survey of the nearshore and offshore conditions, particularly in areas proposed for potential sediment disposal will be prepared using the Nearshore Habitat Classification System for coastal marine mapping. Post construction surveys will be conducted according to permitting requirements.

2.3.4. Fish Surveys

A variety of survey methods have been used to determine the abundance and composition of fish assemblages in the lagoon since 2001 and detailed protocols are provided in the technical appendixes to the Biological Report (King, J. et. al 2022). Prior to restoration, the fish assemblage has been limited to a few species, including federally listed tidewater goby, southern steelhead trout, CA Species of Special Concern arroyo chub and CA grunion.

Post-construction monitoring will help document whether these focal species are joined by any additional species. It is anticipated that the level of monitoring conducted prior to restoration noted below will continue, and potentially be augmented by additional permitting requirements and timelines.

Southern Steelhead Trout: Topanga Creek has been the site of a Lifecycle Monitoring Station contributing data to the CDFW Coastal Monitoring Program since 2008. Monitoring activities include:

- snorkel surveys and redd (spawning) surveys starting at the lagoon and extending upstream 5.3 river kilometers (17,388 feet).
- Fall mark-recapture Passive Integrated Transponder (PIT) tagging
- Instream antenna monitoring
- DIDSON camera monitoring
- Fish passage and fish migration conditions will be monitored by monitoring storm event connectivity at the lagoon-ocean interface and monitoring base flow connectivity throughout the lower reaches of the creek subject to sub-surface flow conditions.
- Fall and spring systematic and spot seining using a 3.2-meter x 1.2-meter x 3 mm mesh (10.5 feet x 4 feet x 0.1 inch) seine net affixed to poles with the weighted bottom of the net kept firmly along the substrate, and the net angled to prevent fish from escaping.

Tidewater Gobies: Opportunistic visual surveys have been conducted since this federally endangered species was first documented in Topanga Lagoon in 2001. Between 2019-2022 a focused study conducted fall and spring seining events to document abundance and distribution

Arroyo Chub: Visual surveys are conducted as part of the snorkel surveys since 2001 documenting abundance and distribution.

California Grunion: Seasonal runs of California grunion are monitored by the Grunion Greeters consisting of surveys during peak spawning periods from March through July.

2.3.5. Bird Surveys

Counts of all birds throughout the Project area will be conducted according to standard protocols, seasons, and timelines as required by permits. Pre-construction surveys involved systematic coverage of the lowland lagoon and creek area, adjacent riparian and upland areas, and beach during daylight hours.

2.3.6. Benthic Invertebrate Surveys

The objective of benthic and aquatic insect (BMI) monitoring is to characterize the marine invertebrate food resources for birds and fish. The results will also provide an index of general habitat quality. Post-construction BMI will follow pre-construction protocols, seasons and timelines in accordance with permitting requirements.

Benthic and aquatic invertebrates have been sampled twice each year, in the winter open and summer closed conditions in accordance with standard protocols such as Turner and Trexler (1997) and the S.O.N.G.S. Wetland Mitigation Monitoring Protocol (2006). This schedule encompasses the extremes of seasonal variation for benthic communities and documents food availability for winter migrating birds and

summer fish communities. If required by permits, additional benthic surveys will be conducted during low tide to facilitate collection of intertidal and subtidal samples.

2.3.7. Monitor T&E Species Breeding

Biological monitoring for listed Threatened or Endangered species will be conducted in accordance with permit requirements. The monitoring method will be the same as has been developed for each species pursuant to a statewide monitoring program. The purpose of this monitoring is primarily to assess reproductive success and/or problems, identify if new special status species have become established, and to determine the adequacy or need for management actions.

The currently monitored special-status species in Topanga Lagoon are the Federal listed Endangered tidewater goby (*E. newberryi*) and southern steelhead trout (*O. mykiss*).

2.3.8. Predator Management

Each landowner will follow their protocols for complying with permitting requirements for predator controls. Note that use of rodenticides is discouraged and is not permitted under Los Angeles County regulations. Predator removal will comply with permit regulations and timelines.

2.3.9. Non-native Species Removal

Each landowner will follow their protocols and comply with permitting requirements for invasive species controls. Note that use of herbicides, pesticides and insecticides is discouraged and is not permitted under Los Angeles County regulations. Non-native species removal will comply with permit regulations and timelines.

2.4. BEACH PROFILE MONITORING

Beach monitoring post construction will build upon previous studies conducted by Dr. John Dorsey which include mean elevation profiles at five locations on the west beach ranging from 10-59 m and five transect locations on the east beach ranging from 16-178m, grain size analyses, percent organic material collected in the swash zone, mid beach and back beach from three of the beach profile transects on east and west beach, and documenting species abundance and distribution of wrack measured as a percent along a 30 m transect line aligned with the previous high tide mark in spring. Additional profile transect locations may be required in order to comply with permit requirements. Sampling schedule post construction will be directed by permits but will occur at least annually.

2.5. WATER LEVEL AND VELOCITY OBSERVATIONS

One of the important duties of the land manager will be to make regular observations of water levels within the lagoon mouth. As shown in Figure 6, a water level gage has been installed to facilitate these observations.

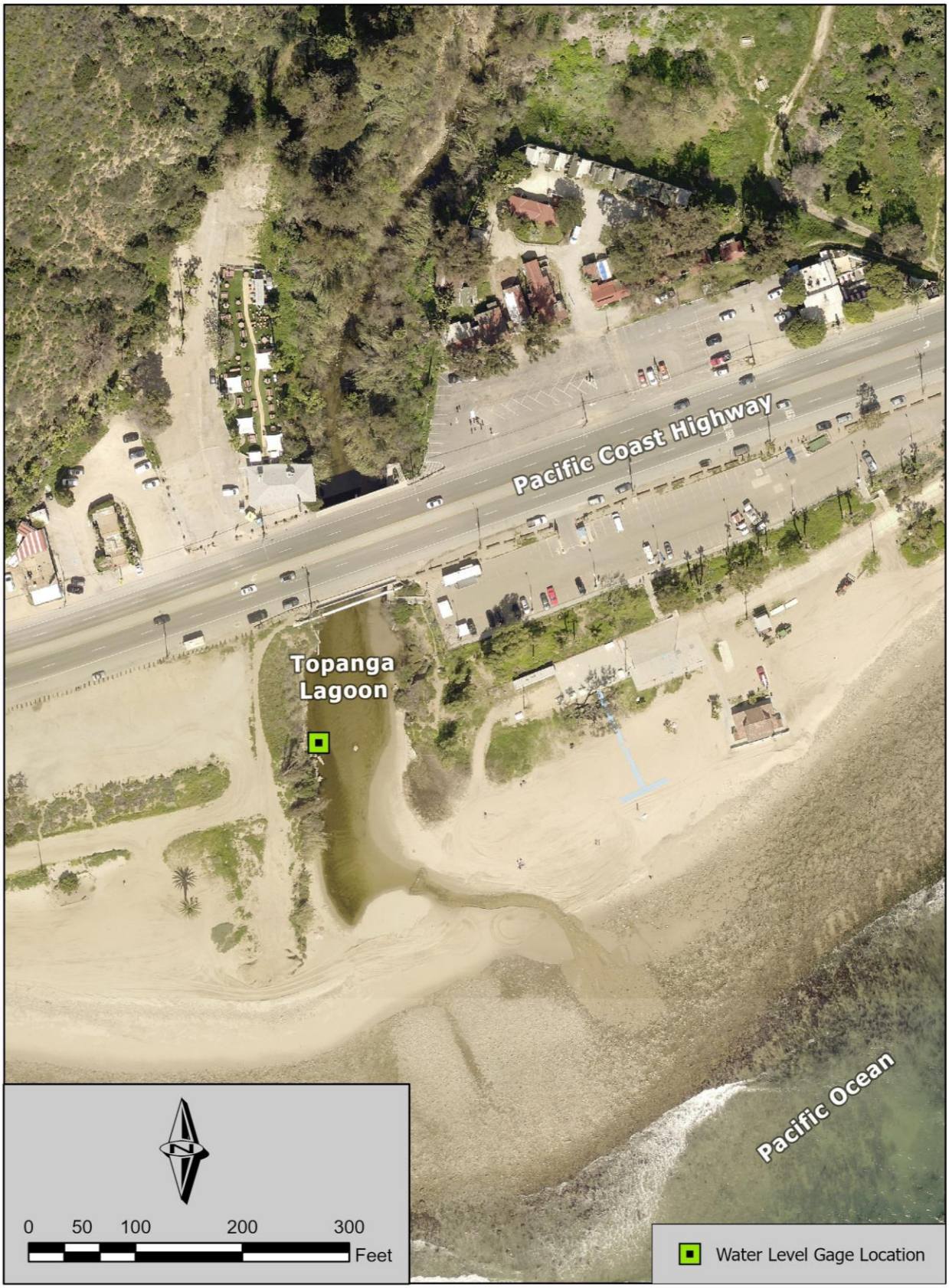


FIGURE 6. TOPANGA LAGOON WATER LEVEL GAGE LOCATION

2.5.1. Lagoon Water Level

Water level observations throughout the site are critical to assess the behavior of the breach inlet growth of the beach berm and bar shoal. Water levels inside the Lagoon will be recorded using a water level gage located along the west bank downstream of the PCH bridge. The gage will record water level data every six minutes to capture changing water levels. This gage installed in 2019 will be left in place to measure lagoon water level conditions and determine seasonal variations and effects of specific storm events. The logger gets downloaded, cleaned, memory cleared, and the battery changed bi-monthly. The data logger should be calibrated once per year (with a short-term replacement during its calibration). Record logs of the water level data and monitoring summary reports describing the breach characteristics of the lagoon will be maintained.

Water level variations over time will be correlated with bathymetric data to correlate with desired habitat acreages and to document lagoon function. The water level gage should remain in the lagoon downstream of the PCH bridge near the old abutment of the original 1930's bridge for two years, or longer if required by permits. Funding for water level monitoring should be augmented to leave it in during construction and post-construction.

2.5.2. Water Velocity

Water velocity will be measured with a current meter or predicted via numerical model to assess conditions for steelhead trout and tidewater gobies and to evaluate whether target flows are being met. Table 3 and Table 4 below show the maximum flow velocities for sustained swimming for steelhead passage and tidewater goby and juvenile steelhead refugia respectively.

TABLE 3. STEELHEAD PASSAGE CRITERIA (CDFW 2004)

Criteria	Adult Steelhead	Juvenile Steelhead <6 Inches in Length
Minimum Flow Depth (feet)	0.8 feet	0.3 feet
Maximum flow velocity for sustained or prolonged swimming (feet per second)	6 feet/sec	1.5 feet/sec

TABLE 4. TIDEWATER GOBY AND JUVENILE STEELHEAD REFUGIA CRITERIA (ESA 2020)

Criteria	Refuge During Mouth Openings
Maximum flow velocity for sustained swimming (feet per second)	1 foot/sec

3. FACILITIES, OPERATIONS, AND MAINTENANCE

3.1. BEACH GROOMING AND MAINTENANCE ACTIVITY

DBH will follow its protocol for beach grooming to remove wrack, trash and litter from the beach according to current protocols and Best Management Practices. When beach grooming is proposed during grunion season, activities will follow a grunion grooming protocol. The location of the high tide line will be noted on the morning after the first grunion run night. The line will be recorded after the highest tide of a new or full moon. Vehicles and grooming activities will be kept shoreward of the highest tide line during grunion season.

When the lagoon is in a breached condition artificial berming of the lagoon mouth is prohibited as it is:

- Detrimental to fish passage and lagoon health
- Introduces additional sediment into lagoon



FIGURE 7. ARTIFICIAL BERMING OF LAGOON MOUTH, JANUARY 1, 2020

3.2. TRAILS, OVERLOOKS AND OTHER LAGOON AMENITIES

3.2.1. Designated Trails, and Signs

Public access will be provided in designated trails for the project under the PCH bridge, on both sides of the lagoon, and within the lagoon restoration area. The State Parks Trail which runs along the base of the Santa Monica Mountains on the west side, crosses the creek, and loops back towards the beach on the east side of the lagoon will provide visitors with scenic views and interpretive learning opportunities. The trail connects to the California Coast Trail. The trails should be inspected periodically for signs of erosion or vandalism and maintenance performed if necessary.

Project signage will also be provided along trails and specific locations. Steps should be taken to ensure the signs remain in place and have not been vandalized.

3.3. PCH BRIDGE OVER TOPANGA LAGOON

Maintenance of the features in this section is assumed to be done by Caltrans.

3.3.1. Retaining Walls

Inspect the retaining wall for cracks and spalling. Check for any signs of separation between the retaining wall and the ground or upland improvements. If separation is observed, it could be an indication that the wall is settling and inspection by a qualified engineer should be completed.

Maintenance responsibilities for retaining walls to be determined. In general, the inspections of the wall(s) should be done annually and after any significant natural event i.e., wildfire, flood, earthquake etc.

3.3.2. Stairs

Inspect the stairs for cracks and spalling and maintain handrails. This should be done annually.

3.4. UTILITIES

3.4.1. State Parks

3.4.1.1. Light pole

Inspect the light pole base for cracks, flaking, deformation, or other damage. Check for signs of rust or corrosion damage. Inspect fasteners, arms, and fixtures and covers for looseness, missing parts or damage.

3.4.1.2. Power pole

Inspect the power pole for structural integrity and signs of damage, erosion around the base, decay, and loose guy wires.

3.4.1.3. Storm drains

Inspect the storm drain for trash and debris and to determine if any repairs are required and remove all trash and debris to prevent clogging of the storm drain system. During rain events, check to ensure that water is flowing unobstructed.

3.4.1.4 **Wastewater System**

Wastewater and sewage will be treated and managed according to permit regulations and Best Management Practices.

3.4.2. LA County DBH

3.4.2.1. Light pole

Inspect the light poles that LACDBH is responsible for and identify deterioration and/or deficiencies that require repair.

3.4.2.2. Storm drains

Inspect the storm drain for trash and debris and to determine if any repairs are required and remove all trash and debris to prevent clogging of the storm drain system. During rain events, check to ensure that water is flowing unobstructed.

3.4.2.3. Wastewater System

The County facility uses a state-of-the-art advanced Onsite Wastewater Treatment System that is subject to compliance with a variety of permits that dictate the maintenance and management of these systems.

3.5. FACILITIES

3.5.1. State Parks

Operations and maintenance of any facilities, such as retaining walls, on the north side of PCH will be the responsibility of State Parks. State Parks utilizes an internal Facility Condition Assessment conducted annually. Any new facilities developed will be inventoried and assigned facility numbers with developed job plans and work orders created to be performed on a set frequency.

3.5.2. LA County DBH

Operations and maintenance of any buildings/structures on the public beach areas that are located south side of PCH are the responsibility of LA County DBH.

3.5.2.1. Lifeguard Building and Garage, relocated helipad

Maintenance is the responsibility of the LA County Fire Department Lifeguards.

3.5.2.2. Beach Restroom

Maintenance of the beach restrooms is the responsibility of LA County DBH.

3.5.2.3. Unpaved Parking Lot

Maintenance is performed by LA County DBH.

3.6. FACILITIES AND RESOURCE DAMAGE

Inspection and maintenance facilities and resources is assumed to be done by each landowner according to their jurisdiction and procedures.

3.7. PARKING AND PAVED AREAS

Inspect the parking areas for surface defects, oil stains, drainage issues and signs of cracking or dips. This should be done annually. Inspection and maintenance of parking and paved areas is assumed to be done by each landowner according to their jurisdiction and procedures.

3.8. TRASH REMOVAL

Trash removal is assumed to be done by each landowner according to their jurisdiction and procedures.

4. SECURITY AND EMERGENCY RESPONSE

4.1. STATE PARKS

4.1.1. Perimeter Fence

In general, any perimeter fencing at Topanga Lagoon should remain relatively maintenance-free. However, vandalism could pose a threat to this type of facility. Fencing should be inspected periodically for any indication of vandalism or tampering. If it is determined that a Fencing Plan for the perimeter of the lagoon is needed it will provide directions on maintenance.

4.1.2. Fence Inspection and Maintenance

Visual inspections of any fencing should be done at least weekly. Any damage to the protective fence will be reported to the property owner immediately and steps should be taken to repair the damage as quickly as possible.

4.1.3. Signs

Visual inspections of the sign should be done monthly. Any damage to signage will be reported to the property owner immediately and steps should be taken to repair the damage as quickly as possible.

4.1.4. Trespass Enforcement Procedure

4.1.5. Utility Provider Access

Utility providers will need access to the Project periodically. Each vendor will have its own specific need to access specific features of the Project. The Land Manager(s) for this Project should become familiar with the needs and access protocols of each utility. Utilities expected to require access may include, but not be limited to, the following:

- The Gas Company
- Southern California Edison (SCE)
- Los Angeles County Vector Control
- Los Angeles County Water District
- Communications Vendors

4.1.6. Public Access Plan

The project will improve public coastal access through improved public parking, bus stop amenities, and increased and improved pedestrian access onsite. Improved pedestrian access will include beach access from the N side of PCH at three locations: underneath the PCH bridge on the E and W side of Topanga Creek, and at the intersection of Topanga Canyon Boulevard and the PCH. A loop trail that connects portions of Topanga State Park to Topanga Beach will also be included. Details of these public access elements will be finalized during the future design phase of the project.

4.1.7. Emergency Response Plan

Rangers are on call at all times to respond to emergencies within the state park and follow their internal procedures and policies.

4.2. LA COUNTY DBH

4.2.1. Signs

Visual inspections of the sign should be done monthly. Any damage to signage will be reported to the property owner and steps should be taken to repair the damage as quickly as possible.

4.2.2. Trespass Enforcement Procedure

The removal of encampments will be in accordance with the County's policy that addresses unsheltered individuals.

4.2.3. Utility Provider Access

Utility providers will need access to the Project periodically. Each vendor will have its own specific need to access specific features of the Project. The Land Manager(s) for this Project should become familiar with the needs and access protocols of each utility. Utilities expected to require access may include, but not be limited to, the following:

- The Gas Company
- Southern California Edison (SCE)
- Los Angeles County Vector Control
- Los Angeles County Water District
- Communications Vendors

4.2.4. Public Access Plan

Pedestrian paths under PCH will be located on both sides of the restored lagoon connecting the northern state park property with the beach.

Stairways will provide access from the roadway and parking level to the beach at additional locations on both the east and west side of the lagoon. Access from the municipal bus stops will also be provided.

4.2.5. Emergency Response Plan

In the event of an emergency, LACDBH will refer to its Department Emergency Plan, which is reviewed and updated annually.

5. REFERENCES

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Appendix T

Copies of Comment Letters, Emails, and Public Meeting Transcripts

Federal Agencies

AG 1

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

April 23, 2024

John Ota
Environmental Scientist
California Department of Parks and Recreation
1925 Las Virgenes Road
Calabasas, CA 91302

Re: Topanga Lagoon Restoration Project Draft Environmental Impact Report (State Clearing House No. 2022050478)

Dear Mr. Ota:

Enclosed with this letter are NOAA's National Marine Fisheries Service's (NMFS) comments on the Draft Environmental Impact Report (DEIR) for the proposed restoration of Topanga Creek Lagoon.

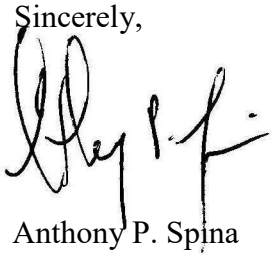
We understand the proposed project involves the expansion of the Topanga Creek and lagoon ecosystem, chiefly through replacement of the existing Pacific Coast Highway Bridge (SR-1 #53-0035) with a longer bridge to accommodate natural fluvial processes and lagoon restoration, and deposition of project-related fill material in the nearshore marine environment to replenish nearby beaches. The project will also entail the relocation of State Park Recreational facilities on the beach that are threatened by projected sea-level rise, and the construction of new visitor service facilities at the northwest corner of the Pacific Coast Highway intersection.

As explained more fully in the enclosure, we are generally supportive of this project, which implements one of the key recovery actions identified for Topanga Creek in NMFS' Southern California Steelhead Recovery Plan (2012), though there are outstanding issues regarding the deposition of fill material into the nearshore environment. Based on our current understanding of the alternatives identified in the DEIR, Alternative 2 appears to provide the maximum lagoon restoration and, therefore, the greatest potential to support recovery of federally listed endangered southern California steelhead (*Oncorhynchus mykiss*) that utilize Topanga Creek and lagoon. Our specific comments on the DEIR are presented in the enclosure.

AG 1

NMFS appreciates the additional time provided to submit comments on this important restoration project. If you have a question or would like additional information, please contact Mark H. Capelli at mark.capelli@noaa.gov or (805) 963-64788.

Sincerely,



Anthony P. Spina
Supervisor, Southern California Branch
California Coastal Office

CC:

Stephen Estes – U. S. Army Corps of Engineers, Regulatory
Chis Dellith – U.S. Fish and Wildlife Service, Ventura Office
Bryant Chesney – NOAA-National Marine Fisheries Service
Jeremy Smith – California Coastal Commission
Leslie Hard– California Department of Fish and Wildlife

Enclosure

NOAA's National Marine Fisheries Service's Comments on the Draft Environmental Impact Report for the Topanga Creek Lagoon Restoration Project

April 22, 2024

Introduction

Southern California steelhead were listed under the U.S. Endangered Species Act as endangered in 1997. NMFS originally listed the Southern California Steelhead as endangered, from the Santa Maria River to the Santa Monica Mountains, under the Evolutionary Significant Unit (ESU) policy in 1997 (62 FR 43937), and extended the listing to cover the populations southward from the Santa Monica Mountains to the United States U.S.-Mexico border in 2002 (67 FR 21586). The listing was reconfirmed using the Distinct Population Segment (DPS) policy in 2016, including reaffirming the endangered status for the Southern California Steelhead DPS (81 FR 33468). As explained more fully below, we support restoration of Topanga Creek Lagoon[1] because of the anticipated benefits to the long-term survival and recovery of endangered southern California steelhead (*Oncorhynchus mykiss*).

Topanga Creek

Topanga Creek is one of 4 core steelhead recovery populations comprising the Santa Monica Mountains Biogeographic Population Group (BPG) within the Southern California Steelhead Recovery Planning Domain. Currently, only the Topanga Creek watershed retains a remnant population of *O. mykis*s, and this population is threatened by a variety of natural and man-made activities, including reoccurring drought conditions in southern California (Dagit et al. 2015, 2017, 2019, Dagit and Krug 2016, Stillwater Sciences et al. 2020, NMFS 2023).

Topanga Creek is identified as a Core 1 steelhead recovery population in NMFS' Southern California Steelhead Recovery Plan (NNMFS 2012), and is therefore a high priority recovery watershed where recovery of viable steelhead populations is necessary to meet the viability criteria and ultimate goal of delisting the Distinct Population Segment (DPS) of the federally endangered Southern California Steelhead DPS.

The Core 1 populations have been identified as the highest priority for recovery actions based on a variety of factors, including: the intrinsic potential of the population in an unimpaired condition; the role of the population in meeting the spatial and/or redundancy viability criteria; the current condition of the populations; the severity of the threats facing the populations; the potential ecological or genetic diversity the watershed and population could provide to the species; and the capacity of the watershed and population to respond to the critical recovery actions needed to abate those threats. Core 1 populations form the nucleus of the recovery

[1] The mouth of Topanga Creek is commonly referred to as a lagoon, a general wetland term that denotes a shallow body of water separated from a larger bay or from the open ocean by a landform. The mouth of Topanga Creek is periodically open to the ocean as a result of upstream discharge, and is more appropriately referred to as a bar-built estuary (Ferren et al. 1995). Consistent with usage in the DEIR, and for simplicity, we have generally referred to the feature as a lagoon, but in some contexts as an estuary or bar-built estuary/lagoon.

implementation strategy and must meet the population-level viability criteria set out in NMFS Southern California Steelhead Recovery Plan (See NMFS 2012, Chapter 6, Steelhead Recovery Goals, Objectives & Criteria, Table 6-1.)

In 2005, NMFS designated critical habitat for the endangered Southern California Steelhead DPS within the areas occupied by the species at the time of its listing (70 FR 52488).

Critical habitat is defined as: (1) specific areas within the geographical area occupied by the species at the time it is listed on which are found those physical or biological features essential to the conservation of the species, and which may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species at the time it is listed upon a determination by the Secretary that such areas are essential for the conservation of the species. Approximately 4 miles of critical habitat are designated in Topanga Creek watershed, including the Topanga Creek Lagoon (See Figure 1, Topanga Watershed Steelhead Critical Habitat Map).

Additionally, NMFS' Southwest Fisheries Science Center – Santa Cruz Laboratory mapped intrinsic potential steelhead over-summering habitat within the Southern California Steelhead Recovery Planning Area, including the Santa Monica Mountains BPG (Boughton and Goslin 2006). That habitat classification is based on observed associations between fish distributions and the values of environmental conditions such as stream gradient, summer mean discharge and air temperature, ratio of valley-width to mean-discharge, and the presence of alluvial deposits, which are essential to successful steelhead spawning and rearing (Boughton and Goslin 2006, Boughton et al. 2006). Approximately 12 miles of Topanga Creek are identified as having high intrinsic potential, including the Topanga Creek Lagoon. (See Figure 2, Topanga Intrinsic Potential Steelhead Spawning and Rearing Habitat Map).

Topanga Creek Recovery Actions

The replacement of the Pacific Coast Highway culvert over Topanga Creek is identified as a Critical Recovery Action in NMFS Southern California Steelhead Recovery Plan.

Table 11.3 Critical recovery actions for Core 1 populations within the Santa Monica Mountains BPG stipulates:

"Develop and implement plan to replace the U.S. 101 [sic - Pacific Coast Highway] culvert over Topanga Creek with a full span bridge to remove fill from Topanga Creek Estuary, and allow natural migration to upstream spawning and rearing and passage of smolts and kelts downstream to the estuary and the ocean habitat. Develop and implement a restoration and management plan for the Topanga Creek Estuary." NMFS 2012, p. 11-11

The replacement of the existing culvert and the development of an estuary management plan is also called out in the following specific recovery actions of the recovery plan:

TopC-SCS-3.1 (Culverts and Road Crossings)

"Develop and implement plan to prioritize, remove and/or modify anthropogenic fish passage barriers within the watershed to allow natural rates of adult and juvenile *O. mykiss* migration between the estuary and upstream spawning and rearing habitats, passage of smolts and kelts downstream to the estuary and the ocean, and to reduce intrusion into the riparian corridor and restore sediment transport." NMFS 2012, p. 11-29

TopC-SCS-11.3 (Approach Fill for Railroad Lines and Roads)

"Develop and implement plan to remove or reduce approach-fill for railroad lines and roads and maximize the clear spanning of active channels, floodways, and estuaries to accommodate natural river and estuarine fluvial processes to protect all *O. mykiss* life history stages, including adult and juvenile migration, spawning, incubation and rearing habitats." NMFS 2012, p. 121-31

TopC-SCS-12.1 (Upslope/Upstream activities).

"Develop and implement restoration and management plan for the relevant estuary. To the maximum extent feasible, the plan should include restoring the physical configuration, size and diversity of the wetland habitats, eliminating exotic species, controlling artificial breaching of the sand bar, and establishing an effective buffer to restore estuarine functions and promote *O. mykiss* use (including rearing and acclimation) of the estuary." NMFS 2012, p. 11-31

NMFS' 2023 5-Year Status Review

NMFS 2023 5-Year Review for Southern California Steelhead identified a number of "Population Specific Key Emergent or Ongoing Habitat Concerns" for Topanga Creek (NMFS 2023). These included:

- Fish passage impediments created by numerous road crossings (*e.g.,* culverts) throughout the coastal watersheds, including Highway 1 along a major portion of the ocean frontage of the Santa Monica Mountains BPG (*e.g*., Big Sycamore Canyon Creek, Arroyo Sequit, Topanga Creek). NMFS 2023, p, 71

- Degradation of estuarine habitat through impaired water quality runoff (from both urban and agricultural land uses (including fine sediments and pesticides), artificial breaching of the sandbar, and reduction in the size and complexity of estuarine habitats resulting from the intrusion of roads, as well as urban land-uses (*e.g*., Big Sycamore Canyon, Arroyo Sequit, Malibu Creek, Topanga Creek). See, for example, Dagit (2015), Capelli (2022, 2023). NMFS 2023, p. 71

Among the "Recommended Future Actions Over the Next 5 Years Toward Achieving Population Viability" that are identified in the recovery plan for Topanga Creel involve the following:

- *Topanga Creek*: Initiation of studies to remove and replace the bridge/culvert over the lower reach of Topanga Creek/Estuary (NMFS 2012: Recovery Actions TopC-SCS-3.1). NMFS 2023, p. 76

- Completion of studies and implementation of the plan for the replacement and enlargement of CalTrans U.S. Highway 1 bridge over Topanga Creek/Estuary (NMFS 2012a: Recovery Actions TopC-SCS-11.1 – 11.3; TopC-SCS-12.1). NMFS 2023, p. 76

Topanga Creek Lagoon Restoration

Removal of the existing culvert and replacement with a full-span bridge over Topanga Creek Lagoon and restoration of the aerial extent and morphology of the Topanga Creek bar-built estuary/lagoon implements one of the critical recovery actions identified in NMFS' Southern California Steelhead Recovery Plan (NMFS 2012), and would set an important precedent for a number of other bridge replacement projects for core recovery populations in the Santa Monica Mountains BPG, including Big Sycamore Canyon, Arroyo Sequit (completed), Malibu Creek, Los Flores Canyon, as well as elsewhere in the Southern California Steelhead DPS (see, for example, Capelli 2022, 2023). Small bar-built coastal estuaries, such as Topanga Creek Lagoon, have the potential to play an important role in the fresh-water life-history phase of steelhead by providing a productive environment for rearing juvenile steelhead (Bond, et al. 2008, Hayes, et al. 2008, 2011, Jacobs, et al. 2011, Largier, et al. 2019, Largier 2023). Restoring the size and complexity of the Topanga Creek Lagoon would enhance its current degraded potential to support rearing juvenile steelhead, and in particular the "lagoon-anadromous" form of the species, which is one of the three basic life-history forms identified by NMFS' Technical Recovery Team as contributing importantly to the life-history diversity and therefore the viability of the species (Boughton et al. 2006).

Specific Comments

The Topanga Lagoon is situated on a marine delta formed by the deposition of sediments derived from the Topanga Creek watershed (Bates 1953, Ferren et al. 1995, Bhattacharya and Giosan 2005, Zavala et al. 2021). In addition to the naturally derived, transported, and deposited sediments, the delta has been modified by the deposition of imported fill material to form the approaches for the Pacific Coast Highway crossing over Topanga Creek.

The draft EIR indicates that up to 256,000 cubic yards (cy) of soil would be removed from the existing fill areas to contour the new lagoon, with excavations ranging from 8 to 30 feet deep. Placement of some of this excavated fill in the nearshore marine environment could temporarily cover up to 35 acres of nearshore habitat that could be utilized by steelhead smolts emigrating out of the Topanga Creek Lagoon. Juvenile steelhead (along with other Pacific anadromous salmonids) depend on feeding at high levels to achieve initial growth necessary for survival and maturation in the ocean (Mueter et al. 2005, Peterson et al. 2006, Grimes et al. 2007, Moore and Berejikian 2017; see also references in Hertz and Trudel 2014). Nearshore habitat in the vicinity of the project includes rocky habitat that harbors marine species that juvenile steelhead potentially prey upon. (See Figure 3, Topanga Bar-Built Estuary/Lagoon and Nearshore Habitats,

aerial photo that documents the historic lagoon, and nearshore habitats within the vicinity of Topanga Lagoon).

While no excavation is proposed within regulated waters and wetlands, limited disturbance to this area (approximately 0.33 acres) would occur temporarily during demolition of the existing crossing of Topanga Creek Lagoon. The majority of the proposed lagoon area would remain non-tidal as a naturally freshwater-dominated, seasonally closed, bar-built estuary/lagoon, and thus foster juvenile steelhead rearing (as well as other estuarine species that juvenile steelhead may prey upon).

Mechanical excavation of material from the marine delta and subsequent deposition of soil in the nearshore marine environmental has the potential to adversely impact (at least temporarily) emigrating smolt steelhead by disrupting early feeding opportunities (Daly et al. 2013, Kendall et al. 2017, Meyers 2018). Generally, the more sediment that can be transported to the nearshore environment through reliance on natural fluvial processes, rather than artificial mechanical methods, the less likely adverse impacts are to occur in nearshore benthic habitats, such as rocky habitats, which harbor species that juvenile steelhead may prey upon., as well as other marine species.

To minimize the potential aversive impacts to nearshore habitats utilized by juvenile steelhead emigrating from the Topanga Lagoon, soils excavated from the project site should be sorted and evaluated to determine their suitability (and potential unsuitability) for mechanical deposition in the nearshore environment. Unsuitable material (e.g., those containing contaminants or miscellaneous debris) should not be placed in the nearshore environment but rather disposed of in an authorized disposal site, or otherwise used for appropriate purposes (e.g., construction fill, soil amendment, etc.). Materials suitable for nearshore deposition should be placed to avoid, to the maximum extent possible, sensitive nearshore benthic habits (particularly rocky habitats that support prey species important for rearing and maturing juvenile steelhead, and well as other marine species), and under conditions that would facilitate their natural dispersal in response to wave action and littoral processes.

Finally, excavated soils that are mechanically deposited within the nearshore environments should be monitored to assess adverse effect on nearshore habitats, and mitigation measures should be identified and implemented to address residual adverse effects of such mechanical deposition.

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81 FR 33468. 2016. Notice of availability of 5-year reviews for 17 Evolutionarily Significant Units (ESUs) of Pacific salmon and 10 Distinct Population Segments (DPS) of steelhead.

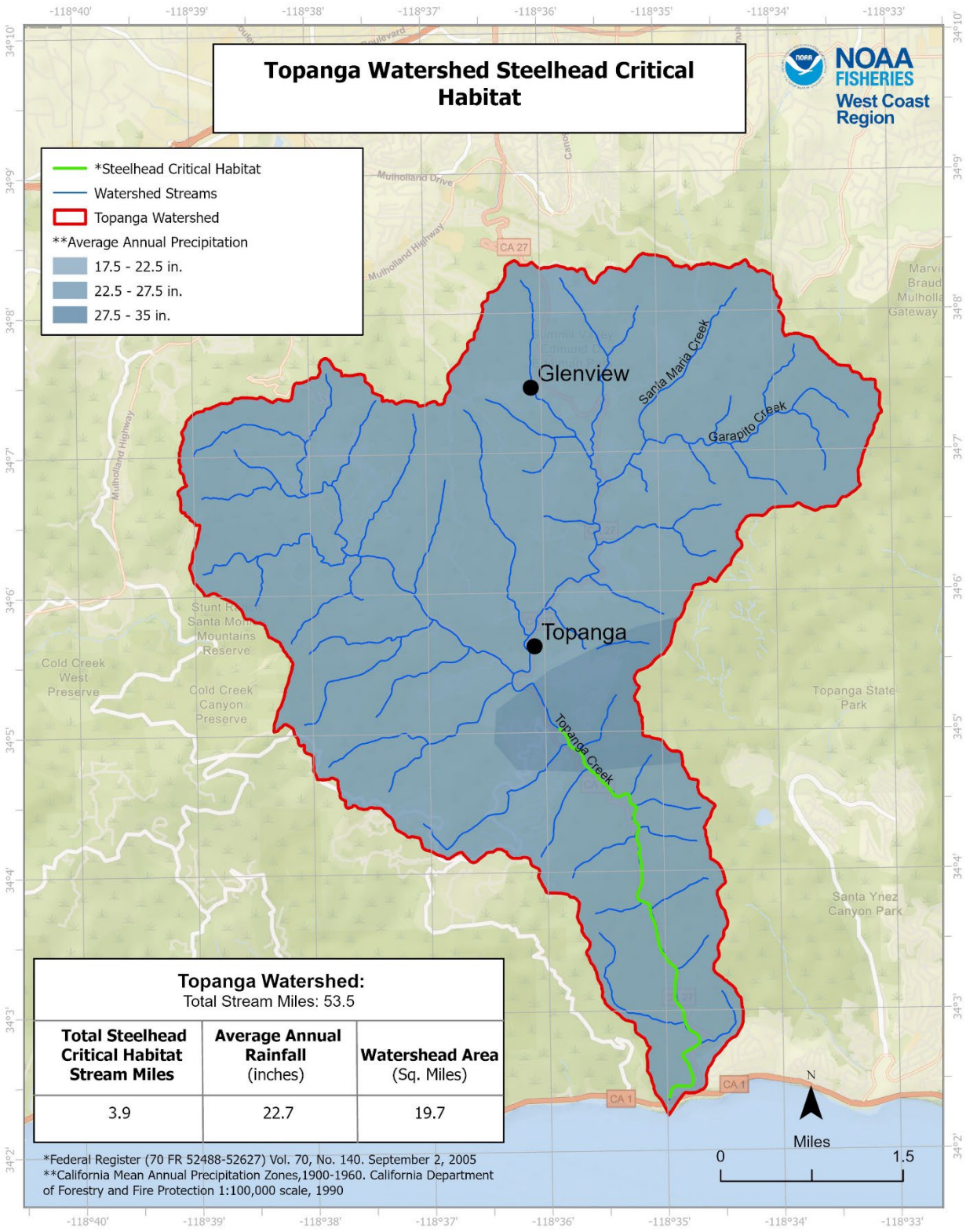


Figure 1. Topanga Watershed Steelhead Critical Habitat.

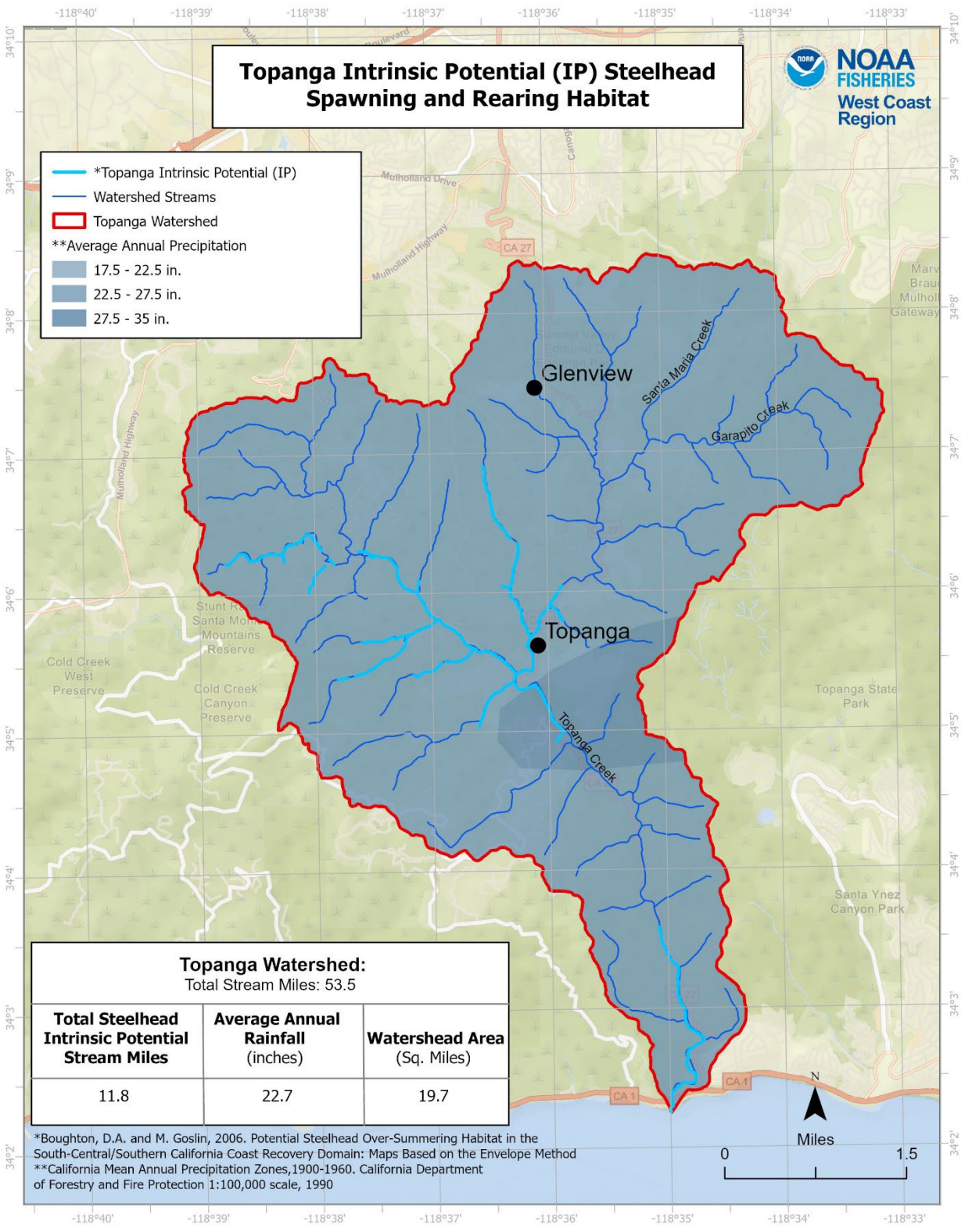


Figure 2. Topanga Watershed Intrinsic Potential Steelhead Spawning and Rearing Habitat.

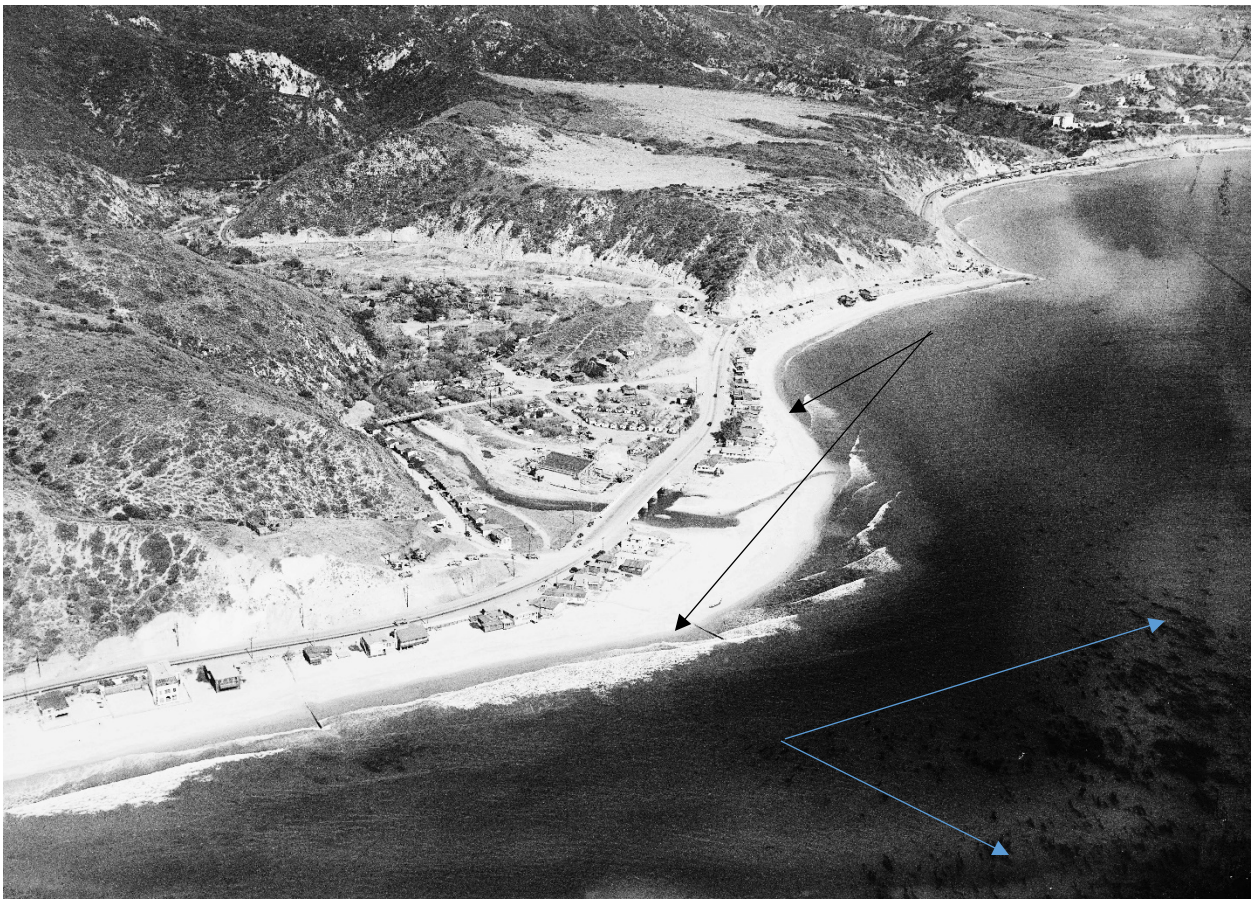


Figure 3. Topanga Creek Bar-Built Estuary/Lagoon and Nearshore Habitats. Black arrows indicate the seaward extent of the exposed Topanga Creek marine delta formed by the discharge from Topanga Creek (sand deposits overlaying cobble derived from the Topanga Creek watershed) upon which the Topanga Creek bar-built estuary/lagoon has formed. Blue arrows indicate location of rocky nearshore habitat (colonized with various marine plant species) comprised of cobble derived from Topanga Creek watershed. 1933. UCLA Fairchild Collection. E-3927.

State Agencies

AG 2

DEPARTMENT OF TRANSPORTATION
DISTRICT 7
100 S. MAIN STREET, MS 16
LOS ANGELES, CA 90012
PHONE (213) 266-3562
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Making Conservation a California Way of Life

April 12, 2024

John Ota
California Department of Parks and Recreation
1925 Las Virgenes Road
Calabasas, CA 91302

RE: Topanga Lagoon Restoration Project:
Draft Environmental Impact Report (DEIR)
Vic. LA-1/41.129, LA-27/0.024
GTS # 07-LA-2024-04451
SCH # 2022050478

Dear John Ota:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above-referenced project. The Proposed Project involves the expansion of the Topanga Creek and lagoon ecosystem, replacement of the existing PCH bridge (SR-1 #53-0035) with a longer bridge to accommodate the lagoon expansion, development of visitor services in lower Topanga State Park, and relocation of DBH facilities on Topanga Beach that are threatened by sea level rise. The Proposed Project includes the construction of new visitor services at the northwest corner of the intersection of PCH and TCB, referred to as the "Gateway Corner." The Proposed Project also evaluates beneficial reuse options for excavated sediment and options for on- and off-site wastewater disposal. The California Department of Parks and Recreation is the Lead Agency under the California Environmental Quality Act (CEQA).

The closest state facilities are SR-1 and SR-27. After reviewing the project's documents, Caltrans has the following comments:

- The Proposed Project will have potentially significant impacts on Caltrans R/W along SR-1 and SR-27. Please be advised that any permanent work, or temporary traffic control that encroaches onto the ROW requires a Caltrans-issued encroachment permit.

- Implement a mitigation measure that focuses on bicyclists and pedestrians.

- Upgrade the existing Class III bike facility to a Class I or at minimum a Class IV bike facility. This would achieve connectivity with other proposed and existing separated bicycle and pedestrian facilities

AG 2

- Please update the metro bus route numbers to the most current route numbers on pages 3.16-8 and 3.16-9.

As a reminder, any transportation of heavy construction equipment and/or materials that requires the use of oversized transport vehicles on State Highways will need a Caltrans transportation permit. Caltrans recommends that the Project limit construction traffic to off-peak periods to minimize the potential impact on State facilities. If construction traffic is expected to cause issues on any State facilities, please submit a construction traffic control plan detailing these issues for Caltrans' review.

Caltrans looks forward to reviewing the future environmental documents. If you have any questions, please feel free to contact Jaden Oloresisimo, the project coordinator, at Jaden.Oloresisimo@dot.ca.gov and refer to GTS # 07-LA-2024-04451.

Sincerely,

Miya Edmonson

MIYA EDMONSON
LDR/CEQA Branch Chief

cc: State Clearinghouse

CALIFORNIA COASTAL COMMISSION
SOUTH CENTRAL COAST DISTRICT OFFICE
89 SOUTH CALIFORNIA ST., SUITE 200
VENTURA, CA 93001
(805) 585-1800

April 12, 2024

California Department of Parks and Recreation
Attn: John Ota, Environmental Scientist
1925 Las Virgenes Road
Calabasas, CA 91302
TopangaLagoonRestoration@gmail.com

RE: Topanga Lagoon Restoration Project Draft Environmental Impact Report

Mr. Ota,

Thank you for the invitation to provide comments on the Draft Environmental Impact Report (DEIR) dated February 2024 for the proposed Topanga Lagoon Restoration Project. The DEIR analyzes three build alternatives for restoration of the Topanga Lagoon. Each build alternative includes removal and replacement of the existing 79 ft. Pacific Coast Highway (PCH) bridge that crosses the lagoon with a 460 ft. bridge to allow for expansion and restoration of the lagoon. Alternative 2 would result in the largest lagoon restoration (9.5 wetted acres) and would not maintain any of the Topanga Ranch Motel structures that exist on State Parks property. Alternative 3 would restore 7.7 acres of the lagoon and maintain 20 of the motel structures. Alternative 4 would restore 7.6 acres of the lagoon, maintain 15 of the motel structures, and relocate the new PCH bridge to a more inland location. Alternatives 2, 3, and 4 would also include approximately 23 acres of riparian habitat restoration and expand the beach area by at least 1 acre. Additional project components for each build alternative include new pedestrian access and trail system, relocation of the existing lifeguard and beach restroom facility to a more inland location, a new State Parks interpretive pavilion and restaurant at the corner of PCH and Topanga Canyon Boulevard, changes to the public parking in the project area, including an increase in the number of public parking spaces, and potential beneficial nearshore sediment disposal.

Commission staff is very supportive of the Topanga Lagoon Restoration Project and its objectives. The following summarizes Commission staff's comments on the proposed project alternatives and analysis presented in the DEIR:

1. The DEIR discusses the removal of habitat that is designated as H1 and H2 in the L.A. County Santa Monica Mountains Local Coastal Program (LCP). The Final EIR should clarify whether in fact these habitats will be removed by structural development or are part of the restoration area and/or are converted from one habitat type or designation to another.

2. The DEIR describes the removal of up to 32 native trees, encroachment of up to 15 trees, and proposes mitigation measure BIO-14 to mitigate for these impacts.

However, the replacement tree ratios contained in this mitigation measure are not consistent with the mitigation ratios required in the County's certified LCP for impacts to native trees. The DEIR should correct proposed mitigation measure BIO-14 to include the mitigation ratios required by the LCP or if replacement plantings at the LCP ratios are not feasible, justification should be provided for the lower ratios proposed (e.g., the appropriate habitat areas on site will not be sufficient in size to allow for the larger number of replacement trees, etc.).

3. Section 3.9 briefly discusses the modeling of sea level rise for each alternative and states that Alternative 2 would be the most resilient alternative with regards to sea level rise. However, the same paragraph goes on to state that Alternative 4 would maximize the resilience of the beach infrastructure. Please clarify. Further, the COAST Long-term Shoreline Change Analysis for the project appears to indicate that the proposed beach infrastructure would be safe under 6.6 ft. of sea level rise; however, none of the sea level rise studies for the project clearly state this. We recommend that the Final EIR clearly states how long the beach infrastructure is expected to be safe from coastal hazards under each sea level rise scenario and including a 100-year storm and, if not, what adaptation measures could be included to ensure new development will not rely on future shoreline armoring.

4. Mitigation measure FIRE-1 requires preparation of a fuel modification plan for the project area. However, the DEIR does not specify whether fuel modification would impact native habitats. Particularly, if the Ranch Motel structures are maintained, would fuel modification be required and, if so, would the required fuel modification extend into the restoration area?

5. As the DEIR describes, several new structures are proposed, including a new lifeguard/restroom building, a new interpretive pavilion and restaurant, a new ranger building, and other new or refurbished structures. The DEIR also explains that the operational greenhouse gas emissions for the proposed project would be comparable to the current GHG emissions at the project site. Are solar panels for one or more of the proposed structures proposed in order to reduce operational GHG emissions at the project site?

6. The DEIR project description includes replacement of the existing Pacific Coast Highway (PCH) bridge with a longer bridge to accommodate lagoon expansion, development of visitor services in lower Topanga State Park, and relocation of L.A. County Dept. of Beaches and Harbors facilities threatened by sea level rise. A stated project objective of the new bridge design is to improve fish passage and sediment transport to the littoral cell. We are supportive of the longer span bridge design which appears to be the case in both Alternative 2 and Alternative 3. In order to understand the amount of new fill of coastal wetlands being proposed, how many piles would be required to support the longer span? What is the total amount of fill proposed compared to the current amount?

7. Section 2.7.2 describes how parking and pedestrian access will be maintained during construction. How will the public be informed about the parking changes? Is there temporary signage proposed directing the public toward open parking areas? Will a public outreach campaign be developed so that beachgoers understand which areas are open for public parking during construction?

8. Figures 3.1-6 through 3.1-8 provide visual simulations of the bridge design under all alternatives with a dedicated bike lane, sidewalk, and upgraded bridge rails. The DEIR states that the visual simulations, including these features, do not reflect a final design. Can you clarify whether or not a bike lane, sidewalk, and upgraded bridge rails will be included in the final design? Additionally, the renderings depict bridge barriers and railings that appear to be visually permeable and consistent with the Commission's Bridge Rails and Barriers Guide[1] (Guide) for Caltrans projects in the coastal zone; nevertheless, it is unclear which barrier and rail design has been selected. Therefore, our staff requests that State Parks work with Caltrans to select and provide the railing and barrier design that is consistent with the Guide.

9. Currently, the unmarked shoulder areas along Topanga Canyon Blvd (TCB) are used for free coastal access parking. Table 2-2 summarizes the amount of conforming and non-conforming parking within the project site. Section 2.6.9 of the DEIR describes how 79 nonconforming spaces would decrease to 54 (or 51) spaces on PCH depending on the project alternative selected. But overall public parking would increase, albeit with more fee parking than free parking. The section then goes on to describe how 20 free spaces are available on TCB but does not distinguish whether or not they are conforming or non-conforming spaces. How many free parking spaces will be maintained on TCB?

10. The Environmental Justice Analysis section states, "Overall, the Topanga [census-designated place], City of Malibu, and City of Los Angeles include a total minority population of approximately 40 percent, which is less than 50 percent and thus, as a reference population, does not represent a minority population (U.S. Census Bureau 2022a)." However, Table 4-1 shows the total minority population for the City of Los Angeles to be 71.5%. We recommend clarifying the discrepancy between the above statement and the minority population data as shown in Table 4-1.

    The DEIR goes on to state that even though the City of Los Angeles meets the "meaningfully greater" minority population criteria, "consideration of all areas within the City of Los Angeles would not be appropriate, as most impacts of the Proposed Project would be highly localized." However, one of the objectives of the project is to improve and enhance coastal access and recreational facilities within the project area, and the proposed project will ultimately have an impact (whether adverse or beneficial) for all of those visiting the site. Additionally, due to historic discriminatory land use policies and practices, communities of color and low-income communities are more

[1] Please see the Commission's Bridge Rails and Barriers Guide

likely to live farther away from the beach. We recommend conducting meaningful engagement of environmental justice communities within inland areas of the City of Los Angeles and Los Angeles County and provide information for how targeted engagement of environmental justice communities will be conducted in future steps of the project.

Thank you again for the opportunity to comment. These comments represent our preliminary comments. We will review the Final EIR for this project and depending on the particular details of the proposed project as submitted in a coastal development permit application, there may be additional comments or issues to be addressed. If you have any questions regarding these comments, please contact me at 805-585-1800.

Sincerely,

DocuSigned by:
Michelle Kubran
FF5A3C73C606414...

Michelle Kubran
Coastal Resiliency Coordinator

CALIFORNIA STATE LANDS COMMISSION
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

JENNIFER LUCCHESI, *Executive Officer*
916.574.1800
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Contact Phone: 916.574.1900

April 12, 2024

File Ref: SCH #2022050478

California Department of Parks and Recreation
ATTN: John Ota
1925 Las Virgenes Rd.
Calabasas, CA 91302
John.ota@parks.ca.gov

Subject: Environmental Impact Report for Topanga Lagoon Restoration Project, Los Angeles County

Dear John Ota:

The California State Lands Commission (Commission) staff has reviewed the draft Environmental Impact Report (EIR) for the Topanga Lagoon Restoration Project (Project), which is being prepared by the California Department of Parks and Recreation (CDPR). CDPR, as the public agency proposing to carry out the Project, is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The Commission is a trustee agency for projects that could directly or indirectly affect State sovereign land and their accompanying Public Trust resources or uses. Additionally, because the Project involves work on State sovereign land, the Commission will act as a responsible agency.

Commission Jurisdiction and Public Trust Lands

The Commission has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The Commission also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6009, subd. (c); 6009.1; 6301; 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the common law Public Trust Doctrine.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways

upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the state for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court.

After review of the information contained in the draft EIR, there are several components of the Project that would require further review and Commission authorization. Under Alternatives 2, 3, and 4, CDPR proposes to increase the area of Topanga Beach from 50 to 90 feet of additional depth. The proposed expansion would add 1 to 1.2 acres of beach area. While the draft EIR mentions that this expansion of beach area would be installed above the mean high tide line, staff requests CDPR conduct a mean high tide line survey when design of this element is further developed for the preferred alternative to confirm whether this project component will encroach upon State sovereign land and require Commission authorization.

Additionally, under Alternatives 2, 3, and 4 of the Project, CDPR proposes the removal of existing fill from the Project area (Topanga Lagoon) and reuse in the nearshore environment to renourish the littoral cell and benefit beaches downcoast. The proposed fill placement would consist of approximately 156,000 – 256,000 cubic yards placed nearshore in the Pacific Ocean. The lands waterward of the mean high tide line remain ungranted sovereign lands under the management of the Commission. Therefore, the proposed Project and the placement of fill material from the Project area in the Pacific Ocean will require Commission authorization. Information on the Commission's lease application process can be found at www.slc.ca.gov/leases-permits/, the online application can be found at www.oscar.slc.ca.gov/, and any related questions can be directed to Public Land Management Specialist, Mr. Kelly Connor (contact information below).

Project Description

The CDPR proposes the project to meet the agency's objectives and needs as follows:

- Optimize beneficial reuse of excavated sediment by increasing sediment replenishment via nearshore placement and long-term conveyance increased by a wider bridge to the littoral cell while maintaining the integrity of the surf break as well as protecting the surf break and beach recreation.
- Replace the 1933 Pacific Coast Highway bridge to accommodate lagoon restoration and expansion that would improve estuarine hydrologic

functions and protect endangered species. Replacing the bridge will also Increase safety and coastal access.
- Establish a visitor-serving "Gateway Corner" at the northwest corner of the intersection of Topanga Canyon Boulevard and State Route 27, consistent with the Topanga State Park General Plan goal of providing a coastal gateway to the park. Manage historic and archaeological resources in the Project area and the lagoon ecosystem consistent with the guidelines in the Topanga State Park General Plan.

From the Project Description, Commission staff understands that the Project would include the following components that have potential to affect State sovereign land:

- Deposition Area. The nearshore Deposition Area located offshore in the Pacific Ocean for the relocation of sediment from Topanga Lagoon.
- Temporary Pipeline Construction and Operation. Temporary pipeline on risers running from the beach, below the mean high tide line, out to the Pacific Ocean for the transport of sediment into the nearshore deposition area.

The draft EIR identifies Alternative 3 – Limited Lagoon Habitat Expansion as the Environmentally Superior Alternative.

Environmental Review

Commission staff requests that CDPR consider the following comments on the Project's draft EIR to ensure that impacts to State sovereign land are adequately analyzed for the Commission's use of the EIR when considering a lease application for the Project.

General Comments

1. Project Description: The Final EIR must contain a more robust description of the activities that are to occur in the Nearshore Deposition Area before the Commission could issue a lease for Project activities. This includes construction methods and materials proposed for the temporary pipeline, size of the pipeline, specific methods of powering any pumps (if necessary) that may be used to transport the sediment slurry, how the barge will be transported to the Nearshore Deposition Area, the barge's route to the Nearshore Deposition Area, and potential anchoring locations. Additionally, figures showing where the pipeline, barge, and slurry area will be located and incorporation of all the new Project Description information into the environmental analyses will ensure an accurate depiction of environmental impacts to sovereign lands. Based on the requested updates to the Project description, the Final EIR should therefore have associated updated analyses in, but not limited to, Section 3.2 *Air Quality*, Section 3.2 *Biological Resources*,

Section 3.7 *Greenhouse Gas Emissions/Climate Change*, and Section 3.8 *Hazards and Hazardous Materials*. In particular, Section 3.2 *Air Quality* should include criteria pollutant calculations for vessels traveling between the Nearshore Deposition Area and Port Hueneme, and that data should be incorporated into all relevant tables. Lastly, Commission staff suggest creating a larger buffer area for the temporary pipeline to account for the possibility that the pipeline location may need to be altered to avoid sensitive and/or critical habitat.

2. Public Agency Approvals: On page 2-1, the Commission and State sovereign land in the Pacific Ocean offshore were excluded from the list of publicly managed areas. Please include the Pacific Ocean and the Commission in the list.

Marine Biological Resources

3. Mitigation Measure MAR-1: On page 3.11-29, the draft EIR states that the mitigation measure will use preconstruction surveys to "ensure that sediment is *not* [emphasis added] placed on hard-bottom habitats or other sensitive marine resources." However, the language of the mitigation measure on page ES-46 states that the placement of the pipeline will avoid hard-bottom habitats to "the maximum extent feasible." Please clarify if the mitigation measure will ensure that the Project will fully avoid hard-bottom habitats. If the mitigation is not able to fully avoid hard-bottom habitats, please indicate what parameters would define "the maximum extent feasible" and how impacts would remain less than significant if sediment is ultimately placed on hard-bottom habitat or other sensitive marine resources.

Thank you for the opportunity to comment on the draft EIR for the Project. As a responsible and trustee agency, the Commission will rely on the Final EIR in issuing a new lease as specified above (see Section "Commission Jurisdiction and Public Trust Lands"). Staff requests that you consider these comments before certifying the Final EIR.

Please send electronic copies of the Final EIR, Mitigation Monitoring Program, and Notice of Determination, approving resolution, CEQA Findings, and, if applicable, Statement of Overriding Considerations, when they become available. Please note that federal and state laws require all government entities to improve accessibility of information technology and content by complying with established accessibility requirements. (29 U.S.C. § 794d; 36 C.F.R. § 1194.1 et seq.; Gov. Code, § 7405.) California State law prohibits State agencies from publishing on their websites content that does not comply with accessibility requirements. (Gov. Code, § 115467.) Therefore, any documents submitted to Commission staff during the processing of a lease or permit,

including all CEQA documentation, must meet accessibility requirements for Commission staff to place the application on the Commission agenda.

Refer questions concerning environmental review to Christine Day, Environmental Scientist, at Chrisitne.Day@slc.ca.gov or (916) 562-0027. For questions concerning Commission leasing jurisdiction, please contact Mr. Kelly Connor, Public Land Management Specialist III, at Kelly.Connor@slc.ca.gov or (916) 574-0343.

Sincerely,

Nicole Dobroski, Chief
Division of Environmental Science,
Planning, and Management

cc: Office of Planning and Research
C. Day, Commission
K. Connor, Commission

AG 5

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

April 12, 2024

John Ota
California Department of Parks and Recreation
1925 Las Virgenes Road
Calabasas, CA 91302
John.ota@parks.ca.gov

SUBJECT: TOPANGA LAGOON RESTORATION PROJECT, DRAFT ENVIRONMENTAL IMPACT REPORT, SCH#2022050478; LOS ANGELES, CA

Dear John Ota:

The California Department of Fish and Wildlife (CDFW) has reviewed the Draft Environmental Impact Report (DEIR) from the California Department of Parks and Recreation (CDPR; Lead Agency) for the Topanga Lagoon Restoration Project (Project). Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW's Role

CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State [Fish & G. Code, §§ 711.7, subdivision (a) & 1802; Pub. Resources Code, § 21070; California Environmental Quality Act (CEQA) Guidelines, § 15386, subdivision (a)]. CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (Id., § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect State fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code, including lake and streambed alteration regulatory authority (Fish & G. Code, § 1600 *et seq*).

Likewise, to the extent implementation of the Project as proposed may result in "take", as defined by State law, of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), or CESA-listed rare plant pursuant to the Native Plant Protection Act (NPPA; Fish & G. Code, § 1900 et seq.), CDFW recommends the Project proponent obtain appropriate authorization under the Fish and Game Code.

PROJECT DESCRIPTION SUMMARY

Proponent: CDPR

Objective: The proposed Project is a multi-agency effort to expand the Topanga Creek and Topanga Lagoon ecosystem, replace the existing Pacific Coast Highway (PCH) bridge, and relocate several beach facilities on Topanga Beach. A recreational trail system through the Project would also be developed. The proposed Project would involve development of the Gateway Corner, which includes the construction of new visitor services at the northwest corner of the intersection of PCH and Topanga Canyon Boulevard (TCB). Development at the Gateway Corner is anticipated to consist of five one-story structures to support a park office, an employee house, a maintenance and storage facility, restrooms, and interpretive pavilion. Additionally, a new pedestrian undercrossing under the PCH bridge, beach access stairs, improved bus stop areas, and would be constructed in all build alternatives. Three build alternatives and a no project alternative are proposed in the DEIR.

Alternative 1: No Project/No Build – Managed Decline– Alternative 1 would result in no changes to the current conditions within the Project area. The Project area would remain the same and consist of 3.6 acres of wetted area, 21.4 acres of riparian/transitional upland habitat, and 4.18 acres of Topanga beach.

Alternative 2: Maximum Lagoon Habitat – Alternative 2 would result in the maximum increase in lagoon, wetland, and associated vegetative habitats. Following buildout, the Project area would consist of 9.5 wetted acres, 23 acres of restored riparian/transitional upland habitat, and beach expansion to 4.39 acres with an additional acre outside the immediate lagoon area. On the outer edge of the lagoon, approximately 13.6 acres would be graded to recontour the creek and widen the lagoon. Restoration would entail recontouring the western side of the lagoon with more natural side channels to accommodate sea level rise and storm surge conditions. Additionally, the existing PCH bridge would be replaced with a new bridge that spans approximately 460 feet and would retain the current bridge alignment. Roughly 0.33 acres of the lagoon would be temporarily disturbed during bridge activities.

The total area graded would be 17.22 acres with no excavation proposed in the regulated waters and wetlands. A total of approximately 335,000 cubic yards (CY) of soil would be removed from the Project area. Contaminated soil and construction debris

would be hauled off-site for disposal at appropriate landfills. Non-contaminated soil material is also proposed to be reused for nourishment of the nearshore and would be hauled to a designated nearshore deposition location in the ocean. The nearshore deposition location would cover up to 35 acres.

Approximately 8,400 gallons of wastewater would be generated per day under this alternative. The Project proposes three options available for Alternative 2, however, the Project would move forward with one wastewater management option. Option 1 consists of an on-site subsurface drip irrigation (SDI) system. The SDI system would be installed on State Parks property along TCB. Construction of the SDI system would require a pipe and pump system with treatment works to move effluent from the sources to the receiver site. Option 2 consists of on-site seepage pits. Construction of seepage pits would require a pipe and pump system with treatment works to move effluent to the dispersal site. The pipe alignment between the treatment works and the dispersal site would be located outside of Caltrans right of way, on the west shoulder of TCB. The dispersal site would be located on the east side of TCB on State Parks property. Option 3 consists of constructing an off-site sewer connection. This option would involve construction of an extension of the Los Angeles County Sanitation Districts public sewer from existing facilities to facilities associated with Topanga Beach, motel structures, and gateway corner.

Alternative 3: Limited Lagoon Habitat Expansion – In Alternative 3, expansion of Topanga lagoon and riparian/transitional upland habitat on the west side of Topanga Creek would not be as extensive as Alternative 2. Following buildout, the Project area would consist of 7.7 wetted acres, 23.7 acres of restored riparian/transitional upland habitat, and expansion of the beach to 4.42 acres with an additional acre outside of the lagoon area. Due to retention of structures, only the western side of Topanga creek and Topanga lagoon would be expanded for habitat creation. Grading of 12.8 acres of the outer edge of the lagoon would occur. The PCH bridge would also be deconstructed and expanded as detailed in Alternative 2. Approximately 0.33 acres of the lagoon would be temporarily disturbed during bridge activities. The total area graded would be 15.3 acres with no excavation proposed in the regulated waters and wetlands. A total of approximately 245,000 CY of soil would be removed from the Project area. Construction debris would be hauled off-site, and soil would be hauled-off site or reused for nearshore nourishment as described in Alterative 2. Approximately 12,400 gallons per day of wastewater would be generated from State Parks facilities. Waste management available for this alternative would be option 2 and option 3.

Alternative 4: **Maximum Managed Retreat** – Alternative 4 would result in 7.6 wetted acres of lagoon restoration, 23.7 acres of riparian/transitional upland habitat restored, and beach expansion of 4.56 acres with an additional acre outside of the lagoon area. Grading activities would occur on 14.4 acres of the outer edge of the lagoon. The PCH would be realigned to move northward, curving the freeway inland over the lagoon and expanding the beach area to its maximum amount. In addition to realignment of PCH,

the existing PCH bridge would be demolished and replaced with the same bridge length proposed in Alternative 2 and 3. A total of approximately 249,000 CY of soil would be removed from the Project area. Construction debris would be hauled off-site, and soil would be hauled-off site or reused for nearshore nourishment as described in Alterative 3. Approximately 11,500 gallons per day of wastewater would be generated from State Parks facilities. Waste management options 2 and 3 are available for this alternative.

Location: The Project area, located within the Santa Monica Mountains National Recreation Area and west of the intersection of TCB and State Route 1 PCH, covers 91 acres, of which 35 acres are in the ocean. It encompasses Topanga State Park, Topanga Lagoon, and Topanga Beach, located on the coastal slope of the Santa Monica Mountains in unincorporated Los Angeles County.

Timeframe: Construction and demolition activities within the Project area is anticipated to commence in 2027 and continue for approximately 60 months.

Biological Setting: The Project area encompasses five core areas: Topanga State Park, Topanga Creek, Topanga Lagoon, Topanga Beach, and the marine zone. Topanga Creek drains an 18-square-mile watershed and conveys flow into Topanga Lagoon. Topanga Lagoon is a naturally bar-built lagoon, disconnected from the ocean by a sand berm. During heavy storms the sand berm becomes breached, which allows seawater to flow into the lagoon and facilitates fish passage. The PCH bridge will be expanded to accommodate restoration and expansion of the Topanga Lagoon. Topanga Beach supports a large run of California grunion (*Leuresthes tenuis*). The nearshore deposit site (e.g., marine zone) is located in the ocean and encompasses approximately 35 acres.

A suite of biological field surveys were completed between June 2019 through November 2023, and findings were compiled in a Biological Resources Assessment (BRA) report. Baseline conditions of the Project area are outlined in the BRA. Roughly 18.51 acres were delineated as subject to Fish and Game Code Section 1600. Approximately 21.79 acres of coastal wetlands and waters within the Project area is subject to the California Coastal Act. If soil is placed in the nearshore deposition site, it would impact approximately 35 acres subject to the Rivers and Harbors Act.

In regard to the vegetation composition within the Project area, a total of 25 vegetation communities were identified. Sensitive vegetation communities observed within the Project area include California Sycamore Woodland (*Platanus racemosa* woodland; 8.98 acres) with red willow (Salix laevigata), arroyo willow (*Salix lasiolepis*), and mulefat (*Baccharis salicifolia*) understory, California black walnut woodland (*Juglans californica* woodland; 0.03 acre), California black walnut and laurel sumac woodland (*Juglans californica – Malosma laurina* woodland; 0.15 acre), California Brittlebush-California sagebrush shrubland association (*Encelia californica-Artemisia californica*; 0.51 acre), Ashyleaf buckwheat association (*Eriogonum cinereum*; 0.96 acre), Lemonade berry

shrubland association (*Rhus integrifolia*; 3.96 acres), Purple sage- ashyleaf buckwheat association (*Salvia leucophylla- Eriogonum cinereum*; 0.53 acre), and giant wildrye grassland (*Elymus condensatus*; 0.18 acre). In regard to plant species, a total of 253 plant species were recorded during terrestrial and freshwater field surveys. For special-status plant species, southern California black walnut trees were identified.

Over 100 wildlife species were observed during terrestrial and freshwater Project surveys, of which 24 species were identified as special-status. A total of 13 special-status species were confirmed to be present on-site and the remaining eight special-status species have a moderate to high potential to be present during Project activities. Special-status wildlife species observed within the Project area or have a moderate to high potential to be present during Project activities include, but are not limited to, tidewater goby (*Eucyclogobius newberryi*; Endangered Species Act (ESA)-listed endangered), arroyo chub (Gila orcuttii; California Species of Special Concern (SSC)), southern steelhead (*Onchorynchus mykiss irideus*, population 10; ESA-listed endangered, and CESA candidate), Monarch butterfly overwintering population, two striped gartersnake (*Thamnophis hammondii*; SSC), yellow warbler (Setophaga petechia; SSC), western red bat (*Lasiurus blossevillii*; SSC), San Diego desert woodrat (*Neotoma lepida intermedia*; SSC), Crotch's bumble bee (*Bombus crotchii*; CESA candidate), and mountain lion (*Puma concolor*; CESA candidate). CDPR has incorporated 15 biological mitigation measures and three marine mitigation measures to avoid, minimize, and/or mitigate adverse Project impacts.

Project History: CDFW has coordinated with CDPR as part of the Technically Advisory Committee for the Project. A Notice of Preparation (NOP) comment letter was submitted to CDPR on June 22, 2022.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist CDPR in adequately avoiding and/or mitigating the Project's impacts on fish and wildlife (biological) resources. Additional comments or other suggestions may also be included to improve the document. CDFW recommends the measures or revisions below be included in a science-based monitoring program that contains adaptive management strategies as part of the Project's CEQA mitigation, monitoring and reporting program (Pub. Resources Code, § 21081.6; CEQA Guidelines, § 15097).

Comment #1: Human-Wildlife Interface

Issue: The Project may increase human and wildlife interactions through the incorporation of a recreational trail system through the Project area.

Specific impacts: Development of a trail system throughout the Project area is proposed under all build alternatives and would impact wildlife. Impacts to wildlife could

result in mortality or injury, increased human disturbance in areas supporting habitat, reproductive suppression during breeding season, or population decline of a special-status species.

Why impact would occur: The DEIR states that, "[a]n interpretive trail would be developed to allow visitors to meander through the restored transitional upland areas…" (page 2-18). Increased human foot traffic in the Project area would result in increased noise levels in sensitive areas, increased trash or pet waste, and introduction of unnatural food sources via trash and trash receptacles. Outdoor recreation may also cause distress on individual wildlife, resulting in energetic costs to the animal and decline in the animals' behavior and fitness. Because components of the recreational trails are not clearly defined in the DEIR, sensitive habitats such as terrestrial and aquatic breeding grounds may be encroached upon and disturbed. Wildlife species of all sizes, including monarch butterflies, San Diego desert woodrat, and mountain lion have been recorded within and adjacent to the Project area. Although mountain lions were not observed denning in the Project area, they, "[a]re known and anticipated to use the site occasionally" (page 3.3-47). If not designed appropriately, the creation of recreational trails would lead to an increase in human-wildlife interactions that may result in harm to wildlife and/or humans.

Evidence impact would be significant: The Project area supports a variety of special-status species. Impacts to special-status species should be considered significant under CEQA unless they are clearly mitigated below a level of significance. Inadequate avoidance, minimization, and mitigation measures for impacts to special status plant or wildlife species will result in the Project continuing to have a substantial adverse direct, indirect, and cumulative effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or United States Fish and Wildlife Service (USFWS).

Recommended Potentially Feasible Mitigation Measure(s):

Recommendation #1: Trails Plan – CDPR should develop a Trails Management Plan and submit it for review and approval by CDFW and the USFWS (hereafter referred to as the Wildlife Agencies) prior to Project implementation. The Plan should include, at a minimum:

a. refined location of the trails system, including maps and figures;
b. a discussion of the location of the Topanga Creek crossing associated with the trails system, and how the crossing will be achieved;
c. analysis of any impacts to sensitive upland habitats and/or CESA-listed species which could occur as a result of cutting new trails;
d. description of trail materials (i.e., paved asphalt, gravel, etc.) and/or level of access;
e. allowable and prohibited trail uses; and

f. best management practices (BMP), including but not limited to:
    a. public information signage which focuses on educating and informing the public about wildlife, and advise on proper avoidance measures to reduce human-wildlife conflicts;
    b. trash receptacles to be placed only at trailheads to avoid creating an unnatural food source that may attract nuisance wildlife and to minimize waste in core habitat areas;
    c. prohibition of electric bicycles; and
    d. pets should always be kept on leash and on the trails at all times. Trail users should also be encouraged to clean up after their dogs.

Comment #2: Nearshore Sediment Placement Impacts

Issue: Nearshore sediment placement could cause potential burial of sensitive marine species and their rocky bottom habitats via direct sediment placement or subsequent littoral drift causing substantial adverse effects.

Specific Impact: Several types of Habitat Areas of Particular Concern (HAPC) occur at the Project site, including rocky reefs, seagrass (e.g., surfgrass), and potential canopy kelp. Los Angeles waters support commercially and recreationally important fish and invertebrate species such as California halibut (*Paralichthys californicus*), California spiny lobster (*Panulirus interruptus*), and the important forage fish Northern anchovy (*Engraulis mordax*). Nearshore sediment placement activities could impact HAPC and the species that inhabit them via direct burial/smothering, increased turbidity, and/or decreased light availability. Additionally, the installation and operation of a nearshore nourishment pipeline, an increase in vessel traffic, and anchoring would directly impact HAPC if these habitats exist within the work area footprint.

Why impact would occur: After the Project's proposed nearshore sediment placement, the primary effect pathway of potential burial/smothering, increased turbidity, and or decreased light availability to rocky reef, seagrass, and algal communities is indirect. The Draft EIR does not address how the potential indirect effects, as a result of the nearshore sediment placement, would be monitored and/or mitigated for post construction to avoid and minimize impacts to HAPC.

Evidence impact would be significant: HAPC, a subset of Essential Fish Habitat, are habitats of special importance to fish populations due to their rarity, vulnerability to development and anthropogenic degradation, and/or ability to provide key ecological functions. Rocky reefs, seagrass, and canopy kelp (e.g., giant kelp) have been designated as groundfish HAPC by the Pacific Fisheries Management Council under the Magnuson-Stevens Fishery Conservation and Management Act.

Recommended Potentially Feasible Mitigation Measure(s)

Recommendation #2: HAPC - CDFW appreciates the Project's inclusion of Mitigation Measure MAR-1 (Marine Resources Protection Measures), which ensures that pipeline installation, vessel traffic, anchoring, and nearshore sediment placement avoid HAPC to the greatest extent feasible. CDFW recommends that the Final EIR should quantify the amount of rocky reef, seagrass, and canopy kelp that could be lost due to the Project and potential alternatives. If impacts cannot be avoided, compensatory mitigation may be required. Additionally, CDFW recommends that post-construction monitoring of the nearshore sediment placement should occur to ensure HAPC's are not impacted. CDFW recommends consulting with CDFW and NOAA Fisheries on the Final EIR's impact analysis and all proposed mitigation measures for HAPC prior to release of the Final EIR.

Comment #3: Impacts on Southern Steelhead

Issue: The Project may impact southern steelhead during steelhead migration season.

Specific impacts: Project activities (e.g., expansion, recontouring, demolition, etc.) associated with the lagoon, creek, and other wetted areas would have an impact on aquatic species, especially southern steelhead.

Why impact would occur: Biological Mitigation Measure 4 through Mitigation 6 in the DEIR are intended to minimize impacts to aquatic fish species known to inhabit the Project area. While CDFW appreciates the effort to reduce significant impacts to this species, we believe that the measures as written could be refined to further reduce impacts to steelhead. Mitigation Measure 4 states that work would preferentially occur outside of the steelhead migration season of December through March. Although December to March is the primary window for returning adult steelhead, the time frame should be expanded to account for weather variability and migrating smolts. Stream connectivity and beach berm conditions in the Topanga watershed is highly influenced by seasonal rainfall and dictates when migration occurs. In any given year during Project activities, a heavy rain event may occur in the proposed time frame, or the area may experience rainfall as early as October or as late as April. Additionally, the Project should consider downstream-migrating smolts, who generally migrate to the ocean between March through May (Booth 2020). Furthermore, CDFW 2023 (unpublished; available upon request) data from work on Topanga Creek demonstrates that smolts migrating downstream were observed and recorded in January through June. Project activities conducted in months outside of the proposed time frame may result in incidental take and/or disruption of migration.

Evidence impact would be significant: Southern steelhead are designated as a candidate species under CESA and afforded full protection. Southern steelhead also meets the CEQA definition of rare, threatened, or endangered species (CEQA Guidelines, § 15380). Impacts on southern steelhead may require a mandatory finding

of significance because the Project would have the potential to threaten to eliminate a plant or animal community and/or substantially reduce the number or restrict the range of an endangered, rare, or threatened species (CEQA Guidelines, §15065). The reduction in the number of southern steelhead, either directly or indirectly through habitat loss, would constitute a significant impact absent appropriate mitigation. Inadequate avoidance and mitigation measures will result in the Project continuing to have a substantial adverse direct and cumulative effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by Wildlife Agencies.

Recommended Potentially Feasible Mitigation Measure(s):

Recommendation #3: Project Scoping - Given that a Lake and Streambed Alteration Agreement is required for the Project, CDFW would like to the opportunity to be included during formal consultation with USFWS and National Marine Fisheries Service (NMFS) as it pertains to work in wetted areas and impacts on fish species. CDPR should revise Mitigation Measures 4 through 6 in the DEIR to include scoping with CDFW during formal federal consultation process, so that all Project requirements are in alignment with each other.

Mitigation Measure #1: BIO-4: Fish Protection Measures During Work in Wetted Areas - Mitigation Measure BIO-4 Fish Protection Measures During Work in Wetted Areas shall be revised to incorporate the <u>underlined</u> language and omit language in ~~strikethrough~~:

Formal consultation with <u>CDFW/</u>USFWS/NMFS will further refine these measures and the Project shall comply with all permit requirements. The following measures shall be implemented to protect and minimize impacts on tidewater goby and steelhead trout, their critical habitat, and other special-status aquatic species during construction:

1. Cofferdam, sediment curtain, and/or another method approved by <u>CDFW/</u>NMFS/USFWS shall be used to cordon off the area (approximately 0.33 acre) around the existing bridge abutment to both exclude fish and wildlife and to contain construction debris and runoff within the work area. Final construction design shall meet all permit conditions and be developed by the contractor in coordination with State Parks.

    a. The cofferdam shall not be fully dewatered until the supervising biologist determines that no fish remain within the area. <u>The supervising biologist shall have appropriate handling permits and experience with dewater and fish relocation activities. This includes experience with aquatic species associated with the lagoon, creek, and wetted areas.</u>
        i. Dewatering shall be done slowly with supervision to ensure that any fish trapped in the area can be captured and relocated, reducing the

risk of injury or stress.

ii. Pumps shall be properly screened to prevent fish from entering the intake.

iii. Dewatering and flow diversion shall comply with permit requirements from CDFW, USFWS, and NMFS.

iv. Once the supervising biologist has confirmed that the work area is isolated, all fish are excluded, and there is no risk of entraining fish, then the pump screen may be removed.

v. Water removed from the work area shall be directed to an adjacent holding area according to permit requirements before being infiltrated into the existing fill or release into the lagoon or ocean downstream of the work area.

vi. Water quality testing including turbidity, temperature, salinity, dissolved oxygen, pH, and conductivity, nutrients (and potentially metals if required) shall be monitored and documented at the start, middle and end of each day.

b. Blocking nets providing a buffer area outside the work zone shall remain in place until all work is completed, and the coffer dam removed.
   i. Blocking nets shall be inspected at least three times a day (start, middle, end) or more if requested by the supervising biologist. If fish are impinged on the net, or weather/flow conditions change significantly, the supervising biologist can increase inspection efforts.

c. Silt curtains may also be installed inside the blocking nets to further reduce potential for water quality impacts.

2. All construction activities within or directly adjacent to the lagoon, creek, and wetted areas will occur preferentially outside of the steelhead migration season (November – June) ~~December through March)~~. In the event, this time frame cannot be avoided, measures shall be implemented with the approval of NMFS and CDFW to avoid impacts such as allowing passage through a protected portion of the work area and implementation of additional BMPs to buffer fish from adjacent work, such as use of silt curtains within the wetted edge and silt fence along the dry edge, etc.).
3. If fish upstream are observed in distress, a fish kill occurs, or spills occur, the supervising biologist shall immediately contact the contractor to stop work, contact the relevant agencies, and work with the contractor to correct the problem.
4. Upon completion of the removal of the old bridge within the coffer dam area, water quality shall be tested within the work area before removal of the walls. Flow shall be restored slowly, and fish shall remain excluded upstream of the work area pending confirmation that water parameters are suitable for direct release into the lower lagoon.

Comment #4: Impacts on Crotch's Bumble Bee

Issue: The Project may impact Crotch's bumble bee.

Specific impacts: Project activities may result in temporal or permanent loss of suitable nesting and foraging habitat of Crotch's bumble bee. Ground-disturbing activities may result in death/injury of adults, eggs, and larva, burrow collapse, nest abandonment, and reduced nest success.

Why impacts would occur: There is a high potential for Crotch's bumble bee to be utilize the Project area for nesting and foraging opportunities. The DEIR has included Mitigation Measure BIO-3 to avoid and minimize impacts to Crotch's bumble bee. The measure describes that a 15-meter no disturbance buffer should be placed around any identified nests. If a buffer zone is not appropriately sized, any active nests may be encroached upon or destroyed. Moreover, Project activities in close proximity to an active nest may result in incidental take of individual larva or eggs within the nest. In addition to a small buffer zone, surveys conducted for Crotch's bumble bee should follow CDFW's Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species (CDFW 2023). Following the most recent survey protocol allows a qualified biologist to avoid incidental take of the species during surveying efforts.

Evidence impact would be significant: Crotch's bumble bee is designated as a candidate species under CESA and afforded full protection. Crotch's bumble bee also meets the CEQA definition of rare, threatened, or endangered species (CEQA Guidelines, § 15380). Impacts on Crotch's bumble bee may require a mandatory finding of significance because the Project would have the potential to threaten to eliminate a plant or animal community and/or substantially reduce the number or restrict the range of an endangered, rare, or threatened species (CEQA Guidelines, §15065).

Recommended Potentially Feasible Mitigation Measure(s):

Mitigation Measure #2: BIO-3: Crotch's Bumble Bee Measures - Mitigation Measure BIO-3 Crotch's Bumble Bee Measures shall be revised to incorporate the underlined language and omit language in strikethrough:

The following measures shall be implemented to protect and minimize impacts on Crotch's bumble bees:

1. Surveys for Crotch's bumblebee shall be conducted within one year of vegetation removal/ground disturbance by a qualified entomologist with the appropriate permits and familiarity ~~familiar~~ with the identification, behavior, and life history of the species. The qualified entomologist shall conduct surveys adhering to CDFW's Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species. ~~A minimum of three surveys during peak flying season shall be conducted when the species is most likely to be detected above ground, between March 1 to September 1 (Thorp et al. 1983), non-lethal survey~~

~~methodology shall be used and photo vouchers for species confirmation will be obtained (CBBA 2023).~~ At minimum, a survey report shall provide the following:

a. A description and map of the survey area, focusing on areas that could provide suitable habitat for Crotch's bumble bee.
b. Field survey conditions that should include name(s) of qualified entomologist(s) and brief qualifications; date and time of survey; survey duration; general weather conditions; survey goals, and species searched.
c. Map(s) showing the location of nests/colonies.

2. If Crotch's bumble bee is detected, the following shall be implemented:
    a. The qualified entomologist shall:
        i. Identify the location of all nests within and adjacent to the Project site.
        ii. Provide a survey report to CDFW ~~summary~~ of the physical (e.g., soil, moisture, slope) and biological (e.g., plant composition) conditions where each nest/colony is found. This shall include native plant composition (e.g., density, cover, and abundance) within affected habitat (e.g., species list separated by vegetation class; density, cover, and abundance of each species).
        iii. An Avoidance Plan shall be developed with specific avoidance measures that will be implemented prior to and during Project activities. The Avoidance Plan shall be submitted to CDFW prior to Project activities for review. Upon CDFW approval of an Avoidance Plan, the qualified entomologist shall demarcate an appropriate ~~Establish a 15-meter~~ no disturbance buffer zone around all ~~any~~ identified nest(s) to reduce the risk of disturbance or accidental take. The buffer zone will be expanded as necessary to prevent disturbance or take to the extent feasible.
    b. If complete avoidance ~~of the buffer zone~~ is not feasible, consultation with CDFW shall occur to ~~identify any additional measures needed to avoid impact on the species, confirm allowable activities within the buffer zone, and~~ determine if take authorization from CDFW is required.
    c. Floral resources associated with Crotch's bumble bee that require removal during restoration activities shall be replaced at a 1:1 ratio and with guidance from CDFW. Floral resources will be planted within 200 meters of the original plant location or in the most centrally available location relative to identified Crotch's bumble bee nests and be located no more than 1.5 kilometers from the nest sites.
    d. The Habitat Restoration and Adaptive Management Plan will include native and local plant species preferred by Crotch's bumblebee within the plant palette to further support the existence and expansion of the species on-site.

Comment #5: Impacts on Monarch Butterfly

Issue: The Project may continue to impact the monarch butterfly overwintering site within the Project area.
Specific impacts: The Project intends to apply aerial pesticides near an area that supports a monarch butterfly overwintering population. Permanent or temporary impacts to overwintering habitat could result in local population decline or local extirpation of monarch butterflies.

Why impact would occur: According to the BRA, multiple monarch butterfly clusters with approximately 90 to 100 individuals each were observed north of Topanga Creek. To avoid impacts to overwintering monarchs, CDPR incorporated Mitigation Measure BIO-2: Monarch Butterfly Measures in the DEIR. The measure states that aerial pesticide or pesticides that are harmful to butterflies shall be avoided within 200 feet of overwintering sites when monarch overwintering is occurring (page 3.3-73). Use of pesticides, insecticides, and herbicides have detrimental consequences that may result in degradation of overwintering habitat, direct harm/injury to individual Monarchs, and population decline. Moreover, aerial application of pesticides is not an effective application method since chemical droplets cannot be controlled and may unintentionally drift onto surrounding habitat, posing a potential threat to nearby wildlife and natural resources. In addition, the buffer proposed in the measure may not be adequate to protect an overwintering population. According to USFWS's Western Monarch Butterfly Conservation Recommendations, use of pesticides should be avoided within 500 feet of overwintering sites (USFWS 2023). Aerial application of pesticides within 200 feet of overwintering sites would continue to have adverse impact on Monarch butterflies and overwintering habitat.

Evidence impact would be significant: The monarch butterfly is included on CDFW's Terrestrial and Vernal Pool Invertebrates of Conservation Priority list and identified as a Species of Greatest Conservation Need in California's State Wildlife Action Plan (CDFW 2017; CDFW 2015). Additionally, Fish and Game Code section 1002 prohibits the take or possession of wildlife for scientific research, education, or propagation purposes without a valid Scientific Collection Permit issued by CDFW. This applies to handling monarchs, removing them from the wild, or otherwise taking them for scientific or propagation purposes, including captive rearing. Fish and Game Code section 1021 directs CDFW to take feasible actions to conserve monarch butterflies and the habitats they depend upon for successful migration. Lastly, Fish and Game Code section 1374 directs the Monarch Butterfly and Pollinator Rescue Program, administered by the Wildlife Conservation Board, to recover and sustain populations of monarch butterflies.

The monarch butterfly meets the CEQA definition of rare, threatened, or endangered species (CEQA Guidelines, § 15380). Impacts on the monarch butterfly may require a mandatory finding of significance because the Project would have the potential to threaten to eliminate a plant or animal community and/or substantially reduce the

number or restrict the range of an endangered, rare, or threatened species (CEQA Guidelines, §15065). The reduction in the number of monarch butterflies, either directly or indirectly through habitat loss, would constitute a significant impact absent appropriate mitigation. Inadequate avoidance and mitigation measures will result in the Project continuing to have a substantial adverse direct and cumulative effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by Wildlife Agencies.

Recommended Potentially Feasible Mitigation Measure(s):

Mitigation Measure #3: BIO-2 Monarch Butterfly Measures - Mitigation Measure BIO-2 Monarch Butterfly Measures shall be revised to incorporate the underlined language and omit language in strikethrough:

The following measures shall be implemented to protect and minimize impacts on overwintering monarchs:

1. During the overwintering season (October 15–March 15) prior to the start of restoration activities, a qualified biologist shall conduct a roosting monarch survey every two weeks to monitor the size of the population and map the locations of roosting monarchs. Roosting monarch surveys shall follow the Xerces Society monarch count protocol.
2. To prevent disturbance of monarchs during the overwintering season by construction personnel or work activity, roosting trees will be flagged, and snow fencing, or a similar technique shall be used to cordon off monarch roost trees at a reasonable distance of at least 25 feet away from the qualified biologist ~~roosting monitor~~. The qualified biologist ~~monitor~~ shall determine the placement of the fencing to protect the monarchs while allowing work to continue.
3. While work is occurring in the Project vicinity during the overwintering season, the qualified biologist ~~monitor~~ shall visit the property a minimum of two times per week to verify protection measures remain in place and document that roosting monarchs are not disturbed by work activities. The qualified biologist ~~monitor~~ shall have authority to stop work if monarchs show signs of unnatural disturbance. If monarchs are being disturbed or affected, protection measures shall be relocated by the qualified biologist ~~monitor~~ in consultation with the foreman.
4. Work crew shall be educated on the monarch protection measures and how the measures apply to their work.
5. During the overwintering season when monarchs are present, activities that could result in vibration and thus movement of monarch clusters, shall be avoided within 500 ~~200~~ feet of occupied trees. A qualified biologist can modify the buffer with approval of the regulatory agencies if adjacent activities are determined not be disturbing.

6. ~~Aerial pesticide applications or pesticides~~ ~~that are harmful to butterflies~~ shall not be utilized during and after the Project. If pesticide application shall occur, the pesticide shall not be harmful to Monarch butterflies and shall not be applied ~~avoided~~ within ~~200~~ 500 feet of overwintering sites when monarch overwintering is occurring. Application of pesticides shall be conducted by a qualified biologist through non-harmful methods and shall occur outside of overwintering season when Monarchs are likely present. Small cut and paint efforts or directed spot spraying when it is not windy will be allowed if required to control invasive Arundo treatments or other highly invasive species to avoid invasive regrowth in the Project area. All weed treatments shall be under the supervision of a qualified biologist to ensure no impacts on monarchs occur. Any weed treatments shall be under the supervision of a Qualified Applicator Certificate and conducted per State Parks and California Department of Pesticide Regulation guidelines.
7. Monarch nectary plants shall be incorporated into the plant palette of the HRAMP near potential overwintering sites.

Comment #6: Impacts on Bats

Issue: The Project may continue to impact bats, especially maternity roosts.

Specific impacts: The Project proposes to remove trees, vegetation, the PCH bridge, and structures (e.g., motel, beach facilities) which may impact maternity roosts in the Project area.

Why impact would occur: Three bat species were documented during focused surveys. Project impacts on bat species may result from increased noise disturbances, human activity, dust, ground disturbing activities (e.g., staging, access, grading, excavating, drilling), and vibrations caused by heavy equipment. Trees and crevices in buildings in and adjacent to the Project site could provide roosting habitat for bats. Bats can fit into very small seams, as small as a ¼ inch. Modifications to roost sites can have significant impacts on the bats' usability of the roost and can impact the bats' fitness and survivability (Johnston et al. 2004).

Mitigation Measure BIO-10 in the DEIR outlines measures to minimize impacts on roosting bats; however, the measure does not have any specific conditions in the event that maternity roosts are identified prior to Project activities. If construction or demolition activities occur during maternity season, mature and vulnerable young bats may be negatively impacted. Impacts to the year's young may result in direct harm, abandonment of the maternity roost site, and decrease in the young's survivability (Caltrans 2021). The incorporation of maternity roost specific measures would alleviate Project impacts to the year's young and parental bats.

Evidence impact would be significant: Bats are considered non-game mammals and

are afforded protection by State law from take and/or harassment (Fish & G. Code, § 4150; Cal. Code of Regs, § 251.1). Additionally, several bat species are considered Species of Special Concern and meet the CEQA definition of rare, threatened, or endangered species (CEQA Guidelines, § 15380). Take of SSC could require a mandatory finding of significance by the Lead Agency (CEQA Guidelines, § 15065).

Recommended Potentially Feasible Mitigation Measures

Mitigation Measure #4: Measure BIO-10 Bat Roost Measures - CDPR shall revise Mitigation Measure BIO-10 Bat Roost Measures to incorporate the underlined language and omit language in strikethrough:

The most suitable bat roosting habitats on the Proposed Project are along the PCH bridge, within the motel, lease or lifeguard and public restroom building, and within oak, palms, and other large, mature trees. Rock crevices could also be used. Bats are their most vulnerable during their maternity roosting period (March 1 to August 31) ~~(May 1 to October 31)~~ and during hibernation periods (November 1 to February 31). ~~(December 1 to March 31).~~ The following measures shall be implemented to protect and minimize impacts on protected and roosting bats:

1. When feasible, disturbance to suitable bat roosting habitat shall be scheduled ~~in November and April, or otherwise~~ outside of sensitive hibernation and maternity roosting periods.
2. Within two weeks prior to disturbance of potential bat roosting sites (large trees, structures, rocky crevices), a qualified bat specialist shall conduct a visual and acoustic pre-construction survey of the Proposed Project area and surrounding 200 feet for possible roosting habitat. Surveys shall be conducted during the daytime and nighttime when bat species are detectable. Surveys shall be conducted by a qualified bat specialist with the appropriate handling permits and familiarity in identifying bat species and roosting habitat. The bat specialist shall document all survey results and prepare a summary report to CDFW.
3. In the event no roosting bats are present within the survey area, one-way exclusion devices shall be installed prior to structure demolition to exclude bat use and avoid their potential harm.
4. If potential roosting sites are identified, an additional survey to pinpoint roosting locations shall ~~should~~ occur within seven days prior to disturbing activities. The ~~biologist~~ bat specialist, in coordination with CDFW, shall refine a 200-foot or other agreed-upon buffer to keep in place during construction until the roosting site is confirmed to be no longer in use for hibernation ~~or dependent young~~. Night lighting for construction shall not be directed towards these roost sites.
5. If maternity roosts are identified, roosting locations shall be recorded within seven days prior to Project activities. Maternity roosts shall be demarcated with an appropriate buffer as agreed upon by CDFW and CDPR. Work shall occur outside of the maternity season. Trees and structures that are determined to

support maternity roosts shall be left in place until the end of the maternity season and the young are flying and foraging on their own. Work near a maternity roost shall not occur between 30 minutes before sunset and 30 minutes after sunrise.

6. Large tree cutting or removal shall be supervised by a qualified bat specialist ~~biologist~~ to document the presence or absence of bats that might be affected. Trees that are known to be bat roosts shall not be buckled or mulched immediately. A period of at least 24 hours shall elapse prior to such operations to allow bats to escape. A local bat rehabilitation facility shall be available in the event tree-felling results in unanticipated injury to any bat. If an individual bat is injured, the bat specialist shall inform CDFW in writing within 24 hours of the incident.
7. If bat roosts are affected during construction, the Project applicant shall provide replacement roosts within similar habitat and with a gap no greater than 3.8 centimeters and interior surface comparable to that of the original roost. The replacement roost shall be swabbed with bat guano and urine collected from the original roost. For the replacement roost to be considered effective, the same bat species that was affected by construction shall be observed utilizing the replacement roost in numbers that are comparable to the original roost. Replacement roosts that are occupied shall be left in placed during and after the Project.

Additional Comments

Acknowledgement. CDFW appreciates that CDPR has incorporated comments and recommendations from the NOP into the DEIR and looks forward to continued coordination with CDPR on this Project.

Alternative 2. CDFW supports Alternative 2 as the environmentally superior alternative and believes it should be the preferred alternative for the Project. The DEIR states that Alternative 3 would result in the fewest environmental effects and is considered the environmentally superior alternative (page 6-19). When evaluating the Project objectives, both Alternative 2 and 3 would meet all the objectives. However, Alternative 2 would provide the maximum lagoon habitat and restoration areas within the Project area. As a result of maximum lagoon expansion, fish passage for tidewater goby and southern steelhead would improve to its fullest potential under Alternative 2. Additionally, the DEIR notes that, "…local species would be increasingly stressed by changes in temperatures and rainfall patterns. Diversity and abundance would likely decrease. Endangered species could be extirpated" (page 2-8). Given that extirpation of endangered species may result over time as climate change and sea level rise increases, CDPR should proceed with the alternative that would afford endangered species the fullest resiliency to climate change. Alternative 3 would provide the least resilience to sea level rise as the Project area would retain much of the fill material on the east side of the creek. Furthermore, Alternative 3 proposes to retain the most motel

structures than other alternatives proposed. While the motel structures have historical value, retention of these structures does not benefit wildlife species and natural resources within the Project area. CDFW strongly recommends that CDPR consider Alternative 2 as the preferred alternative since it maximizes the lagoon habitat, increases fish passage opportunity, increases habitat along Topanga Creek, and provides long term coastal resiliency through lagoon expansion.

Living Shoreline Elements. Under all build alternatives, the Project would incorporate bioengineered stabilization and living shoreline elements. The DEIR further states that living shorelines would typically feature temporary fencing and native vegetation (page 2-16). While living shoreline elements may provide biological benefits, the DEIR does not provide sufficient information for CDFW to determine if this component of the Project may have adverse effects on wildlife and natural resources. CDFW recommends CDPR provide a full description of what living shoreline elements would be incorporated as part of the Project. CDPR should also provide the specific location(s) of where the living shoreline elements would be placed along the beach in the selected alternative. Moreover, CDPR should assess if any adverse impacts would occur as a result of constructing living shoreline elements in the Project area.

Best Management Practices. To enhance the general BMPs outlined in the DIER, CDPR should revise Mitigation Measure BIO-7 General BMPs for Biological Resources to incorporate the underlined language and omit language in strikethrough:

To minimize temporary and limited turbidity or water pollution impacts from adjacent ground disturbing activities, the following BMPs shall be implemented at a minimum. If more stringent measures are identified in the Project permits and Storm Water Pollution Prevention Plan (SWPPP), they will also be implemented.

1. Siltation fences, or other suitable material, shall be installed at the edge of the work areas to be graded to avoid movement of soil into wetted areas.
2. Vegetation removal shall be conducted so that materials are not permitted to fall into wetted areas.
3. Stockpiles shall be located a minimum distance of 100 feet ~~away~~ from the lagoon and creek corridor and shall ~~will~~ be contained by standard BMPs such as wattles, tarps, or burlap to ensure materials are not moved into the creek due to wind, rain, gravity, or flooding.
4. No equipment maintenance or refueling shall be permitted within 100 feet to avoid accidental spills from entering the lagoon and/or creek.
5. Soil shall be stabilized in bare areas with mulch, straw matting, hydroseeding (i.e., weed free hydroseed mix) or other approved methods as described in the Restoration Plan to avoid movement of soils into wetted areas.
6. Ground disturbing activities and vegetation removal shall not occur during rain events. Within 24 hours of a projected likely rain event, the site will be “buttoned up” with appropriate BMPs such as covers over stockpiles and wattle installation

at graded area boundaries and along slopes so that soil and Project materials will not wash into adjacent areas.

7. Access roadways shall be periodically swept (paved) or wetted down (unpaved) to minimize soil movement into adjacent areas due to wind.
8. Construction lighting shall be directed away from non-work areas and directed downward to avoid adversely affecting adjacent species and their movement corridors.

Rodenticides. The DEIR does not describe the use of rodenticides during or after the Project. However, because various mammals have been observed within the Project area, CDFW recommends CDPR prohibits the use of rodenticides and second-generation anticoagulant rodenticides within the Project area in perpetuity.

CESA. Several CESA protected species (e.g., southern steelhead, Crotch's bumble bee) are either present within the Project area or have the potential of being present during Project activities. As to CESA, take of any endangered, threatened, candidate species, or CESA-listed plant species that results from the Project is prohibited, except as authorized by state law (Fish & G. Code §§ 2080, 2085; Cal. Code Regs., tit. 14, §786.9). While CDFW appreciates the avoidance and minimization measures CDPR has incorporated into the DEIR to avoid take of special status species, incidental take may still occur. Consequently, if the Project or any Project-related activity will result in take of a species designated as endangered or threatened, or a candidate for listing under CESA, CDFW recommends that CDPR seek appropriate take authorization under CESA prior to implementing the Project. Appropriate authorization from CDFW may include an Incidental Take Permit (ITP) or a consistency determination in certain circumstances, among other options [Fish & G. Code, §§ 2080.1, 2081, subds. (b) and (c)]. Early consultation is encouraged, as significant modification to a Project and mitigation measures may be required to obtain a CESA Permit. Revisions to the Fish and Game Code, effective January 1998, may require that CDFW issue a separate CEQA document for the issuance of an ITP unless the Project CEQA document addresses all Project impacts to CESA-listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of an ITP. For these reasons, biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements of a CESA ITP.

Data. CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database [i.e., California Natural Diversity Database (CNDDB)] which may be used to make subsequent or supplemental environmental determinations [Pub. Resources Code, § 21003, subd. (e)]. Accordingly, please report any special status species detected by completing and submitting CNDDB Online Field Survey Form (CDFW 2024). CDPR should ensure that data was submitted data properly, with all data fields applicable filled out, prior to finalizing/adopting the environmental document. The data entry should also list pending development as a

threat and then update this occurrence after impacts have occurred. The Project proponent should provide CDFW with confirmation of data submittal.

Mitigation and Monitoring Reporting Plan. CDFW recommends updating the DEIR's proposed Biological Resources Mitigation Measures to include mitigation measures recommended in this letter. Mitigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments [Pub. Resources Code, § 21081.6; CEQA Guidelines, § 15126.4(a)(2)]. As such, CDFW has provided comments and recommendations to assist CDPR in developing mitigation measures that are (1) consistent with CEQA Guidelines section 15126.4; (2) specific; (3) detailed (i.e., responsible party, timing, specific actions, location), and (4) clear for a measure to be fully enforceable and implemented successfully via mitigation monitoring and/or reporting program (Pub. Resources Code, § 21081.6; CEQA Guidelines, § 15097). CDPR is welcome to coordinate with CDFW to further review and refine the Project's mitigation measures. Per Public Resources Code section 21081.6(a)(1), CDFW has provided CDPR with a summary of our suggested mitigation measures and recommendations in the form of an attached Draft Mitigation and Monitoring Reporting Plan (MMRP; Attachment A).

Filing Fees

The Project, as proposed, could have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by CDPR and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying Project approval to be operative, vested, and final (Cal. Code Regs, tit. 14, § 753.5; Fish & Game Code, § 711.4; Pub. Resources Code, § 21089).

Conclusion

CDFW appreciates the opportunity to comment on the Project to assist CDPR in adequately analyzing and minimizing/mitigating impacts to biological resources. CDFW requests an opportunity to review and comment on any response that CDPR has to our comments and to receive notification of any forthcoming hearing date(s) for the Project [CEQA Guidelines, § 15073(e)].

Questions regarding this letter or further coordination should be direct to Julisa Portugal, Environmental Scientist, at Julisa.Portugal@wildlife.ca.gov or (562) 330-7563.

Sincerely,

DocuSigned by:
5991E19EF8094C3...

Victoria Tang
Environmental Program Manager
South Coast Region

ec: California Department of Fish and Wildlife
Jennifer Turner
Christian Romberger
Eric Wilkins
Leslie Hart
Steve Gibson
Ruby Kwan-Davis
Frida Diaz-Barriga

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GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

Attachment A: Draft Mitigation and Monitoring Reporting Plan

CDFW recommends the following language to be incorporated into a future environmental document for the Project.

Biological Resources (BIO)			
Mitigation Measure (MM) or Recommendation (REC)		**Timing**	**Responsible Party**
MM-BIO-1 – Measure BIO-4 Fish Protection Measures During Work in Wetted Areas	Formal consultation with CDFW/USFWS/NMFS will further refine these measures and the Project shall comply with all permit requirements. The following measures shall be implemented to protect and minimize impacts on tidewater goby and steelhead trout, their critical habitat, and other special-status aquatic species during construction: 5. Cofferdam, sediment curtain, and/or another method approved by CDFW/NMFS/USFWS shall be used to cordon off the area (approximately 0.33 acre) around the existing bridge abutment to both exclude fish and wildlife and to contain construction debris and runoff within the work area. Final construction design shall meet all permit conditions and be developed by the contractor in coordination with State Parks. d. The cofferdam shall not be fully dewatered until the supervising biologist determines that no fish remain within the area. The supervising biologist shall have appropriate handling permits and experience with dewater and fish relocation	Prior to and during construction activities and vegetation removal in wetted areas	Project Proponent/ Supervising Biologist

	activities. This includes experience with aquatic species associated with the lagoon, creek, and wetted areas. vii. Dewatering shall be done slowly with supervision to ensure that any fish trapped in the area can be captured and relocated reducing the risk of injury or stress. viii. Pumps shall be properly screened to prevent fish from entering the intake. ix. Dewatering and flow diversion shall comply with permit requirements from CDFW, USFWS, and NMFS. x. Once the supervising biologist has confirmed that the work area is isolated, all fish are excluded, and there is no risk of entraining fish, then the pump screen may be removed. xi. Water removed from the work area shall be directed to an adjacent holding area according to permit requirements before being infiltrated into the existing fill or release into the lagoon or ocean downstream of the work area. xii. Water quality testing including turbidity, temperature, salinity, dissolved oxygen, pH, and conductivity, nutrients (and potentially metals if required) shall be monitored and documented at the start, middle and end of each day. e. Blocking nets providing a buffer area outside the		

	work zone shall remain in place until all work is completed and the coffer dam removed. j. Blocking nets shall be inspected at least three times a day (start, middle, end) or more if requested by the supervising biologist. If fish are impinged on the net, or weather/flow conditions change significantly, the supervising biologist can increase inspection efforts. f. Silt curtains may also be installed inside the blocking nets to further reduce potential for water quality impacts. 6. All construction activities within or directly adjacent to the lagoon, creek, and wetted areas will occur preferentially outside of the steelhead migration season (November – June). In the event, this time frame cannot be avoided, measures shall be implemented with the approval of NMFS and CDFW to avoid impacts such as allowing passage through a protected portion of the work area and implementation of additional BMPs to buffer fish from adjacent work, such as use of silt curtains within the wetted edge and silt fence along the dry edge, etc.). 7. If fish upstream are observed in distress, a fish kill occurs, or spills occur, the supervising biologist shall immediately contact the contractor to stop work, contact the relevant agencies, and work with the contractor to correct the problem. 8. Upon completion of the removal of the old bridge within the coffer dam area, water quality shall be tested within the work area before removal of the walls. Flow shall		

	be restored slowly, and fish shall remain excluded upstream of the work area pending confirmation that water parameters are suitable for direct release into the lower lagoon.		
MM-BIO-2 – Measure BIO-3 Crotch's Bumble Bee Measures	The following measures shall be implemented to protect and minimize impacts on Crotch's bumble bees: 1. Surveys for Crotch's bumblebee shall be conducted within one year of vegetation removal/ground disturbance by a qualified entomologist with the appropriate permits and familiarity with the identification, behavior, and life history of the species. The qualified entomologist shall conduct surveys adhering to CDFW's Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species. At minimum, a survey report shall provide the following: a. A description and map of the survey area, focusing on areas that could provide suitable habitat for Crotch's bumble bee. b. Field survey conditions that should include name(s) of qualified entomologist(s) and brief qualifications; date and time of survey; survey duration; general weather conditions; survey goals, and species searched. c. Map(s) showing the location of nests/colonies. 2. If Crotch's bumble bee is detected, the following shall be implemented: a. The qualified entomologist shall: i. Identify the location of all nests within	Prior to and during construction activities and vegetation removal	Project Proponent / Qualified Entomologist

	and adjacent to the Project site. ii. Provide a survey report to CDFW of the physical (e.g., soil, moisture, slope) and biological (e.g., plant composition) conditions where each nest/colony is found. This shall include native plant composition (e.g., density, cover, and abundance) within affected habitat (e.g., species list separated by vegetation class; density, cover, and abundance of each species). iii. An Avoidance Plan shall be developed with specific avoidance measures that will be implemented prior to and during Project activities. The Avoidance Plan shall be submitted to CDFW prior to Project activities for review. Upon CDFW approval of an Avoidance Plan, the qualified entomologist shall demarcate an appropriate no disturbance buffer zone around all identified nest(s) to reduce the risk of disturbance or accidental take. The buffer zone will be expanded as necessary to prevent disturbance or take to the extent feasible. b. If complete avoidance is not feasible, consultation with CDFW shall occur to determine if take authorization from CDFW is required.		

	c. Floral resources associated with Crotch's bumble bee that require removal during restoration activities shall be replaced at a 1:1 ratio and with guidance from CDFW. Floral resources will be planted within 200 meters of the original plant location or in the most centrally available location relative to identified Crotch's bumble bee nests and be located no more than 1.5 kilometers from the nest sites. d. The Habitat Restoration and Adaptive Management Plan will include native and local plant species preferred by Crotch's bumblebee within the plant palette to further support the existence and expansion of the species on-site.		
MM-BIO-3 – Measure BIO-2 Monarch Butterfly Measures	The following measures shall be implemented to protect and minimize impacts on overwintering monarchs: 1. During the overwintering season (October 15–March 15) prior to the start of restoration activities, a qualified biologist shall conduct a roosting monarch survey every two weeks to monitor the size of the population and map the locations of roosting monarchs. Roosting monarch surveys shall follow the Xerces Society monarch count protocol. 2. To prevent disturbance of monarchs during the overwintering season by construction personnel or work activity, roosting trees will be flagged, and snow fencing or a similar technique shall be used to cordon off monarch roost trees at a reasonable	Prior to construction activities and vegetation removal	Project Proponent / Qualified Biologist

	distance of at least 25 feet away from the qualified biologist. The qualified biologist shall determine the placement of the fencing to protect the monarchs while allowing work to continue. 3. While work is occurring in the Project vicinity during the overwintering season, the qualified biologist shall visit the property a minimum of two times per week to verify protection measures remain in place and document that roosting monarchs are not disturbed by work activities. The qualified biologist shall have authority to stop work if monarchs show signs of unnatural disturbance. If monarchs are being disturbed or affected, protection measures shall be relocated by the qualified biologist in consultation with the foreman. 4. Work crew shall be educated on the monarch protection measures and how the measures apply to their work. 5. During the overwintering season when monarchs are present, activities that could result in vibration and thus movement of monarch clusters, shall be avoided within 500 feet of occupied trees. A qualified biologist can modify the buffer with approval of the regulatory agencies if adjacent activities are determined not be disturbing. 6. Pesticides shall not be utilized during and after the Project. If pesticide application shall occur, the pesticide shall not be harmful to Monarch butterflies and shall not be applied within 500 feet of overwintering sites when monarch overwintering is occurring. Application of pesticides shall be		

	conducted by a qualified biologist through non-harmful methods and shall occur outside of overwintering season when Monarchs are likely present. Small cut and paint efforts or directed spot spraying when it is not windy will be allowed if required to control invasive arundo treatments or other highly invasive species to avoid invasive regrowth in the Project area. All weed treatments shall be under the supervision of a qualified biologist to ensure no impacts on monarchs occur. Any weed treatments shall be under the supervision of a Qualified Applicator Certificate and conducted per State Parks and California Department of Pesticide Regulation guidelines. 7. Monarch nectary plants shall be incorporated into the plant palette of the HRAMP near potential overwintering sites.		
MM-BIO-4 – Measure BIO-10 Bat Roost Measure	The most suitable bat roosting habitats on the Proposed Project are along the PCH bridge, within the motel, leasee or lifeguard and public restroom building, and within oak, palms, and other large, mature trees. Rock crevices could also be used. Bats are their most vulnerable during their maternity roosting period (March 1 to August 31) and during hibernation periods (November 1 to February 31). The following measures shall be implemented to protect and minimize impacts on protected and roosting bats: 1. When feasible, disturbance to suitable bat roosting habitat shall be scheduled outside of sensitive hibernation and maternity roosting periods. 2. Within two weeks prior to disturbance of potential	Prior to and during construction activities and vegetation removal	Project Proponent/ Bat Specialist

	bat roosting sites (large trees, structures, rocky crevices), a qualified bat specialist shall conduct a visual and acoustic pre-construction survey of the Proposed Project area and surrounding 200 feet for possible roosting habitat. Surveys shall be conducted during the daytime and nighttime when bat species are detectable. Surveys shall be conducted by a qualified bat specialist with the appropriate handling permits and familiarity in identifying bat species and roosting habitat. The bat specialist shall document all survey results and prepare a summary report to CDFW. 3. In the event no roosting bats are present within the survey area, one-way exclusion devices shall be installed prior to structure demolition to exclude bat use and avoid their potential harm. 4. If potential roosting sites are identified, an additional survey to pinpoint roosting locations shall occur within seven days prior to disturbing activities. The bat specialist, in coordination with CDFW, shall refine a 200-foot or other agreed-upon buffer to keep in place during construction until the roosting site is confirmed to be no longer in use for hibernation. Night lighting for construction shall not be directed towards these roost sites. 5. If maternity roosts are identified, roosting locations shall be recorded within seven days prior to Project activities. Maternity roosts shall be demarcated with an appropriate buffer as agreed upon by CDFW and CDPR. Work shall occur outside of the maternity season. Trees and structures that are determined to		

	support maternity roosts shall be left in place until the end of the maternity season and the young are flying and foraging on their own. Work near a maternity roost shall not occur between 30 minutes before sunset and 30 minutes after sunrise. 6. Large tree cutting or removal shall be supervised by a qualified bat specialist to document the presence or absence of bats that might be affected. Trees that are known to be bat roosts shall not be buckled or mulched immediately. A period of at least 24 hours shall elapse prior to such operations to allow bats to escape. A local bat rehabilitation facility shall be available in the event tree-felling results in unanticipated injury to any bat. If an individual bat is injured, the bat specialist shall inform CDFW in writing within 24 hours of the incident. 7. If bat roosts are affected during construction, the Project applicant shall provide replacement roosts within similar habitat and with a gap no greater than 3.8 centimeters and interior surface comparable to that of the original roost. The replacement roost shall be swabbed with bat guano and urine collected from the original roost. For the replacement roost to be considered effective, the same bat species that was affected by construction shall be observed utilizing the replacement roost in numbers that are comparable to the original roost. Replacement roosts that are occupied shall be left in placed during and after the Project.		
REC 1 – Trails Plan	CDPR should develop a Trails Management Plan and submit it for review and approval by CDFW and the	Prior to Project implementation	Project proponent

	USFWS (hereafter referred to as the Wildlife Agencies) prior to Project implementation. The Plan should include, at a minimum: a. Refined location of the trails system, including maps and figures; b. A discussion of the location of the Topanga Creek crossing associated with the trails system, and how the crossing will be achieved; c. Analysis of any impacts to sensitive upland habitats and/or CESA-listed species which could occur as a result of cutting new trails; d. Description of trail materials (i.e., paved asphalt, gravel, etc.) and/or level of access; e. Allowable and prohibited trail uses; and, f. Best management practices, including but not limited to: a. Public information signage which focuses on educating and informing the public about wildlife, and advise on proper avoidance measures to reduce human-wildlife conflicts; b. Trash receptacles to be placed only at trailheads to avoid creating an unnatural food source that may attract nuisance wildlife and to minimize waste in core habitat areas; c. Prohibition of electric bicycles; Pets should always be kept on leash and on the trails at all times. Trail users should also be encouraged to clean up after their dogs.		

REC 2 – HAPC	CDFW recommends that the Final EIR should quantify the amount of rocky reef, seagrass, and canopy kelp that could be lost due to the Project and potential alternatives. If impacts cannot be avoided, compensatory mitigation may be required. Additionally, CDFW recommends that post-construction monitoring of the nearshore sediment placement should occur to ensure HAPC's are not impacted. CDFW recommends consulting with CDFW and NOAA Fisheries on the Final EIR's impact analysis and all proposed mitigation measures for HAPC prior to release of the Final EIR.	Prior to finalizing CEQA document	Project Proponent/ Lead Agency
REC 3 – Project Scoping	CDPR should revise Mitigation Measures 4 through 6 in the DEIR to include scoping with CDFW during formal federal consultation process, so that all Project requirements are in alignment with each other.	Prior to Project implementation	Project Proponent
REC 4 - Alternative 2	CDFW strongly recommends that CDPR consider Alternative 2 as the preferred alternative since it maximizes the lagoon habitat, increases fish passage opportunity, increases habitat along Topanga Creek, and provides long term coastal resiliency through lagoon expansion.	Prior to finalizing CEQA document	Project Proponent/ Lead Agency
REC 5 – Living Shoreline Elements	CDFW recommends CDPR provide a full description of what living shoreline elements would be incorporated as part of the Project. CDPR should also provide the specific location(s) of where the living shoreline elements would be placed along the beach in the selected alternative. Moreover, CDPR should assess if any adverse impacts would occur as a result of constructing living shoreline elements in the Project area.	Prior to finalizing CEQA document	Project Proponent/ Lead Agency

REC 6 – Best Management Practices	To minimize temporary and limited turbidity or water pollution impacts from adjacent ground disturbing activities, the following BMPs shall be implemented at a minimum. If more stringent measures are identified in the Project permits and Storm Water Pollution Prevention Plan (SWPPP), they will also be implemented. 1. Siltation fences, or other suitable material, shall be installed at the edge of the work areas to be graded to avoid movement of soil into wetted areas. 2. Vegetation removal shall be conducted so that materials are not permitted to fall into wetted areas. 3. Stockpiles shall be located a minimum distance of 100 feet from the lagoon and creek corridor and shall be contained by standard BMPs such as wattles, tarps, or burlap to ensure materials are not moved into the creek due to wind, rain, gravity, or flooding. 4. No equipment maintenance or refueling shall be permitted within 100 feet to avoid accidental spills from entering the lagoon and/or creek. 5. Soil shall be stabilized in bare areas with mulch, straw matting, hydroseeding (i.e., weed free hydroseed mix) or other approved methods as described in the Restoration Plan to avoid movement of soils into wetted areas. 6. Ground disturbing activities and vegetation removal shall not occur during rain events. Within 24 hours of a projected likely rain event, the site will be “buttoned up” with appropriate BMPs such as covers over stockpiles and wattle installation at	Prior to and during construction activities and vegetation removal	Project proponent

	graded area boundaries and along slopes so that soil and Project materials will not wash into adjacent areas. 7. Access roadways shall be periodically swept (paved) or wetted down (unpaved) to minimize soil movement into adjacent areas due to wind. 8. Construction lighting shall be directed away from non-work areas and directed downward to avoid adversely affecting adjacent species and their movement corridors.		
REC 7 – Rodenticides	CDFW recommends CDPR prohibits the use of rodenticides and second-generation anticoagulant rodenticides within the Project area in perpetuity.	During and after the Project	Project proponent
REC 8 – Data	Please report any special status species detected by completing and submitting CNDDB Online Field Survey Form. CDPR should ensure that the Project proponent has submitted the data properly, with all data fields applicable filled out, prior to finalizing/adopting the environmental document. The data entry should also list pending development as a threat and then update this occurrence after impacts have occurred. The Project proponent should provide CDFW with confirmation of data submittal.	Prior to finalizing CEQA document	Project Proponent/ Lead Agency

AG 6

CALIFORNIA STATE TRANSPORTATION AGENCY GAVIN NEWSOM, GOVERNOR

California Department of Transportation

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April 12, 2024

John Ota
Project Manager, Environmental Scientist
California Department of Parks and Recreation
1925 Las Virgenes Road, Calabasas, CA 91302

Dear Mr. Ota,

Caltrans, District 7 provides our enthusiastic support for the Topanga Lagoon Restoration and PCH Bridge Replacement Project. Our staff have been an integral part of the Project Development Team since the initial stages of the project development process and have had extensive input into the development of the Draft Environmental Impact Report (DEIR). Therefore, Caltrans has no further comments on the DEIR at this time.

As a responsible agency, Caltrans will continue to work closely with State Parks as the project moves forward. We fully expect to be able to adopt the Final Environmental Impact Report, as well as any future NEPA document, as our CEQA and NEPA clearances to facilitate the replacement of the PCH bridge over Topanga Creek and other project elements within Caltrans right-of-way.

We believe this is a project that will benefit the public and the environment and look forward to working cooperatively with State Parks and the other stakeholders/ landowners during future phases of this project.

Sincerely,

Kelly Ewing-Toledo

Kelly Ewing-Toledo
Deputy District Director
Division of Environmental Planning
Caltrans District 7

AG 7

On Tue, Apr 30, 2024 at 1:58 PM Kubran, Michelle@Coastal <Michelle.Kubran@coastal.ca.gov> wrote:

Hi Rosi,

In addition to our comment letter on the draft EIR, wanted to provide the following comments on the proposed alternatives. CCC staff is supportive of the largest area of wetland/lagoon restoration feasible while also retaining overnight accommodations as an option on the site. We would be supportive of moving hotel units, or providing other overnight accommodations on another area of the site, for instance along Topanga Canyon Blvd (possibly in the area shown as new parking) in order to provide for the maximum lagoon restoration. We encourage analyzing the feasibility of locating units in a different area of the site.

Please let me know if you have any questions.

Michelle Kubran (she/her)

Coastal Resiliency Coordinator

California Coastal Commission | South Central Coast District

89 S. California Street, Suite 200, Ventura, CA 93001

Michelle.Kubran@coastal.ca.gov | (805) 585-1800

Local Agencies

AG 8

Comments from the Los Angeles County Department of Regional Planning were commented directly to the Draft EIR and compiled below:

AG 8-1	Under Coastal Act Section 30601.3(b), consolidated CDPs will be processed using the local government's LCP as guidance. Here, SMM LCP, at Section 22.44.1220, has a lot to say about legal nonconforming structures and uses (the motel structures are likely legal nonconforming). We would hope CCC would use these legal nonconforming standards to guide their review of the motel restoration portion of this project.
AG 8-2	Under Coastal Act Section 30601.3(b), consolidated CDPs will be processed using the local government's LCP as guidance. Here, SMM LCP, at Section 22.44.1770, sets forth all the allowable uses within the O-S-P Zone. We would hope CCC would use this list of allowable uses to guide their review of the motel restoration portion of this project.
AG 8-3	Under Coastal Act Section 30601.3(b), consolidated CDPs will be processed using the local government's LCP as guidance. Here, SMM LCP, at Section 22.44.1220, has a lot to say about legal nonconforming structures and uses (the motel structures are likely legal nonconforming). We would hope CCC would use these legal nonconforming standards to guide their review of the motel restoration portion of this project.
AG 8-4	Under Coastal Act Section 30601.3(b), consolidated CDPs will be processed using the local government's LCP as guidance. Here, SMM LCP, at Section 22.44.1220, has a lot to say about legal nonconforming structures and uses (the motel structures are likely legal nonconforming). We would hope CCC would use these legal nonconforming standards to guide their review of the motel restoration portion of this project.
AG 8-5	Under Coastal Act Section 30601.3(b), consolidated CDPs will be processed using the local government's LCP as guidance. Here, SMM LCP, at Section 22.44.1770, sets forth all the allowable uses within the O-S-P Zone. We would hope CCC would use this list of allowable uses to guide their review of the motel restoration portion of this project.
AG 8-6	Under Coastal Act Section 30601.3(b), consolidated CDPs will be processed using the local government's LCP as guidance. Here, SMM LCP, at Section 22.44.1770, sets forth all the allowable uses within the O-S-P Zone. We would hope CCC would use this list of allowable uses to guide their review of the gateway corner portion of this project.
AG 8-7	Under Coastal Act Section 30601.3(b), consolidated CDPs will be processed using the local government's LCP as guidance. Here, throughout the SMM LCP, a number of regulations are on point with respect to the siting of OWTSs.
AG 8-8	Under Coastal Act Section 30601.3(b), consolidated CDPs will be processed using the local government's LCP as guidance. Here, SMM LCP Section 22.44.950 lays out, among other things, mitigation ratios associated with oak trees. We would urge CCC to ensure mitigation is required at at least the levels set forth in the SMM LCP.
AG 8-9	Is there supposed to be a "?" there?
AG 8-10	Under Coastal Act Section 30601.3(b), consolidated CDPs will be processed using the local government's LCP as guidance. Here, SMM LCP, at Section 22.44.1410, sets forth parking requirements in this area of town. We would hope CCC would look to this section for information on required parking.
AG 8-11	Under Coastal Act Section 30601.3(b), consolidated CDPs will be processed using the local government's LCP as guidance. Here, SMM LCP, at Section 22.44.1310, sets forth requirements related to, among other things, walls.. We would hope CCC would use these regulations in their review of these proposed walls.
AG 8-12	A more robust analysis of infeasibility may be helpful here.
AG 8-13	Under Coastal Act Section 30601.3(b), consolidated CDPs will be processed using the local government's LCP as guidance. Here, SMM LCP, at Section 22.44.1890, sets forth all the allowable uses within the various protected habitats. We would hope CCC would use this list of allowable uses to guide their review of the project.
AG 8-14	Consider standardizing these headers as there is some inconsistency. In some places, this header is "Santa Monica Mountains Local Coastal Program" while here it includes "Los Angeles County."
AG 8-15	Is the Santa Monica Mountains Local Coastal Program silent on geology, soils, seismicity, topography, and paleontology? There is no reference to it here under regional and local regulatory setting...
AG 8-16	Is the Santa Monica Mountains Local Coastal Program silent on hazards and hazardous materials? There is no reference to it here under regional and local regulatory setting...
AG 8-17	Be aware Title 22 at-large does not apply to the Santa Monica Mountains Coastal Zone as only portions of Title 22 certified by Coastal Commission do (i.e., only Chapter 22.44).
AG 8-18	Why? Expand and explain…
AG 8-19	May want to be more clear here. While some portions of the project may be within CCC's area of retained jurisdiction, other portions of the project (i.e., the portions within the SMMCZ) are within

	areas regulated by a certified LCP. CCC is processing a consolidated CDP not because of their retained jurisdiction but because the applicant, LA County, and CCC have agreed to a consolidated CDP where otherwise multiple entitlements from multiple jurisdictions would be required. See Coastal Act Section 30601.3(a) for more information.
AG 8-20	I'm not sure some of the alternatives have been described with enough detail to definitively make this determination. For example, just above, it indicates that, under Alternatives 3 and 4, the Topanga Ranch Motel "could include a mix of overnight accommodations..." Without providing more detail related to the proposal, and by only using permissive language, this seems a bit ambiguous.
AG 8-21	Is the Santa Monica Mountains Local Coastal Program silent on noise? There is no reference to it here under regional and local regulatory setting...

AG 9

City of Malibu

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Sent via email to TopangaLagoonRestoration@gmail.com

April 11, 2024

California Department of Parks and Recreation
Attn: John Ota, Environmental Scientist
1925 Las Virgenes Road
Calabasas, CA 91302

Re: Comments on Draft EIR – Topanga Lagoon Restoration Project

Dear Mr. Ota:

Thank you for the opportunity to provide comments on the Draft Environmental Impact Report (DEIR) for the proposed Topanga Lagoon Restoration Project.

The City provides the following comments on the Draft EIR:

1. Section 3.9-2 - The project must comply with the City of Malibu's Municipal Code Chapter 14.04 (Storm Water Management and Discharge Control) and Chapter15.20m Floodplain Management). This project will need to comply with the City's MS4 Permit requirements. The project will also need to be reviewed for impacts in a mapped FEMA Flood Zone.

2. Section 3.9-11- The project will be required to comply with the area's MS4 Watershed Management Plan. The reference to "SUSMP" is not applicable to the new requirements in the latest version of the NPDES permit provisions. The applicant should look into each jurisdiction's requirements.

3. Section 3.9-22 - The applicant shall verify the specific local MS4 Permit requirements as stated in the Watershed Management Plans. It appears that this project would be required to meet the water quality discharge requirements as stated in the North Santa Monica Bay Watershed Management Plan (City of Malibu, County of Los Angeles, and Flood Control). The applicant shall verify the specific requirements in the adjacent jurisdiction.

4. Section 4-12 -This project needs to be evaluated by the City of Malibu since it is within a FEMA mapped Flood Zone that is administered by the City. Any development within a

mapped flood zone shall meet the requirements of the City's Municipal Code Chapter 15.20 and other FEMA Floodplain regulation.

5. Due to the potential impacts to water and water quality, the California Department of Parks and Recreation may consider sharing the DEIR to and requesting comments from the North Santa Monica Bay Watershed Area Steering Committee, consisting of members of numerous jurisdictions, water districts, and Wishtoyo Chumash.

6. The soils report and geotechnical investigation could consider the impact that substantial winter rains may have on the proposed subsurface drip irrigation.

7. The maps show the location of the proposed subsurface drip irrigation (option 1). Consider updating the maps to show the proposed location of the septic tank(s) and seepage pits (option 2).

8. Section 2.2.3 includes an erroneous question mark: *"This upgraded an earlier coastal? road built in the early 1920s"*

9. Section 2.6.2, Option 2 discusses trucking material from Pacific Coast Highway to Malibu Canyon Road. If this option is chosen, discuss the requirements of trucking material with the City of Malibu's Environmental Sustainability Department.

10. Section 3.1.1 Regulatory Setting describes local regulations from County of Los Angeles, Topanga State Park 2012 General Plan, and Santa Monica Mountains Local Coastal Program. This section should include the applicable Malibu regulations (Local Coastal Program Local Implementation Plan) since portions of the project are within the City of Malibu jurisdiction.

11. Do the results of the Los Angeles County Beaches and Harbor's Coastal Resiliency study impact the sea level rise evaluated for this study?

12. A coastal development permit (CDP) pursuant to the California Coastal Act from the California Coastal Commission (CCC) is required. The Draft EIR indicates State Parks would obtain a consolidated CDP and implement the permit conditions. The DEIR should acknowledge that a CDP may be required from the City of Malibu for any work that takes place within City boundaries or the City may authorize the work to be implemented under the consolidated CDP. The City understands this information will not be available until after the project alternative is selected.

At its April 8, 2024 meeting, the City Council considered the attached letter from Laurence Wiener, Richards, Watson & Gershon (RWG), who represents residents who live adjacent to the western boundary of the Topanga Lagoon Restoration project. The Council voted to include the letter and fully supports the comments offered by the residents and requests that the comments be given full consideration.

Sincerely,

Richard Mollica
Richard Mollica
Planning Director

Enclosure: RWG April 4, 2024 Letter

cc: Honorable Members of the Malibu City Council
Steve McClary, City Manager

AG 10

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April 4, 2024

VIA ELECTRONIC MAIL

Mayor Uhring and Honorable Members of the City Council
Malibu City Hall
23825 Stuart Ranch Rd
Malibu, CA 90265
citycouncil@malibucity.org

Dear Mayor Uhring and Honorable Members of the City Council:

We support the City of Malibu's comments on the Draft Environmental Impact Report ("DEIR") for the Topanga Lagoon Restoration Project ("Project"), appearing as Item 6.B on of the Monday, April 8, 2024 City Council meeting agenda. Furthermore, we respectfully request the addition of several other comments.

I represent residents who live adjacent to the western boundary of the Project Site ("Residents") and who are concerned about the Project's potential impacts to their homes as well as the overall adequacy of the DEIR. We are pleased that the City is considering submitting comments on the DEIR and commend staff's work in identifying the issues raised in the draft comments. We concur that the DEIR should be revised to address those comments.

Unfortunately, the Residents have not been adequately consulted by the State to allow meaningful participation in the planning of the Project, particularly with respect to the potential dangers to their homes as a result of the Project. As a consequence, the Residents plan on submitting comments on the DEIR that identify many concerns with the Project and deficiencies in the DEIR.

From a review of the DEIR, and the potentially massive traffic and safety impacts on the City of Malibu, it appears that the City of Malibu was also not adequately consulted. As such, we have identified areas of concern with the DEIR that we believe should be of particular interest to the City of Malibu and its residents and visitors. To that end, we respectfully provide the following proposed language with the hope that the City Council will supplement the City's draft comment letter to additionally address these additional concerns.

1. The DEIR fails to provide "an accurate, stable and finite" project description. Absent an accurate, stable and finite project description, it is not possible for the City of Malibu to understand the Project and assess its impacts. The DEIR must be revised to identify a preferred project and also identify alternatives to that proposed project. It is not sufficient to simply set forth a range of possible alternatives without identifying a proposed project. However, the DEIR does just that. *See Washoe Meadows Community v. Department of Parks and Recreation* (2017) 17 Cal.App.5th 277. The City of Malibu should be apprised of the project's impacts and be able to comment thoughtfully on alternatives and mitigation.

2. The DEIR fails to adequately account for and analyze transportation and emergency access and evacuation impacts given the existing condition of SR-27 (Topanga Canyon Boulevard) which is closed indefinitely from the Pacific Coast Highway to Grand View Drive due to an unstable landslide. The DEIR should be updated to analyze transportation and emergency evacuation impacts under the present and likely recurrent scenario of an extended SR-27 closure.

3. The DEIR fails to adequately discuss or analyze impacts to the adopted Evacuation Plan for the City of Malibu, which identifies Topanga State Beach Parking at 18700 Pacific Coast Hwy Malibu CA 90265 - located within the project site - as a pre-identified "Safe Refuge Area." Temporary closure of the site during construction, which will last a minimum of five years, would conflict with the adopted Evacuation Plan. This impact is not adequately mitigated. Appendix J provides a Draft Construction Traffic and Emergency Management Plan which is required by Mitigation Measure TRA-1. The Draft Construction Traffic and Emergency Management Plan, however, does not address this issue and instead defers dealing with this conflict to a future coordination between the County and City of Malibu at some point during the final design stating: "The Lead Agency/Project Sponsor and contractor will coordinate with the County and City of Malibu to identify an alternative refuge area in close proximity to the Project during the period of construction which causes the DBH [County Department of Beaches and Harbors] parking lot to be unavailable." There is no guarantee that any alternative area can be found nor are there any guidelines for identifying an alternative area. Again, Malibu should be informed of any change of this magnitude to its emergency plans.

4. The DEIR understates potential transportation and traffic impacts that will impact the lives of residents of and visitors to the City of Malibu, particularly during construction of the Project. Pacific Coast Highway will be severely impacted during construction, and construction is estimated to last a minimum of five years, and will likely be much longer.

5. The Project proposes to move the existing helipad (located west of the lagoon on the Malibu side of the existing bridge) to the east of the lagoon with one of the proposed

parking lots. This places the helipad on the other side of the extended bridge from Malibu. The DEIR does not discuss or analyze impacts of this to Malibu-based first responders who, to access the helipad, would need to cross the bridge, adding distance to the helipad and potential obstructions if the bridge is impacted by traffic or natural disaster (*e.g.*, earthquake, fire, flood, landslide).

6. The staff should consider supplementing comment 9 to request that the DEIR discuss the requirements of trucking material with the City Environmental Sustainability Department for all options, not just option 2. The Beneficial Sediment Reuse Study on page 11 notes that Option 3 (Mechanical Removal and Upland Landfill Disposal) may include haul routes using either Topanga Canyon Boulevard, or Pacific Coast Highway, or Malibu Canyon Boulevard. However, the DEIR doesn't appear to recognize any City interest in such haul routes. The DEIR should be revised to require consultation with the City on all haul routes which traverse the City.

7. The DEIR should be revised to fully address the City of Malibu's concerns. The DEIR should then be recirculated pursuant to CEQA Guidelines Section 15088.5 to allow the City of Malibu, and the interested public, the opportunity to meaningfully review and comment on the DEIR, including the adequacy of the revisions necessary to address the City's concerns.

Should the City Council find it appropriate to supplement the draft City comment letter based on the foregoing, our recommendation is that the City Council provide staff direction to add the comments identified in items 1 through 7 of this letter to the City's comment letter and submit the revised comment letter to State Parks by the April 12 comment period deadline.

Thank you for your time and consideration.

Very truly yours,

Laurence S. Wiener

cc: Steve McClary, City Manager
Richard Mollica, Planning Director
Kelsey Pettijohn, City Clerk
Chris Griffiths
Lloyd Ahern

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AG 11

(424) 526-7777 • 13837 Fiji Way, Marina del Rey, CA 90292 • beaches.lacounty.gov

Caring for Our Coast

Gary Jones
Director

Amy M. Caves
Chief Deputy Director

Carol Baker
Deputy Director

LaTayvius R. Alberty
Deputy Director

April 11, 2024

VIA E-MAIL

Lori Harrod, Acting Superintendent
Angeles District, California Department of Parks and Recreation
1925 Las Virgenes Road
Calabasas, California 91302

SUBJECT: TOPANGA LAGOON RESTORATION PROJECT DRAFT ENVIRONMENTAL IMPACT REPORT COMMENT LETTER

Dear Ms. Harrod,

Thank you for the opportunity to review the Draft Environmental Impact Report (DEIR) for the proposed Topanga Lagoon Restoration Project (Project), which was released on February 12, 2024. As the operating and managing agency for L.A. County-owned Topanga Beach, the Department of Beaches and Harbors (Department or DBH) recognizes the collaborative efforts reflected in the DEIR and remains committed to working closely with the California Department of Parks and Recreation (State Parks) and Department of Transportation (Caltrans) as well as the Resource Conservation District of the Santa Monica Mountains (RCD) to advance the Project's concept.

DBH has reviewed the available DEIR and hereby provides the following comments, consistent with the Department's strategic goals of enhancing public access to our coast, maximizing operational effectiveness and service excellence, and protecting coastal ecosystems while pursuing increased resilience of our beaches. As discussed in more detail below, the County requests that additional details be included in the DEIR on the environmental impacts of the identified components in order for the County to assess the impacts of the proposed project on the County. The County acknowledges that a preferred alternative has not been selected at this time, therefore the comments in this letter generally apply to all alternatives. Once a preferred alternative has been agreed upon at a future date, any associated capital improvement project(s) that affects the County's property would need to be approved by the County. For the County to carry out its role as a Responsible Agency under CEQA, the information requested in this comment letter must be provided. Further comments to the DEIR may be provided once additional information is received in response to these preliminary comments.

Coastal Access and Recreation – Impacts to Existing Resources and Access

- Based on the figures provided in the DEIR, the Department is unable to understand the full extent of the proposed lagoon restoration footprint on County beach property and how this would impact existing sandy beach and recreation areas. Figures ES-2a, ES-3a, and ES-4a identify the general location of an "Expanded Topanga Lagoon" area, however they do not provide specificity on the expansion. Please provide a figure that clearly shows the potential lagoon footprint under each proposed alternative, including areas of the beach where the lagoon could flood or breach. *(Executive Summary, Pages ES-5, ES-11, and ES-14)*
- Please explain in the DEIR whether any analysis was done to determine whether the conversion of beach property for lagoon widening and/or Pacific Coast Highway (PCH) bridge purposes would trigger the Park Preservation Act. In addition, DBH would like written confirmation that the Parks Preservation Act will not be an issue and that all deed conditions for the beach will be abided by should the project move forward, especially the condition regarding project cost limitations. *(Parks and Recreation, Page 3.14-2, Los Angeles County Code Quimby Requirements)*
- The DEIR states that under all build alternatives, the Topanga Beach area and depth would increase, thereby providing additional space for recreational users. Please provide more information and figures to support this statement, including proposed beach widths for each alternative and figures showing where the beach area would increase under each alternative. *(Recreation and Access, Page 3.14-8, Operation)*
    - Under the Beach Expansion/Bioengineered Stabilization/Living Shoreline Opportunities section on Page 2-15, there is a statement related to the comment above that reads: "Under all Build Alternatives, the area of Topanga Beach would increase, ranging from up to 50 ft of additional depth in Alternatives 2 and 3 on the east cove beach, and approximately 90 ft in Alternative 4. On the west side, the beach would expand 0.65 acres for all Alternatives. Together, this adds between 1 to 1.2 acres beach area." The portion of this statement that 1 to 1.2 acres of additional beach would be added to the site does not align with other areas of the document. Specifically, the No Project alternative states that the existing beach area within the project boundary is 4.18 acres. Alternatives 2, 3, and 4 state that the new beach acreage would be 4.39, 4.42, and 4.56 acres, respectively. When calculating the difference in beach area, this does not equal 1 to 1.2 acres of additional beach. Please clarify and update the DEIR, as needed.
- The DEIR states that the Project would provide additional beach areas that would provide opportunities for increased recreational space and would incorporate bioengineered stabilization or living shoreline elements to both protect against storm surge and SLR and restore coastal strand and foredune habitats. As a living shoreline project would most likely include a fence component, how much of the additional beach area would be accessible to the public for recreation? Please provide a figure showing potential areas for living shoreline elements versus public recreational space. *(Parks and Recreation, Page 3.14-13, Cumulative Impacts)*
- The DEIR states that "Topanga Beach also includes an ocean frontage of 21.5 acres, receives approximately 750,000 visitors each year, and is popular with surfers because

of the orientation of the beach (DBH 2022)." The beach acreage provided conflicts with the acreage provided on Page 2-6, 35 acres. Please provide consistent beach acreage figures throughout the DEIR. *(Parks and Recreation, Page 3.14-5 and 3.14-6, Topanga Beach)*

- Per the DEIR, there are a total of 97 parking spaces associated with the Topanga Beach paved east lot, with 87 conforming to current standards and 10 non-conforming. DBH has previously noted that there are 94 parking spaces in the lot, which include 3 Americans with Disabilities Act (ADA) designated spaces and 3 lifeguard staff spaces at the beach level, and 1 ADA designated spot at the PCH level. The Department understands that final parking counts will be updated, as needed, during the design phase. All parking, whether conforming or non-conforming, should be replaced so as not to impact parking availability and beach access. In addition, please discuss the potential for traffic impacts if all existing parking is not replaced at the site. *(Parks and Recreation, Page 3.14-5 and 3.14-6, Topanga Beach)*
- The DEIR notes that access to Will Rogers State Beach is primarily provided via parking along southbound PCH and a beach parking lot that is the eastern terminus of the Project Area. Furthermore, it is noted that this lot could be used for construction staging if wastewater Option 3 (sewer) is selected. Please update this section to clarify that there are several parking lots associated with Will Rogers State Beach, with the closest lot being the Coastline Parking Lot. Please also note in this section that the Coastline Parking Lot may potentially be used for staging purposes. *(Parks and Recreation, Page 3.14-6, Will Rogers Beach)*
- The DEIR states that stormwater runoff would be captured in appropriate BMPs such as bioswales or rain gardens. When discussing future facilities on County property, please delete mentions of bioswales and rain gardens, and instead say "water quality BMP device". The County will determine which specific stormwater and BMP devices are appropriate for the parking lot during the construction design phase. *(Parks and Recreation, Page 3.14-8, Operation)*
- The DEIR states that there is a need for stormwater BMPs to address runoff generated by the expansion of the PCH bridge, however more information is needed regarding the extent of DBH's maintenance responsibilities of such items and the nexus between DBH and Caltrans' storm water runoff responsibilities. DBH would also like to explore other options for stormwater capture and treatment that would increase parking availability. *(Parks and Recreation, Page 3.14-8, Operation)*
- Table 2-6 – Permits, Approvals, and Regulatory Requirements, presents a preliminary list of the agencies and entities that have authority to issue specific permits and other discretionary approvals that may apply to the proposed Project. Under the Los Angeles County section, only permits required from the Department of Public Works are included. Please include the need for project approval by the Los Angeles County Board of Supervisors e.g., for establishing any capital project(s) associated with the proposed Project and creating easements for any transfers of land to Caltrans. Furthermore, it should be noted that a right-of-entry permit would need to be issued by DBH for any construction, construction staging, repair, or installation activities that require access through or use of County property. *(Project Description, Pages 2-52 and 2-53)*

Marine Biological Resources Mitigation Measures

- Mitigation Measure MAR-2 Avoidance of California Grunion Spawning Season includes several management measures that would be implemented after construction of the proposed Project, such as restricting mechanical beach grooming and vehicle use on-site and removing trash and debris by hand as necessary. DBH feels that Section 5 of this mitigation measure is not necessary, or not necessary in part, to address grunion habitat impacts due to Project construction because the mitigation extends beyond the construction period. Furthermore, the Department already follows best management practices to avoid grunion habitat and will continue to do so after project implementation. Additionally, the Department does not have enough resources and staffing to maintain the beach area by hand. Section 5 of this mitigation measure is not feasible for DBH to implement, unless the lead agency provides DBH with the resources and funding necessary to completely cover the costs of implementing the measure. *(Marine Biological Resources, Page 3.11-31 and 3.11-32, Marine Biological Resources Mitigation Measures)*

Public Services and Coastal Resilience

- There are multiple statements in the DEIR asserting that the lifeguard/public restroom building and helipad would be relocated closer to Pacific Coast Highway (PCH) to achieve more resilience from sea level rise (SLR) and coastal erosion. However, based on the information presented during the DEIR public meetings on February 24, 2024 and February 28, 2024, under Alternative 2, the new helipad would be located within the annual storm maximum inundation zone for the site, measured at one meter of sea level rise. The helipad is currently located at a higher grade than the beach and is protected from SLR. Moving the helipad from a more resilient location to a less resilient location does not accomplish the objectives of the project. Please explain how the new helipad locations for each alternative would be protected from SLR. Furthermore, please explain the impacts to the surrounding beach area should the existing helipad be removed and the grading in this area modified. *(Public Services, Page 3.13-11, Operation)*
- How far west will the lagoon inundation area spread once the berm is removed and the lagoon is expanded? Please analyze if there would be any impacts to the adjacent private properties to the west of the existing lagoon.
- Page 2-12 notes that all the proposed Build Alternatives would remove existing locally derived fill material for beneficial reuse by strategically placing it in the nearshore to naturally help renourish and restore the littoral cell, which would provide additional resilience to the beach both downcoast and within the Project area. Based on previous statements in the DEIR, the nearshore placement of sediment could provide up to 156,000-256,000 CY of suitable grain size material to renourish severely eroded areas between Mastro's Point and Will Rogers State Beach, which are outside of the Project area. Please ensure this information is consistent across the DEIR. If resilience benefits are anticipated within the Project area, please elaborate how in the appropriate sections. *(Marine Biological Resources, Page 3.11-29, Alternatives 2,3, and 4 Build Alternatives)*

As this project affects County owned property and the public's access to the beach, a commitment to any alternative would require action by the Los Angeles County Board of Supervisors. The comments provided within this letter are not intended to suggest approval by the County.

Lastly, we are open to reviewing and understanding the findings of the Final Environmental Impact Report and look forward to continued collaboration, consistent with DBH's strategic goals, as the Project concept advances into a preferred alternative. Should you have any questions or concerns with the information within this letter, please feel free to contact Porsche Nauls at (424) 526-7755 or PNauls@bh.lacounty.gov.

Very truly yours,

Warren Ontiveros

Warren Ontiveros
Planning Division Chief

WO:MT:pn

c: Rosi Dagit, Senior Conservation Biologist, RCD of the Santa Monica Mountains
Danielle LeFer, Senior Environmental Scientist, California Department of Parks and Recreation

AG 12

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

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MARK PESTRELLA, Director

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

May 23, 2024

IN REPLY PLEASE
REFER TO FILE: LD-4

Mr. John Ota
Environmental Scientist
California Department of Parks and Recreation
1925 Las Virgenes Road
Calabasas, CA 91302

Dear Mr. Ota:

ENVIRONMENTAL PLAN (RPPL2024000906)
DRAFT ENVIRONMENTAL IMPACT REPORT (EIR)
TOPANGA LAGOON RESTORATION PROJECT

As requested, Public Works reviewed the Draft Environmental Impact Report for the Topanga Lagoon Restoration Project. The proposed project involves the expansion of the Topanga Creek and lagoon ecosystem, replacement of the existing Pacific Coast Highway bridge (SR-1 #53-0035) with a longer bridge to accommodate the lagoon expansion, development of visitor services in lower Topanga State Park, and relocation of Department of Beaches and Harbors facilities on Topanga Beach that are threatened by sea level rise.

We offer the enclosed comments for your consideration. For questions regarding these comments, please contact Pat Wood of Public Works, Stormwater Engineering Division, at (626) 458-6131 or pwood@pw.lacounty.gov.

If you have any questions, please contact Toan Duong of Public Works, Land Development Division, at (626) 458-4921 or tduong@pw.lacounty.gov.

Very truly yours,

MARK PESTRELLA, PE
Director of Public Works

for

CIARA BARNETT, PE
Assistant Deputy Director
Land Development Division

TD:la
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Enc.

Topanga Lagoon Restoration Project Comments

Los Angeles County Public Works (Public Works) is the National Flood Insurance Program (NFIP) coordinator for the unincorporated areas of Los Angeles County. The State of California's NFIP coordinator is the California Department of Water Resources (DWR). Public Works has also undertaken numerous flood protection capacity restoration projects that have involved the hauling and disposal of large volumes of rock and soil.

Executive Summary

ES-3 Project Description

Section ES-3.3 Alternative 2: Maximum Lagoon Habitat

Figure ES-1a shows the following proposed project features to be partially or entirely in a floodplain mapped by FEMA as a Zone VE (13 feet), which is a Coastal Hazard Area:

- Helipad
- Lifeguard station
- Decomposed granite parking areas

Structures built within Zone VE must comply with the flood resiliency requirements of Title 44 of the Code of Federal Regulations (44 CFR) Part 60.3, subsection (e). Also, the proposed decomposed granite areas may not be able to withstand the flooding that can occur in a Zone VE.

The draft Environmental Impact Report (EIR) document states:

"Approximately 256,000 cubic yards (CY) of soil would be removed from the existing fill areas to contour the proposed new lagoon and, if placed nearshore for beneficial reuse, would cover up to 35 acres… An additional 1,200 CY of roadway soil and 23,000 CY of soils potentially contaminated by…lead…would also be removed and hauled off-site. Approximately 10,810 CY of construction debris from demolition of [several structures] would be hauled off-site for disposal at appropriate landfills."

Consistent with California Environmental Quality Act (CEQA) documents required for other projects involving the hauling and disposal of large volumes of soil and debris, the proposed project's EIR should identify the sites anticipated to be used for off-site disposal and/or use of the soils and demolition materials and the anticipated haul routes to those sites. The communities at the disposal/use sites, and the those along the proposed haul routes to the sites, must be able to comment as they would be impacted. Also note that the receiving locations may have their own CEQA documents, so the proponents for this

proposed project may only need to account for the impacts (air quality, noise, traffic, etc.) up to the region covered by those locations' documents. (It will depend on the details of those locations' CEQA documents.) The proponent of this proposed project will need to fit the project's volumes within the amount of daily loads the receiving locations put into their CEQA documents. Any excess volumes would need to be accounted for in the CEQA document for this proposed project.

In accordance with 44 CFR, Part 60.3, the proposed project activities within the VE zones may require the project proponent to apply to and obtain from FEMA a Conditional Letter of Map Revision (CLOMR) and likely apply to FEMA for a final Letter of Map Revision (LOMR) within six months of project completion. If the contouring of the proposed new lagoon is deemed as "fill" by FEMA, or if the project includes placement of fill to raise the building pads for the proposed new buildings or the proposed helipad above the Base Flood Elevation, then please note that FEMA has suspended the issuance of Conditional Letters of Map Revision Based on Fill (CLOMR-Fs) and Letters of Map Revision Based on Fill (LOMR-Fs) for fill projects in California.

Additionally, FEMA's Technical Mapping Advisory Committee (TMAC), at FEMA's request, is making recommendations to FEMA to change the calculation of the FEMA Base Flood (1% annual chance flood) and the "500-year" flood (0.2% annual chance flood). TMAC is also recommending to FEMA to introduce a new regulatory flood zone, the Flood Prone Area. Officials would be required to regulate development activities based on this Flood Prone Area. (See our comments below for Section 3.9.2, Affected Environment, Flood Hazards.)

Since two State agencies (Department of Parks and Caltrans) are among the project proponents, and the State of California is also a participant in the NFIP and, thus, subject to NFIP requirements, it is recommended the California Department of Parks, as the CEQA Lead Agency, contact the State NFIP Coordinator at the California Department of Water Resources for more information on NFIP compliance requirements for the proposed project alternatives.

Section ES-3.4 Alternative 3: Limited Lagoon Habitat Expansion

Figure ES-2a likewise shows proposed structures in the FEMA VE Zone. Alternative 3 likewise involves soil removal and reuse (166,000 CY), removal of contaminated soil, and removal of construction debris. Hauling to off-site locations is also proposed. Our previous comments for Alternative 2 also apply to Alternative 3.

Topanga Lagoon Restoration Project Comments

Section ES-3.5 Alternative 4: Maximum Managed Retreat:

Figure ES-3a likewise shows proposed structures in the FEMA VE Zone. Alternative 4 likewise involves soil removal and reuse (210,000 CY), removal of contaminated soil, and removal of construction debris. Hauling to off-site locations is also proposed. Our previous comments for Alternative 2 also apply to Alternative 4.

Chapter 2 - Project Description

As stated in our previous comments for the Executive Summary, this EIR should be consistent with CEQA documents for other projects involving the hauling and disposal of large volumes of soil and debris, and identify the off-site disposal sites the project's soil and demolition materials and the routes to them. The project proponents will need to fit the project's volumes within the amount of daily loads the receiving locations put into their own CEQA documents. Any excess volumes would need to be accounted for in this EIR.

Chapter 3 - Affected Environment, Environmental Consequences, and Mitigation Measures

Section 3.2: Air Quality

As stated in our previous comments for the Executive Summary, this EIR should be consistent with CEQA documents for other projects involving the hauling and disposal of large volumes of soil and debris, and identify for each alternative the air quality impacts associated with the transport to and use of the off-site disposal sites for the project's soil and demolition materials, where such impacts are not accounted for in the receiving locations' own CEQA documents.

Section 3.5: Energy

As stated in our previous comments for the Executive Summary, this EIR should be consistent with CEQA documents for other projects involving the hauling and disposal of large volumes of soil and debris, and identify for each alternative the energy use impacts associated with the transport to and use of the off-site disposal sites for the project's soil and demolition materials, where such impacts are not accounted for in the receiving locations' own CEQA documents.

Topanga Lagoon Restoration Project Comments

Section 3.9: Hydrology/Floodplain and Water Quality/ Stormwater Runoff

Section 3.9.1 - Regulatory Setting

Federal

Executive Order 11988 and National Flood Insurance Program

As stated in our comments for the Executive Summary, since State agencies are among the project proponents, and the State of California is also a participant in the NFIP, the State agency proponents are subject to NFIP requirements as well as local agency proponents.

If Federal funds are being used or being sought for the proposed project, Executive Order 14030 (Federal Flood Risk Management Standard) may also apply. It should be noted FEMA is in the process of revising 44 CFR Part 9 (Floodplain Management and Protection of Wetlands) to conform to EO 14030.

It is recommended the project proponents contact the State NFIP Coordinator at the California Department of Water Resources for more information on NFIP compliance requirements.

State

Executive Order B37-77

Executive Order B37-77, signed by Governor Edmund G. Brown, Jr on November 26, 1977, directs State agencies to: "*…provide leadership in efforts to minimize the risk of flood losses in connection with state lands and installations and state financed, insured, or assisted improvements. The heads of such agencies shall take particular care to avoid unwise or hazardous use of floodplains in connection with all activities under their authority."*

Executive Order S-13-08

Executive Order S-13-08, signed by Governor Arnold Schwarzenegger on November 14, 2008, and the description of it contained on page 3.9-19 of this draft EIR, should also be listed in this subsection of the EIR.

Topanga Lagoon Restoration Project Comments

California Building Code

It is our understanding construction activities undertaken by State agencies on State-owned lands are subject to the standards established by those State agencies. One of those standards is the California Building Code, which includes flood resiliency requirements for building construction in FEMA VE zones that meet or exceed NFIP requirements (44 CFR Part 60.3 [e]).

Regional and Local

Los Angeles County Code

In addition to Title 12, the Los Angeles County Code also includes Title 26 – Building Code, Chapter 1, Sections 106, 110.1, and J103, which includes flood resiliency requirements for building construction in FEMA VE zones that meet or exceed NFIP requirements (44 CFR Part 60.3 [e]). However, the County Code did not adopt all of the California Building Code's requirements. It is recommended the project proponents contact the State NFIP Coordinator at the California Department of Water Resources for clarification on where the State's and/or the County's NFIP compliance requirements apply to the proposed building construction elements.

Section 3.9.2 - Affected Environment

Flood Hazards

It should be noted that FEMA's Technical Mapping Advisory Committee (TMAC), at FEMA's request, is making recommendations to FEMA to change the calculation of the FEMA Base Flood (1% annual chance flood) and the "500-year" flood (0.2% annual chance flood) from using the median confidence value of data to the 95% confidence value, essentially doubling the Base Flood and "500-year" flood, and raising the Base Flood and "500-year" flood elevations. TMAC is also recommending to FEMA to introduce a new regulatory flood zone, the Flood Prone Area, which would be based on a climate change model that FEMA is leaving to the local community to select. Officials would be required to regulate development activities based on this Flood Prone Area. TMAC's final report with its recommendations is expected to be posted by TMAC in spring 2024. It is recommended the project proponents contact FEMA on whether FEMA has information or a defined timeline of adoption sufficient for this EIR to address TMAC's recommended changes in relation to the proposed project alternatives.

Topanga Lagoon Restoration Project Comments

Section 3.9.3 - Environmental Consequences

Drainage Patterns

For all project alternatives, reference is made to our previous comments for the Executive Summary and Section 3.9.2, regarding Conditional Letters of Map Revision (CLOMRs) and final Letters of Map Revision (LOMRs); recent recommendations to FEMA to change the calculations of floods and impose a new regulatory Flood Prone Area; and the recommendation for the California Department of Parks, as the CEQA Lead Agency, to contact the State NFIP Coordinator at the California Department of Water Resources for more information on NFIP compliance requirements for the proposed project alternatives.

Release of Pollutants in Flood Hazard Zone

Reference is made to our previous comments for Drainage Patterns.

Section 3.9.4 - Summary of Impacts

For Impacts HYD 3.9.3 and 3.9.4 for all project alternatives, reference is made to our previous comments in Section 3.9.3.

Section 3.12: Noise and Vibration

As stated in our previous comments for the Executive Summary, this EIR should be consistent with CEQA documents for other projects involving the hauling and disposal of large volumes of soil and debris and identify for each alternative the noise and vibration impacts associated with the transport to and use of the off-site disposal sites for the project's soil and demolition materials where such impacts are not accounted for in the receiving locations' own CEQA documents.

Section 3.16: Transportation and Circulation

As stated in our previous comments for the Executive Summary, this EIR should be consistent with CEQA documents for other projects involving the hauling and disposal of large volumes of soil and debris and identify for each alternative the transportation and circulation impacts associated with the transport to and use of the off-site disposal sites for the project's soil and demolition materials where such impacts are not accounted for in the receiving locations' own CEQA documents.

For any questions regarding the above comments, please contact Patricia wood at (626) 458-6131 or pwood@pw.lacounty.gov.

Organizations



March 30, 2024

California Department of Parks and Recreation
1925 Las Virgenes Road,
Calabasas, CA 91302
Attn: Mr. John Ota, Environmental Scientist

Re: Comments by Friends of Topanga Point on Draft Environmental Impact Report for Topanga Lagoon Restoration Project

Dear Mr. Ota:

Friends of Topanga Point ("FOTP") submits these comments on the *Draft Environmental Impact Report* ("DEIR") for the Topanga Lagoon Restoration Project (the "Project"). Our comments are intended to assist Project decisionmakers in preserving Topanga Point as a recreational and environmental resource of singular importance for surfers and the general beachgoing public. These comments were prepared by the five Topanga Point surfers who founded FOTP, though our advocacy group includes many other local surfers and beachgoers who have surfed and recreated at Topanga Beach with friends and family for decades. We founders have varying occupational backgrounds (environmental, government, medical, land use, and more) but we share deep knowledge about Topanga Point gleaned through decades of surfing here. Some of us have children who learned to surf at Topanga and hope to maintain this surf

beachgoers.

Background

Our Advocacy Goals. FOTP began following planning for the Project because we knew that changes to streams and other sources of coastal sediment generally have potential to affect beaches and surfing waves. We understand and generally support

hydrologic function, resiliency against sea level rise, etc.), but our advocacy goals were—and continue to be—focused on avoiding unintended adverse consequences to the surf break, the beach, and to beach access. As such, our efforts to date have been directed toward ensuring that Project decisionmakers and the public have pertinent information regarding potential Project impacts to Topanga Point and Topanga Beach, as well as feasible measures to mitigate any adverse impacts to these treasured resources.

Our key specific points of advocacy to date have been to urge the public agencies planning the Project to:

- engage expert consultants to conduct technical studies assessing potential impacts to Topanga Beach and to Topanga Point's surfing waves from each of the Project alternatives, and

- make protection of the surf break and beach recreation explicit objectives of

  restoration).

In response to our requests, the public agencies managing the Project tasked the consulting coastal engineering firm Moffatt & Nichol to conduct modelling studies and prepare a *Technical Report for Shoreline Morphology Analyses* evaluating potential changes to the beach under the varying Project alternatives. The agencies also retained Integral Consulting to model potential impacts to the shape and quality of Topanga Point's surfing waves under each of the Project alternatives; Integral's analyses and findings are outlined in a *Topanga Surf Quality Impact Assessment Report.* [1] These technical studies were recently released for public review as part of the DEIR and are further discussed in comments below.

In addition, in response to our requests, the Project DEIR explicitly identifies protection of the surf break and beach recreation as an objective in the same way that other basic Project objectives such as habitat restoration are listed.

[1] DEIR Appendix B, Topanga Lagoon Restoration Technical Report for Shoreline Morphology Analyses (Moffatt & Nichol 2023) pdf pages 65-186; Appendix B: Topanga Surf Quality Impact Assessment Report (Integral 2023) pdf 141-186.

We wish to acknowledge the agencies' responsiveness to our requests on these issues and thank them for these actions. It is our understanding that the level of analysis of surfing impacts in the DEIR is unprecedented for such a document.

Need for Preservation. The waves and beach at Topanga Point are uniquely deserving of preservation as an important recreational and environmental resource. As the Project's *Surf Quality Impact Assessment Report* notes: "Topanga Point, formed by

that provides recreational surf conditions and draws surfers year-round with different skill levels ranging from beginner to expert." (p. viii) The California Legislature recognized the social and economic importance of surfing in 2018, when it passed legislation establishing surfing as the official state sport. It is apparent that the number of surfers in California—and the number who surf Topanga Point—have continued to expand in recent years, particularly after the pandemic motivated residents to seek new types of outdoor recreation.

Unfortunately, the number of high-quality venues for surfing is limited. Topanga Point is a particularly rare type of surf break: a cobblestone point. Such points create waves that many surfers—probably a large majority—consider the most desirable. Cobblestone points provide long, evenly-peeling rides that are in a different class entirely from waves at the far more common straight sand beaches, or "beach breaks." Our state, with its 40 million residents, has fewer than a dozen high-quality cobblestone surfing points that break regularly and are readily accessible to the public. They include world-renowned places such as Malibu, Rincon, and Trestles, which are centers of surf culture and emblematic of California. Topanga Point is part of this small group of cobblestone points, and importantly, is the closest one to the millions of residents of Los Angeles.

Of course, this results in high demand and in very crowded, often "lively" surf lineups, for which Topanga Point is (in)famous. But high demand and crowded lineups are indicators of something unique and worth preserving. Add to this its sandy beach (served by conveniently located public parking) with views of the mountains to the north and the coastline to the south, and it is understandable why Topanga Point and Topanga Beach are destinations for throngs of surfers and beachgoers.

Key Attributes in Need of Preservation. The following are key aspects of Topanga

which the comments that follow seek to preserve:

(1) shape of surfing point and nearshore bathymetry

(2) sediment flow from lagoon to ocean

(3) lagoon outlet in its current location near top of point (i.e., prevent creek outlet from migrating easterly more than it occasionally does now)

(4) width of Topanga's sandy beach

(5) parking on south side of PCH, including in lots and no-cost parking along PCH.

Specific Comments on DEIR and Appendices

The following comments seek additional information regarding Project alternatives to assist in comparing and, if necessary, adjusting them to preserve the above-listed key attributes of Topanga Point and Topanga Beach.

Resiliency Measures. Analyses by the Project consultants predict that the proposed alternatives would have will have little to no impact on the quality of the surfing at Topanga Point.[2] The consultants stated, however, that sea level rise would have large impacts on future shorelines at Topanga and elsewhere, but they indicated uncertainty regarding the extent of future sea level rise by evaluating significantly varying scenarios: e.g., 1.6, 3.3, and 6.6 feet of rise (corresponding to low-emission 2070, low-emission 2100, and high-emission 2100) (*COAST Long-term Shoreline Change Analysis*, Integral, pdf p. 133).

While we are reassured by these conclusions with current sea levels, given future uncertainties relating to sea levels, as well as regarding climate and weather in general (e.g., changes in precipitation, sediment, waves, etc.), the Project should be designed to provide maximum feasible assurance that key attributes listed above will be preserved. We have the following comments on this issue:

- **Living Shoreline.** We support nature-based solutions or "living shoreline" elements to protect against beach erosion resulting from storms, sea level rise, and other causes. The DEIR includes overview descriptions of such elements, but they should be fully fleshed out in the Final EIR. Installing living shorelines is feasible, as has

  elsewhere, and should be included with specificity in all Project alternatives. Elements such as sand dunes and native planting areas should be created to the maximum extent to provide resiliency and preserve space for beachgoers. The

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[2] *E.g.* the Moffatt & Nichol study states: "Project alternatives will have little to no impact on the quality of the surfing at Topanga Point. During a long- period south swell, model results showed that the project will make the outside section of the wave up until the restrooms break slightly steeper and faster while making the inside section closer to the cove become softer and more "rippable" 1-year post construction. 5 years post construction there are essentially no changes in wave quality due to the project for this wave case. During a large west swell (7ft @ 10s), the project was modeled to have no impact on the surf quality. All changes due to the lagoon restoration are within the bounds of the difference between a flood and drought year without the project. It was shown that sea level rise will have the biggest impact on the surf quality at Topanga Point." *Shoreline Morphology Analysis*, at 52-53.

Final EIR should evaluate and identify optimal locations for living shoreline adaptations at Topanga Beach.

- Barriers to Eastward Migration of Lagoon Outlet. The outlet from Topanga Lagoon has a tendency to migrate east after substantial rains. Such easterly migration is one way that surfing waves at a "right"-peeling point break such as Topanga Point can be degraded. Topanga Lagoon currently has a hard barrier on its east side in the form of a concrete bridge abutment which extends toward the shoreline, as well as an earth embankment. These features appear to limit potential for easterly migration of the lagoon and, possibly, its breach location.

  The Project alternatives propose various designs for re-grading slopes on the east side of the lagoon, as well as for installation of structures there. The structures include a retaining wall in Alternative 4, a garage in Alternative 2, and a new helipad in all Project Alternatives. The helipad is proposed for one of several locations east

  our understanding that the location next to the raised parking lot may no longer be considered feasible).

  While the consultants predict that the Project would create only small impacts to the shorelines with current sea levels, given future uncertainties relating to sea levels as well as climate and weather generally, the Final EIR should evaluate whether the proposed grading and structures on the east side of lagoon would mitigate eastward migration as effectively as the current topography and barriers.

  If the new structures or topography would not create barriers that are as far west, as close to the shoreline, or as durable and effective as the current barriers, the EIR should describe any feasibility issues in redesigning or locating them to at least match the current barriers in these respects. The feasibility of utilizing a buried cobble berm to achieve these results should also be evaluated, as has been demonstrated at Ventura Point.

Project Design Assumptions. All Project design assumptions that the consultant studies relied on to reach conclusions regarding lack of significant impacts should be explicitly identified in the alternatives so they can be enforceably incorporated into any Project approval. These should include, for example:

- all grading for the Project will be landward of the beach berm;
- all grading, including at the location of the current helipad and lifeguard tower, will be above a specified elevation (+14-ft NAVD88) except a pilot channel under the PCH bridge; and
- all deposition of Project grading spoils within the ocean to be in a specified location downcoast of Topanga Point where there will be no impact to waves at the surfing

The Final EIR should identify any additional Project design assumptions necessary for the consultant conclusions, and they should be incorporated into the adopted Project's design development ("DD") and construction development ("CD") plans.

Post-Construction Monitoring. All EIR alternatives should include post-construction monitoring and public reporting of any significant changes to beach widths, topography, and bathymetry. These reports should include independent expert evaluation of the causes for any such changes to the extent feasible based on reasonably collectable data. The reports should be prepared and released biennially for at least 10 years.

Parking/Access/Community. In-lot parking spaces on the south side of PCH provide a desirable location proximate to beach and surf; they also enhance visibility of autos—helping to deter break-ins (which have been a significant problem of late) and promote a sense of community. However, parking at Topanga Point is frequently impacted, with little or no availability in the south side lots or south shoulder of PCH, particularly on days with good waves and/or optimal beach weather (think big south swell on a beautiful Saturday afternoon in July). Beachgoers are thus commonly forced to park on the north side of PCH and walk to the beach, confronting traffic safety issues on PCH, or concern about crime in the underpass which is isolated from view.

The Final EIR should clearly identify the combined total number of PCH and in-lot parking spaces on the south side of PCH under each alternative, including the "No Project" Alternative No. 1. If feasible, the Project should maintain at least the total number of PCH shoulder and in-lot parking spaces (conforming and non-conforming) currently on the south side of PCH. If this is not feasible, the Final EIR should explain why not, and why the greatest feasible number is proposed.

The Project should also provide the maximum feasible number of free (no-cost) parking spaces, particularly on south side of PCH. While the total number of public day-use spaces (pay and free, all locations) increases with the Project, according to the DEIR the number of public free spaces will decrease by up to 28 spaces—which represents a potentially significant number of beachgoers. In addition, it is unclear specifically how many of those reduced spaces are on the more desirable, safer south side of PCH; this should be made clear in the Final EIR.

Finally, Topanga point has a long and storied surfing history that spans decades and multiple generations. Pulling up early for a chilly dawn patrol while tugging on a damp

Preserving and enhancing the common gathering spaces at Topanga Point, particularly those frequented by beach goers and surfers, is paramount for maintaining the cultural and social fabric of this community. These spaces serve as more than just recreational areas; they are hubs for human connection, celebration, and community building. For

moments, from birthday parties and picnics, to weddings and memorial ceremonies, all

while enjoying the natural beauty of the ocean and cheering each other's wave riding. These spaces hold immense cultural significance and contribute to the sense of identity and belonging within this coastal community. They must be preserved.

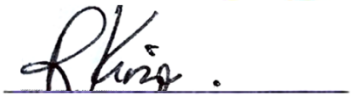
In conclusion, we thank you for the opportunity to provide these comments and look

The Founders of Friends of Topanga Point,

Aaron Clark 

Carolyn Day 

Peter Greenwald 

Russ Kino, MD 

Jay Shields 

ORG 2

April 11, 2024

COMMENTS; State of California, DEIR, Topanga Lagoon Project

We have attended meetings and studied the DEIR with great interest. We would strongly recommend the State **adopt Alternative 2,**

Maximize Lagoon: Will maximize lagoon/creek restoration by fully removing the Topanga Ranch Motel (which, unfortunately is in a decayed state and cannot feasibly be restored), resulting in ~9.5 wetted acres, ~23 riparian/transitional upland acres restored and beach expansion to ~4.39 acres. No change to the PCH alignment occurs.

Alternative *2 maximum lagoon, gets us the most restoration while still providing visitor services and emergency access improvements.*

Thank you so much, and thank you from our community.

John Luker
Vice-President,
Santa Susana Mountain Park Association

Wendi Gladstone
President,
Santa Susana Mountain Park Association

(*Organization's mentioned for affiliation only, not to imply acceptance by the organization mentioned)*

ORG 3

From: Maddalena Bearzi <mbearzi@oceanconservation.org>
Sent: Friday, April 12, 2024 8:53 AM
To: TopangaLagoonRestoration@gmail.com
Subject: Re: Topanga Lagoon Restoration Project

I am writing to you on behalf of the Ocean Conservation Society, a Los Angeles-based nonprofit organization conducting long-term dolphin & whale research and supporting educational projects to protect our oceans and their inhabitants.
Our field research off Los Angeles, including the waters near the Topanga Lagoon Restoration project, has been ongoing for almost three decades, and we are the only nonprofit research organization conducting long-term, year-round marine mammal research in these waters.
This letter is in full support of the *maximum* lagoon restoration. We at OCS believe the Topanga Lagoon is a critical natural habitat for different species, especially endangered fish, and this project will greatly enhance the territory.
We also believe that this project will have minimal impact on the animals that we study. Although coastal bottlenose dolphins (*Tursiops truncatus*) forage in the coastal waters of the bay, they regularly move back and forth along the entire California and Baja California, Mexico coast. and they are not residents of that area. This project, aiming at restoring the natural habitat of the region, can be only viewed as beneficial for keeping our fauna and flora thriving.

Thank you for your consideration.

Sincerely,

Maddalena Bearzi

OCEAN CONSERVATION SOCIETY

Maddalena Bearzi, Ph.D.
Ocean Conservation Society, President
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ORG 4

XERCES SOCIETY for Invertebrate Conservation

Protecting the Life that Sustains Us

April 11, 2024

John Ota, Environmental Scientist
California Department of Parks and Recreation
1925 Las Virgenes Road, Calabasas, CA 91302
Via email: TopangaLagoonRestoration@gmail.com

Comment Letter on the Draft Environmental Impact Report (EIR) Topanga Lagoon Restoration Project

Dear John Ota,

Thank you for the opportunity to review the Topanga Lagoon Restoration Project Draft EIR. This document presents a comprehensive and high-level analysis of the biological impacts of the project, specifically relating to the Lower Topanga overwintering site (Site ID 3270) and potential Crotch's bumble bee habitat. The Xerces Society for Invertebrate Conservation offers the following comments for your consideration:

SPECIFIC COMMENTS BY MITIGATION MEASURE

BIO-2: Monarch Butterfly Measures

1. "During the overwintering season (October 15–March 15) prior to the start of restoration activities, a qualified biologist shall conduct a roosting monarch survey every two weeks to monitor the size of the population and map the locations of roosting monarchs. Roosting monarch surveys shall follow the Xerces Society monarch count protocol." Comment: It is recommended that the overwintering season be shifted to October 1-March 1. Aggregations in Southern California may begin to form in early October and surveys should be conducted in this time period to capture early season monarch butterfly counts.
2. "To prevent disturbance of monarchs during the overwintering season by construction personnel or work activity, roosting trees will be flagged, and snow fencing or a similar technique shall be used to cordon off monarch roost trees at a reasonable distance of at least 25 feet away from the roosting monitor. The monitor shall determine the placement of the fencing to protect the monarchs while allowing work to continue." Comment: A buffer of at least a 100 ft radius from the core zone should be established when clustering monarchs are present, per management guidance implemented at other overwintering sites.
6. "Aerial pesticide applications or pesticides that are harmful to butterflies shall be avoided within 200 feet of overwintering sites when monarch overwintering is occurring. Small cut and paint efforts or directed spot spraying when it is not

windy will be allowed if required to control invasive arundo treatments or other highly invasive species to avoid invasive regrowth in the Project area. All weed treatments shall be under the supervision of a qualified biologist to ensure no impacts on monarchs occur. Any weed treatments shall be under the supervision of a Qualified Applicator Certificate and conducted per State Parks and California Department of Pesticide Regulation guidelines." Comment: The use of pesticides should be avoided within 500 ft from the edge of the shelter zone and occur outside of the overwintering season, when possible. The 500 ft application buffer is in alignment with the U.S. Fish & Wildlife Service Section 7 recommendations. The Xerces Society also recommends separate mitigation measures for aerial and spot applications which define drift mitigation criteria such as droplet size, drift mitigating nozzles, and wind thresholds. Aerial applications of pesticides have the potential to drift as far as 500 meters downwind of spray boundary as described in Woods et al (2001). Chemical classes for aerial and spot applications should also be defined and language should be explicit in that pesticides used in the project are limited to herbicides only.

BIO-3: Crotch's Bumble Bee Measures

1. "Surveys for Crotch's bumblebee shall be conducted within one year of vegetation removal/ground disturbance by a qualified entomologist familiar with the identification, behavior and life history of the species." Comment: A plan for identifications is recommended, including the hire of an accredited taxonomist or identifier to confirm the identity of the species. Xerces Society staff may make recommendations for a qualified identifier.

2a. "If Crotch's bumble bee is detected, the following shall be implemented: The qualified entomologist shall:" Comment: We recommend the entomologist notify CDFW for further coordination to avoid or mitigate certain impacts (CDFW, 2023). In addition, a 15-meter buffer around identified nest(s) is acceptable for light construction, however, a 30-meter minimum nest buffer should be implemented when heavy grading machinery is being used.

Thank you for the opportunity to review this project.

Sincerely,



Sara Cuadra
Conservation Biologist
Xerces Society for Invertebrate Conservation

REFERENCES

California Department of Fish and Wildlife (CDFW). 2023. Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species. June 6. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=213150&inline

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Woods, N., Craig, I.P., Dorr, G. and Young, B., 2001. Spray drift of pesticides arising from aerial application in cotton. Journal of Environmental Quality, 30(3), pp.697-701.

ORG 5

April 12, 2024

California Department of Parks and Recreation
1925 Las Virgenes Road, Calabasas, CA 91302
Attn: Mr. John Ota, Environmental Scientist

RE: Topanga Lagoon Restoration Project DEIR Comments by Surfrider Foundation

Dear Mr. John Ota and team,

On behalf of the Surfrider Foundation, we are pleased to submit our comments on the Topanga Lagoon Restoration Project Draft Environmental Impact Report (DEIR), prepared by the California Department of Parks and Recreation (State Parks) in collaboration with the County of Los Angeles (County) and the California Department of Transportation (Caltrans).

The Surfrider Foundation is dedicated to the protection and enjoyment of the world's ocean, waves, and beaches, for all people, through a powerful activist network. With over 200 chapters and student clubs spanning 26 states and territories, we serve as a prominent grassroots advocate for coastal conservation in the United States. Our organization is committed to five primary initiatives: ocean protection, plastic pollution mitigation, ensuring clean ocean water quality, promoting beach access, and addressing climate change.

The significance of our coastlines cannot be overstated. Annually, hundreds of millions of Americans visit beaches nationwide, providing vital economic support, sustaining millions of jobs, and contributing over $143 billion to our economy. Our coastal areas offer substantial habitat value, critical ecosystem services, and serve as natural buffers against adverse weather conditions such as storms, wind, and wave activity. Natural and restored wetlands, beaches, dunes, and other coastal habitats are playing an increasingly important role in the fight against climate change.

Coastal communities, infrastructure, and ecosystems face numerous challenges, including ill-conceived development, coastal erosion, and the adverse impacts of climate change, such as rising sea levels and extreme weather events. Scientists have * estimated that between 25% - 70% of California's beaches are at risk of disappearing by 2100 due to rising seas. Rapid atmospheric warming associated with climate change is accelerating glacial melt and thereby will increasingly contribute to an exponential rate of sea level rise. According to recent * studies , future sea level rise is likely to outpace even the most extreme scenarios currently put forth by the Intergovernmental Panel on Climate Change. In any projected sea level rise scenario, we will see profound changes on our coasts during this century.
Surfrider believes that the only path forward for our coastlines involves urgent adaptation strategies that include the upland migration of infrastructure and other land uses and nature-based approaches such as living shorelines and habitat restoration. The Topanga Lagoon Restoration Project provides a unique opportunity to address myriad issues.

We are thrilled about the opportunity to restore coastal wetland habitat for endangered species and biodiversity, improve water quality, and enhance coastal access and recreational facilities within Topanga Creek watershed. We also see the project as an important opportunity to strengthen coastal resilience at Topanga Point. Critical infrastructure including PCH, as well as businesses, public safety, and recreational resources are at significant risk of impacts associated with climate change. The project provides a nature-based approach to protect these resources as sea level rises and climate change-fueled weather anomalies increasingly affect our coast.

We are very pleased to see the unprecedented attention paid to potential project impacts on the surf ecosystem. The surf ecosystem of Topanga Point has been created by millenia of cobble and sediment transport down Topanga Creek. Topanga Point is one of the few valued "point breaks" in Southern California and the closest one to 10.4 million Los Angeles residents. It was likely first surfed around 1927, when surf pioneers Tom Blake and Sam Reid explored the surfing potential of the Malibu coast. Today, it is a popular surf destination for Angelenos and visitors alike of all skill levels due to its accessibility, consistency, predictable peel angle, and surrounding natural beauty.

Surfing resources are often overlooked in the assessment of impacts associated with any coastal project. The inclusion of a Surf Quality Impact Assessment for Topanga Lagoon Restoration (Integral 2023) in the DEIR is a remarkable and pioneering analysis of potential surfing resource impacts and we applaud your foresight and sensitivity to community needs.

The Surfrider Foundations has conducted thorough evaluations of the project DEIR and coordinated among experts within the organization to offer project recommendations and considerations. To achieve the maximum potential benefits to habitat, coastal resilience, and sustaining public enjoyment of local natural resources at Topanga Point and along the Topanga Creek watershed, we recommend Alternative 2 for this project.

This alternative will yield the maximum increase in lagoon, wetland, and riparian bank habitats, while in our opinion, enable the most significant regeneration and long-term sustainability of beach width. We are confident that project Alternatives 2, 3, and 4 will have limited short-term impacts on wave quality at Topanga Point. Our analysis suggests that Alternative 2 may have the maximum benefit to the surf ecosystem due to the most enhanced sediment transport. Additionally, we believe that Alternative 2 will enhance water quality in the creek more so than the other alternatives and therefore provide the most benefit to safety for ocean recreators.

Although we believe that Alternative 2 will have the most benefit to achieve the project's goals, there are additional considerations that should be incorporated into this selected alternative.

Coastal Resilience:
The Surfrider Foundation advocates for a maximum retreat in the relocation of the lifeguard station and helicopter pad. We understand that these features are critical to public safety at Topanga Point and must be retained in all project alternatives. Yet in order to ensure their long-term viability and to avoid costly future relocation, the helicopter pad and station should be set-back from the shoreline to the maximum extent possible.

The Surfrider Foundation encourages the incorporation of nature-based solutions, such as cobble berms and dunes, to bolster coastal protection and ecosystem health. We applaud the ambitious proposed replacement of revetments along PCH with bioengineered alternatives. We encourage a significant

review of materials and case studies in order to ensure the success of this project component. An important consideration should be the installation of cobble along the toe of the replaced revetment in order to lessen the impacts of wave activity and provide extra buffer to PCH.

While we encourage the maximum inland relocation of the helicopter pad, we are concerned about its removal and the effects that will have on the creek mouth. We believe that historically, the helicopter pad has blocked sand from migrating downwind (predominantly to the southeast) and thus maintaining a consistently open creek mouth. With the removal of the pad, this buffer will be gone and sand blown down the point could be deposited within the creek mouth thus pushing it further east and/or filling the mouth altogether and therefore requiring regular excavation to maintain an open flow. To mitigate this threat, we suggest the installation of dunes along the backshore west of the current helicopter pad. These dunes will help anchor sand in place and slow its migration down the point.

Access:
The Surfrider Foundation urges the preservation of parking to the greatest extent possible to ensure continued beach accessibility. We understand that each project alternative retains parking and improves safety and access to the resources around Topanga Creek and Point.

Ecological Considerations:
We recommend the utilization of permeable surfaces and bioswales to manage stormwater runoff from parking areas and the helipad.

In conclusion, Surfrider appreciates the opportunity to provide input on the Topanga Lagoon Restoration Project DEIR. We believe that our recommendations align with the project's goals of enhancing coastal resilience while preserving ecological integrity and public access. Please do not hesitate to contact us if further information or clarification is required.

Thank you for your attention to these important matters.

Sincerely,

Zach Plopper
Senior Environmental Director
Surfrider Foundation

Newara Brosnan-Faltas
Newara Brosnan-FaltasSouthern
California Regional Manager
Surfrider Foundation

Eugenia Ermacora
Los Angeles Chapter Manager
Surfrider Foundation

* References:

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ORG 6

STATE OF CALIFORNIA–THE NATURAL RESOURCES AGENCY GAVIN NEWSOM, *Governor*

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March 25, 2024

John Ota, Environmental Scientist
California Department of Parks and Recreation
1925 Las Virgenes Road
Calabasas, California 91302

Comments on Draft Environmental Impact Report
Topanga Lagoon Restoration Project - SCH No. 2022050478

Dear Mr. Ota:

The Santa Monica Mountains Conservancy, a CEQA trustee agency for the Santa Monica Mountains Zone, offers the following comments on the Draft Environmental Impact Report (DEIR) for the Topanga Lagoon Restoration Project. The overriding public value of the Topanga Lagoon and its environs is the rare habitat provided for native fish, amphibians, and birds. The rarity and value of lagoon habitat in the Santa Monica Mountains cannot be overstated. The maximum protection of these resources should be the primary objective of the Topanga Lagoon Restoration Project. The public will experience great benefit from access to such enhanced natural resources.

The Conservancy finds that DEIR alternative number Two – Maximum Lagoon Habitat best protects these rare natural resources while providing ample enhanced recreational and scenic benefits on both sides of Pacific Coast Highway. The Conservancy commends State Parks, Caltrans, and Los Angeles County Beaches and Harbors for the formulation of this exceptionally beneficial public project in the Santa Monica Mountains Zone.

Please address any correspondence to Paul Edelman, Deputy Director of Natural Resources and Planning, of our staff at the above letterhead address or via edelman@smmc.ca.gov.

Sincerely,

STEVE VERES
Chairperson

ORG 7

LOS ANGELES CONSERVANCY

523 West Sixth Street, Suite 826
Los Angeles, CA 90014

213 623 2489 OFFICE
213 623 3909 FAX
laconservancy.org

April 12, 2024

Submitted Electronically

John Ota
California Department of Parks and Recreation
1925 Las Virgenes Rd
Calabasas, CA 91302
(818) 880-6165
John.ota@parks.ca.gov

Dear Mr. Ota:

On behalf of the Los Angeles Conservancy, I am writing to comment on the Draft Environmental Impact Report (DEIR) for the proposed Topanga Lagoon Restoration Project. The Conservancy supports Alternative 3, identified as the environmentally superior alternative, to best protect cultural, archeological, and natural resources while meeting the project objectives.

The proposed project aims to expand and restore the lagoon ecosystem; integrate public access, recreation, and visitor serving needs; proactively address sea level rise; protect existing biological, cultural and recreational resources. This would be accomplished through expanding the Topanga Creek and lagoon ecosystem, replacing the existing Pacific Coast Highway (PCH) bridge with a longer bridge across the expanded lagoon, developing visitor services facility, and relocating County of Los Angeles Department of Beaches and Harbors (DBH) facilities on Topanga Beach threatened by sea level rise.

The lagoon expansion will impact archeological and historic cultural resources, including the Topanga Ranch Motel, listed on the California Register of Historical Places and eligible for the National Register of Historic Places. The Conservancy urges Project Alternative 3, which best protects historic and cultural resources in the project area. Alternative 3 would preserve the majority of the Topanga Ranch Motel and return it to use for visitor services or park facilities and avoid adverse impacts to the ethnohistoric site of Topaa'aa village. We opposed Alternative 2, which would adversely impact the Topanga Ranch Motel by demolishing it, and have concerns about Alternative 4, which would cause significant and unavoidable adverse impact to archeological resources.

The Topanga Lagoon project area has numerous cultural resources beyond these identified historic sites. This includes the three legacy businesses that

would be removed from the site and the historic Topanga Point Surf Break. We encourage consideration of and mitigation measures for these resources.

I. **Mitigation Measures for Topanga Ranch Motel**

The Topanga Ranch Motel was previously determined by the National Parks Service to be eligible for listing in the National Register under Criteria A and C and is therefore automatically listed in the California Register. The Topanga Ranch Motel is associated with early development of recreation and tourist facilities along the PCH and is a rare remaining example of a 1930s vernacular automobile court hotel. Early recreation at Topanga Beach was facilitated by the development of Topanga Canyon Road in 1915 and a public dirt road along the Malibu Ranch coastline in 1921. The Topanga Ranch Motel evolved from Cooper's Auto Camp, a collection of tents and cabins established on the east end of Topanga Creek in 1924. The construction of the paved Roosevelt Memorial Highway, now PCH, from 1927-1929 opened the coastline to more automobile-oriented tourism. In 1933, the Auto Court was altered; new multi-unit wood frame cabins were constructed, and several original cabins were reconfigured to create a courtyard arrangement and arched entryway to appeal to motorists. Post-World War II, the Topanga Beach Auto Court was renamed the Topanga Ranch Motel.

Alternative 3 would retain 20 of the existing 25 buildings, the most of any alternative. Before the beginning of construction, a historical resource monitoring and treatment plan (HRMTP) will be prepared to avoid or minimize impacts to the resources. The building would be retained and restored in the future in conformance with the Secretary of Interior's Standards (SOI) for Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings. Historic fabric will be retained or restored to the degree possible or replaced in-kind in conformance with SOI Standards. The demolition of any motel structures would be documented through the National Park Service's Historic American Building Survey.

II. **Mitigation Measures for ethnohistoric village of Topaa'nga**

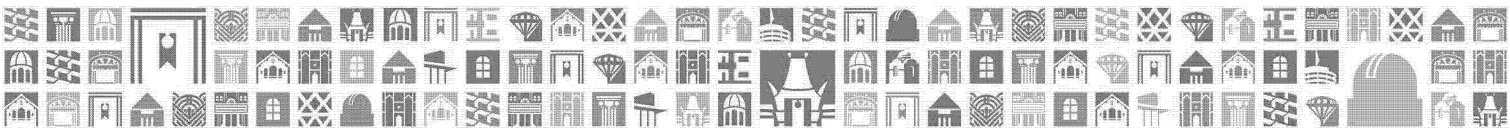
Topanga is the ancestral and unceded homeland of the Tongva/ Gabrielino peoples. The DEIR references various burial places in the area, and identifies the ethnohistoric village of Topaa'nga, buried shell midden site, and cemetery as eligible for the National Register and California Register under Criterion A/1 and Criterion D/4 and tribal cultural resource designation.

The DEIR states that impacts would be significant and unavoidable in Alternative 4 due to the inability to retain sufficient cover over the pre-contact period surface (no less than two to four feet).

Seismic work on Topanga Ranch Motel necessary for life safety would rely on shallow foundations to not disturb archeological resources. Mitigation Measure CUL-4 specifies the archaeological and Native American monitoring and treatment plan to be implemented pre-construction.

III. **Topanga Point Surf Break**

The Topanga Point Surf Break has been a significant hub of surfing since the mid twentieth century. The DEIR specifies the preparation of a wave uprush study and additional shoreline studies to mitigate impacts to surf conditions. We support the preservation of this break point and hope to see concrete mitigation efforts detailed in the Final EIR for Alternative 3.



IV. **Legacy Businesses support as mitigation measure**

Legacy businesses are generally those that have been in operation for twenty years or more. These businesses are what make each neighborhood unique by creating a rich community identity, a sense of place, and belonging for customers and neighbors. The Conservancy has long advocated for protections for legacy businesses. Recently, the City of Los Angeles launched a Legacy Business Program to support the ongoing sustainability of these community anchors.

The Reel Inn (in operation since 1986), Wylies, (in operation since 1946), and Cholada (in operation since 1999) all qualify under this definition of legacy business.

The Conservancy believes that mitigation measures to address the potential displacement of legacy business should be included in the plan. Such measures may include the right of return, rental and other economic assistance incentives.

V. **Conclusion**

The Topanga Lagoon Restoration Project is a complex plan to manage natural and cultural resources in the face of climate change. We support the expansion and restoration of the Topanga Lagoon ecosystem in tandem with the preservation of historic cultural resources including the Topanga Ranch Motel and archeological resources. The Conservancy also asks for additional details regarding impacts to the Topanga Surf Break Point and legacy businesses that would be impacted by this project.

About the Los Angeles Conservancy:

The Los Angeles Conservancy is the largest local historic preservation organization in the United States, with nearly 5,000 members throughout the Los Angeles area. Established in 1978, the Conservancy works to preserve and revitalize the significant architectural and cultural heritage of Los Angeles County through advocacy and education.

Please do not hesitate to contact me at (213) 430-4203 or afine@laconservancy.org should you have any questions or concerns.

Sincerely,



Adrian Scott Fine
President & CEO

ORG 8

Los Angeles /Santa Monica Mountains Chapter

15811 Leadwell Street
Van Nuys, California 91406-3113

California Department of Parks and Recreation
TopangaLagoonRestoration@gmail.com

VIA ELECTRONIC MAIL:

April 12, 2024

TOPANGA LAGOON RESTORATION DEIR

Dear California Department of Parks and Recreation and DEIR project reviewers;

California Native Plant Society (CNPS) is a science, policy, and planning based statewide organization that is nearing 60 years in existence. We work closely with governance, academia, planners, developers, and non-profit organizations to encourage sustainable planning, conservation, and horticultural use of California native plants. CNPS employs the most state-of-the art science and design in our work.

Our engagement throughout the state involves working with districts to promote use of native trees and plants to encourage urban and wildland

forest health, water conservation, and ecological connectivity between open space and cities. CNPS has a long and vibrant working history working in the Santa Monica Mountains, engaging with communities, groups, and agencies.

CNPS lauds the detailed research and considerations to the four project alternatives offered to the public for comment. The incorporation and balance between public access and environmental sustainability at the site indicates careful attention to policy, planning, and science.

Alternatives 2, 3, and 4 each offer restoration and use advantages. We support **Alternative 2** for the following categorical reasons:

Habitat Protections

Alternative 2 affords the greatest potential for riparian, transitional, and upland habitat restorations. This plan gives more opportunity for restoration successes at levels of greater acreage, numerous soil types, and multivariate aspects than the other options for upland habitat. Healthy upland environment is critical to sustaining the lower (transitional and riparian) areas.

CNPS wholly supports the DEIR's plan to introduce or replace vegetation only with locally endemic plant species suitable to growing conditions inherent at the site. Modern plant science affirms this approach and shows that natively sourced species both have greater adaptability and ecologically benefit the local plant community.

We appreciate that the DEIR biological studies delineated the wetland, special plant species and habitats. These focal baseline studies best inform the science that supports these rare features within the lagoon area.

Long-term Environmental Preservation

CNPS believes the management methods that will begin prior to restoration activities and will be part of indefinite best management practices associated with land curation over time are insurance for

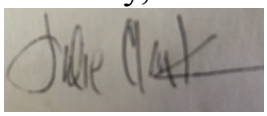
protections over time. Specific attention to controlling or preventing invasive plant and arthropod species in the area will safeguard native plant habitat and fauna from encroachment and establishment of noxious or deleterious non-native species.

Climate Change Adaptation

Alternative 2 design accommodates lagoon wetland sea level rise. Rise means that lagoon waters are likely to become more brackish over time. The proposed restoration activities will incorporate transitional aquatic and terrestrial floral intended to adapt to a changing environment.

In closing, the Los Angeles/Santa Monica Mountains Chapter of California Native Plant Society looks forward to this long-awaited and necessary restoration of the iconic Topanga Lagoon. Thank you for your diligent research and efforts that will help realize the upcoming activities and legacy to return the area to high level functionality.

Sincerely,



Julie Clark, Conservation Co-Chair
Los Angeles/Santa Monica Mountains Chapter
California Native Plant Society

April 12th, 2024

California Department of Parks and Recreation
1925 Las Virgenes Road
Calabasas, CA 91302

Sent Via email to: TopangaLagoonRestoration@gmail.com

RE: Comments on the Draft Environmental Impact Report for the Topanga Lagoon Restoration Project

Dear California Department of Parks and Recreation:

On behalf of the Friends of Ballona Wetlands, Heal the Bay, Los Angeles Waterkeeper, LMU Center for Urban Resilience, California Trout, and Dr. Edith Read, we offer our strong support for a robust, science-based restoration of the Topanga Lagoon. We would first like to recognize that we are on unceded Indigenous land. The scope of this project and our work takes place across the lands of coastal Indigenous Peoples and Native Nations of the Tongva, Chumash, Fernandeño Tataviam Band of Mission Indians, and Kizh Nation tribes. We acknowledge and pay our respects to elders past, present, and emerging.

We support Alternative 2 with suggested modifications to increase climate resilience. We support beneficial reuse of excavated sediment and a wastewater management option that best protects ecological and public health. Many of the undersigned organizations are members of the Wetlands Restoration Principles Coalition Steering Committee. The Coalition developed nine principles of restoration[1] and we advocate for projects that uphold these principles to maximize every opportunity for comprehensive and scientific restoration of degraded wetlands while ensuring climate resilience and inclusion of interested parties. Alternative 2, with some modifications to further increase climate resiliency, is strongly aligned with our nine principles of successful restoration.

[1] https://wetlandsrestoration.org/restoration-principles/

We support:

- Selection of Alternative 2, with modifications, as the preferred alternative
    - We request modifications to increase sea level rise resilience by reducing infrastructure south of PCH by exploring moving parking north of PCH, achieving some of the benefits of Alternative 4, without the significant and unavoidable impacts to tribal cultural resources
- Beneficial reuse of excavated sediment nearshore
- Prioritization of a wastewater management option that protects ecological and public health

We expand upon these recommendations in further detail below.

Support for Alternative 2 with Modifications

We support Alternative 2 because it creates the maximum increase in lagoon, wetland, and riparian bank habitat (i.e., wetted habitat), which is critical for endangered species such as the tidewater goby and steelhead trout. Topanga Lagoon historically spanned 30 acres and has been greatly impacted and reduced in size to its current footprint of approximately 1 acre. The existing 3.6 acres of wetted and riparian habitat would be increased to 9.5 acres under Alternative 2. Given the tremendous loss of wetland habitat in southern California and across the state, it is the highest priority to protect, restore, and expand remaining wetland habitats. Wetlands provide unique habitat for very specific plants and animals, many of which are threatened or endangered. Wetlands are critical for our environmental and economic well-being.

Alternative 2, by creating the most wetted and riparian habitat, enhances natural function to a greater degree, improving long-term sustainability. Alternative 2 provides the most resiliency for the creek and lagoon against climate change because the larger size and greater complexity of the lagoon will allow for the lagoon and creek to adapt naturally, as sea level rises. Maximizing functional native habitat for sensitive species, particularly wetlands, is paramount to preserving biodiversity in the face of habitat loss, sea level rise, climate change, and the onslaught of invasive species.

We acknowledge the significant and unavoidable impacts in Alternative 2 to cultural resources through the removal of the Topanga Ranch Motel structures. We appreciate the historic nature of the motel and recognize that, if restored, the motel could provide lower-cost overnight coastal accommodations, in alignment with the Coastal Act Section 30213. However, given that the motel is not currently providing benefits to the community because it has not been in use for many years, and that opportunities for wetland habitat expansion are extremely limited, we support prioritization of functional wetland habitat over possible low-cost coastal accommodations. The restoration site as a whole is relatively small, therefore any meaningful amount of developed land that can be reclaimed to create habitat, should be reclaimed.

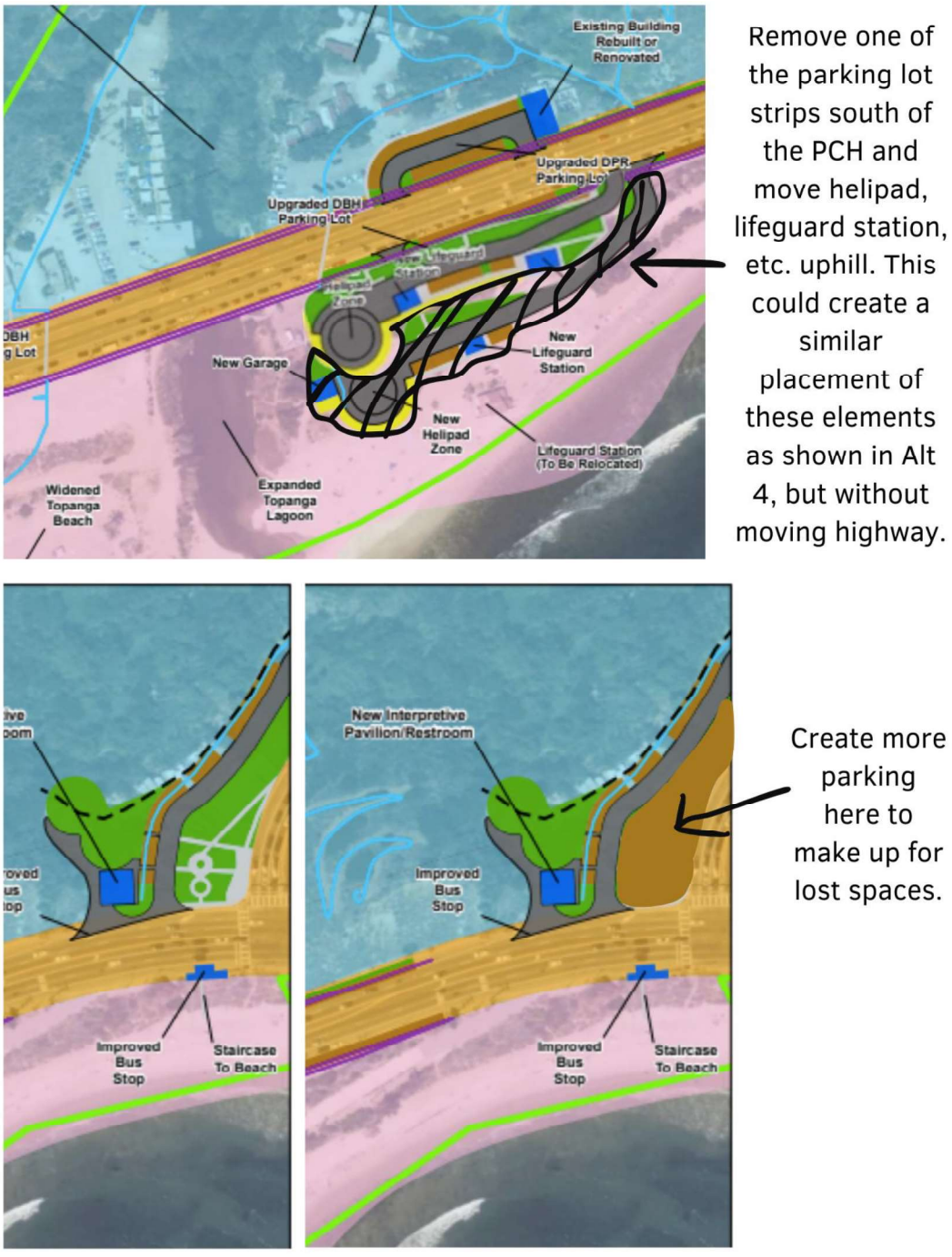
Suggested modifications to Alternative 2 to increase sea level rise resilience

We support elements of Alternative 4, which provides the maximum sea level rise resiliency for the beach and infrastructure through realignment of the Pacific Coast Highway (PCH). However, we have concerns about the significant and unavoidable impacts to tribal cultural resources. Further, it is not clear how much additional time or benefit Alternative 4 provides in terms of preserving the beach and infrastructure compared to other Alternatives, and whether similar benefits could be attained through implementation of living shoreline elements. Given these concerns and lack of clarity, we do not support the realignment of PCH. However, we are in strong support of actions to promote climate resilience and adaptation to sea level rise. Therefore, we recommend the following:

- Incorporate elements of Alternative 4 into Alternative 2 without moving PCH and having significant and unavoidable tribal cultural resources
    - Consider moving the Department of Beaches and Harbors (DBH) parking lot south of PCH to north of PCH at the “Gateway Corner”
- Implement living shoreline elements

We present a possible alternative layout of parking and State Park facilities to prevent the need to move the highway while also providing ample parking, moving facilities further away from the shoreline, and creating additional beach acreage (Figure 1). We suggest that only the helipad, lifeguard station, and other State Park facilities that are required to be placed south of the PCH be there. Otherwise, the bulk of the parking should be located north of the PCH in areas that are more resilient to sea level rise. Creating more parking near the visitor "Gateway Corner", where the area is already developed, would offset lost parking spaces from reducing the parking footprint south of the PCH. We recognize that this would come with tradeoffs to the proposed trails at the “Gateway Corner” and less convenient beach access. If more parking *must* be provided south of the PCH, then that parking should be located between the State Park Facilities and the beach, so that the additional parking can be removed in the face of dramatic sea level rise. This would increase protection for State Park Facilities that would be more expensive to move later.

Figure 1. Alternative layout for parking and State Park facilities to allow for more managed retreat without moving the PCH.



Implementation of living shorelines must be prioritized for the Alternative that is selected. The DEIR discusses living shorelines as a possibility but we recommend that it be added to Alternative 2 as part of the project. Living shorelines employ a nature-based approach, providing numerous benefits such as dune habitat, increased biodiversity, sea level rise resilience, and more.

Support for Beneficial Reuse Option of Excavated Sediment

We support the beneficial reuse of excavated sediment in the nearshore environment to ultimately replenish and nourish nearby beaches, increasing climate resilience. We support this option only if the excavated sediment is thoroughly tested and determined to be clean as well as compatible, and impacts to sensitive habitats and species are avoided. The sediment and fill that will be removed is naturally there and would have nourished the beach over time through natural processes. Further, the alternative option for the sediment is landfill disposal, which will increase truck trips and greenhouse gas emissions. For these reasons, we support the beneficial reuse option with the following comments and suggestions:

- For the beneficial reuse option, seawater will be pumped in to be mixed with the sediment to create a slurry for pumping and placement into the nearshore. It is stated that the "intake line would be screened so that organisms, debris, or other materials would not be impinged on the screen or pumped in from the ocean." (DEIR, page 2-37). We appreciate this measure and suggest that best practices for surface or subsurface intake be utilized, such as with desalination intake, to minimize impingement and entrainment. Further, we request that amounts of seawater be estimated as well as documented, that impacts be quantified, and that mitigation be proposed if necessary.
- The last paragraph of Section 2.6.6 (DEIR, page 2-38), describes timing measures that will be taken to avoid grunion season, steelhead migration, and other sensitive species. These measures appear to be specific to Option 2 (mechanical removal and upland landfill disposal) but they must also be included for Option 1 (mechanical removal and hydraulic nearshore placement) or the text clarified that it applies to both options.
- Option 2 states on page 2-38, that "Soils removed below a depth of 3 feet in a roadway excavation are *assumed* to be clean based on soil characterization studies and do not require any special handling." We recommend testing and not assuming the cleanliness of the sediment.

Support for a Wastewater Management Option that Protects Ecological and Public Health

We support the option that protects ecological and public health to the maximum extent feasible. Based on the information in the DEIR, we support prioritization of Option 3, connecting to the public sewer system, which we feel is the most protective of water quality. We are concerned about the placement of Option 1, subsurface drip irrigation, because it is so close to Topanga Creek. The image shown in Figure 2-8 appears to show the irrigation field located within 100 feet from Topanga Creek, raising concerns about impacts to the Creek and downstream Lagoon. We are concerned about Option 2, seepage pits, because seepage pits are known to be inefficient in treatment of pathogens and nutrients[2]. Therefore, we recommend that Option 3 be prioritized. If Options 1 or 2 are chosen, we recommend that the best available technology be used and that real-time monitoring and adaptive management practices be integrated, which will be key to addressing any unforeseen impacts to groundwater and surface water and ensuring

[2] https://www.epa.gov/sites/default/files/2015-06/documents/seepagepits.pdf

the long-term success of the restoration project. We request that additional details be provided on the wastewater options and their possible impacts to water quality standards or waste discharge requirements in Section 3.9.3, page 3.9-26.

Additional Comments

Biological Resources, Recommended Change to Mitigation BIO-2: Monarch Butterfly Measures

We appreciate that the mitigation measures for biological resources are protective and we only have one suggested strengthening of mitigation measure, BIO-2. Monarch Butterfly Measure #6 (DEIR, page 3.3-73) describes the use of pesticides that may be harmful to butterflies and states that they "shall be avoided within 200 feet of overwintering sites when monarch overwintering is occurring." It is understood that monarchs do not utilize *Arundo donax* and "small cut and paint efforts or directed spot spraying when it is not windy" seems reasonable to avoid impacts. However, if pesticides that may be harmful to butterflies will be applied to weeds in the project site, a 200-foot buffer may not be adequate to ensure that butterflies are not impacted. Butterflies may travel much larger distances than 200 feet to obtain nectar, and many "weeds", even if they are non-native and invasive, can be used as foraging sources for butterflies. We recommend that the CDSP consult with the Xerces Society on this mitigation measure to ensure no harm comes to any monarch butterflies.

Hydrology/Water Quality

Stormwater Runoff

We appreciate and support the inclusion of bioswales and rain gardens to treat runoff on the project site before it enters the creek, lagoon, or ocean. We also recommend that runoff entering the creek upstream from the project be treated before it enters the creek in order to protect the restored lagoon to the maximum extent possible and minimize input of pollutants to the creek, lagoon, and ocean. The DEIR mentions “several culverts along Topanga Canyon Boulevard”, which convey stormwater into the creek and “another culvert, located on the east bank of Topanga Lagoon, conveys water from the parking and PCH by the bridge” (DEIR, page 3.9-17). We recommend that these culverts be prioritized for installation of best management practices (BMPs), such as bioswales, in order to minimize pollutants entering the restored habitat and impacting sensitive wildlife as well as human health.

Sea Level Rise

We recommend that the DEIR include additional specific information on sea level rise scenarios for each alternative. Given that coastal resilience is a major project objective and very important to the undersigned groups, we would like to see a more robust discussion of the impacts of sea level rise on the project area and how the different Alternatives will provide protection for the beach and infrastructure. For instance, we recommend adding in figures to show the modeling for each alternative for the years 2070 and 2100 (DEIR, page 3.9-20 and 3.3-84 descriptions). We also ask that further information and discussion be provided for the possibility that the entire Topanga Beach is lost by 2040 (DEIR, page 2-8); how would this affect the Lagoon and could the Alternatives prevent this beach loss and over what time period? Further, we request that

living shoreline elements be discussed in more depth, similarly with descriptions of how they might provide additional resilience and for how long for each Alternative.

Beach Water Quality

The DEIR describes beach water quality at Topanga Beach (page 3.9-18) but showcases 2022 only, one of the better years (in terms of bacterial water quality), presenting a somewhat limited picture. Topanga Beach was on Heal the Bay's Beach Report Card Bummer list in 2019-2020, which means it was among the ten worst beaches on the West coast for water quality in the summer dry season. In the 2022-2023 season, Topanga Beach had an annual grade of B for summer dry season, D for winter dry season, and an F for wet weather.[3] Since January of this year, Topanga Beach has consistently received weekly water quality grades of F.[4] While water quality was decent during the dry summer months of 2022-2023, in recent months we have observed a decline, raising significant environmental concerns. With this year being El Niño, heavier rainfall has likely led to an increase of water pollutants and urban runoff, conveying them into the creek and lagoon. In addition, other sources of pollutants such as dog and bird feces are likely contributors to exceedances in fecal indicator bacteria levels. We suggest providing a longer-term picture of beach water quality at Topanga Beach in the DEIR for full context.

With increased and restored sensitive lagoon habitat, and water quality issues documented from dogs[5], it will be increasingly important to enforce the no-dogs-on-beach rule. We appreciate mention of this in the DEIR (page 3.9-26) and encourage education, signage, outreach, staff training, and staff time to be incorporated into the project implementation.

Minor Edits/Recommendations

Page ES-4 lines 2-3 – "Based on the 30 percent design, the restoration **would in** 9.5 wetted acres," There is a missing word or editing is needed for the bolded portion.

Page 2-2 – last line of 2.2.1 "Same capitalization problem as Park." We are not sure what this means – should it be removed?

Page 2-6 – section 2.2.3 – The second line has a question mark that should not be there.

Page 2-12 – section 2.5.3 – The last line should be removed.

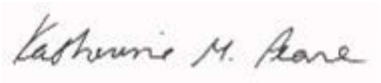
In summary, we strongly support a restoration project for the Topanga Lagoon that brings back unique and rare wetland habitats for the benefit of endangered species, additional wildlife, and people. We support Alternative 2 as the preferred alternative with modifications to increase sea level rise resilience.

[3] https://healthebay.org/wp-content/uploads/2023/06/Beach-Report-Card-2022-2023.pdf
[4] https://beachreportcard.org/
[5] https://www.rcdsmm.org/wp-content/uploads/2019/05/Topanga-Source-ID-Study_FINAL-10_23_14.pdf

ORG 9

Thank you for the opportunity to comment on the Draft Environmental Impact Report for the restoration of Topanga Lagoon. If you have any questions concerning this comment letter, please contact Katherine Pease via e-mail at kpease@healthebay.org, or by telephone at (310) 451-1500 x141.

Sincerely,



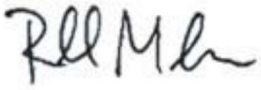
Dr. Katherine Pease, Director of Science & Policy
Heal the Bay



Scott Culbertson, Executive Director
Friends of Ballona Wetlands



Benjamin Harris, Staff Attorney
Los Angeles Waterkeeper



Russell Marlow, Senior Project Manager
California Trout



Dr. Edith A. Read
President, E Read and Associates, Inc.



Eric G. Strauss, PhD
President's Professor of Biology
Executive Director, LMU Center for Urban Resilience

Individuals

IND 1

From: David W. Kay <reply-to+d0d0760a3788@crm.wix.com>
Sent: Tuesday, February 13, 2024 2:53 PM
To: akahler@rcdsmm.org
Subject: [Topanga Lagoon Resto] Top Lagoon Inquiry/Comment Form - new submission

David W. Kay just submitted your form: Top Lagoon Inquiry/Comment Form
on Topanga Lagoon Resto

Message Details:
Name: David W. Kay
Email: dkaykdx200@gmail.com
Comments/Questions: I support the Proposed Project, Alternative 2 presented in the DEIR for the Topanga Lagoon Restoration Project. Alternative 2 expands natural lagoon habitat, retains the natural freshwater environment but also increases the opportunity for steelhead trout reintroduction to Topanga Creek. Additionally, Alternative 2 improves public access and resiliency against sea level rise, aids in helicopter support for rescue and firefighting operations, and potentially retains the Reel Inn popular and historic restaurant. David W. Kay
13060 Discovery Creek Playa Vista, CA 90094

Reply directly or go to your site's Inbox:

Respond Now

If you think this submission is spam, report it as spam.

To edit your email settings, go to your Inbox on desktop.

IND 2

From: Elizabeth Tracy
To: TopangaLagoonRestoration@gmail.com
Subject: Preference
Date: Tuesday, February 13, 2024 7:18:48 PM

Dear All—
What an exciting project! I firmly support Alternative 2 for the Topanga Restoration, preferring that habitat and wildlife are the top priority. Please choose in favor of the most natural solution.
Thank you for all of your time and commitment to this fantastic endeavor.
Best,
Elizabeth Tracy
Santa Monica Resident

Sent from my iPhone

IND 3

From: Jim Robertson
To: TopangaLagoonRestoration@gmail.com
Subject: My choice.
Date: Wednesday, February 14, 2024 10:05:46 PM

I choose alternative #2.

Jim
Email: jimrobertson@aboriginalskills.com
Website: www.aboriginalskills.com
Phone: (310)395-0943

IND 4

From: Linda Hill
To: TopangaLagoonRestoration@gmail.com
Subject: Topanga Lagoon
Date: Thursday, February 15, 2024 10:39:13 AM

We are active Seniors (80's) and want to continue to enjoy our environment.
You can help by:
Eliminating all charges for Senior parking

Or, at least all charges for Handicap parking

Also, access is a problem when disabled.
Please DO NOT assume disabled=wheelchair
I use support —walking sticks —but those new raised bumps are terrible!
Bone crunching if traveling over them using a walker
Terrible hazard if unable to pick up both feet—nearly killed myself after an operation once and I am not alone!
At least provide one bypass place if you must use those.

Seniors need some security. Beaches and paths like bike paths are currently monitored by different jurisdictions but in the past, the officials I asked were unclear about who was actually in charge.

Including ongoing funding for parking security is a recommendation.

I would like to also recommend you look at the design and access to toilets. One wonders why all stalls could not have a grab bar?
Even a short grab bar will help seniors avoid long waits while using stalls.
Please consider that most Moms can't leave toddlers outside of the doors while using the toilets. Give extra feet in front of each stall. Don't make the auto-flush. Wastes water and annoying when mid-timed.
Just put the flush mechanism button or lever to the front or side so you don't have to reach over the toilet to make it work.
Thanks for considering these suggestions
Lindy Hill

IND 5

From:	Claire Sanders
To:	TopangaLagoonRestoration@gmail.com
Subject:	Topanga Lagoon Restoration - Alt. 2
Date:	Thursday, February 15, 2024 7:00:41 PM

Good evening,

I would like to ask that Alternative 2 is chosen for the upcoming restoration project. This not only offers the best protection to the iconic trout in Topanga Watershed, but will increase habitat, species diversity and richness for all the local floral and faunal species. To deny the natural environment this much needed restoration project would be a shame. Please prioritise the environment and pick alternative two!

Kind regards,
Claire Sanders

IND 6

From: Stuber, Margaret L.
To: TopangaLagoonRestoration@gmail.com
Subject: Topanga Lagoon Restoration input
Date: Thursday, February 15, 2024 7:26:40 PM

I would like to put in a vote for Alternative 2. This does the most for this endangered fish and habitat. We need this to be our highest priority to create resiliency for unfortunately inevitable sea level rise.

Sincerely,

Margaret L. Stuber, MD
Program Director, UCLA/VA Greater Los Angeles Psychiatry Residency
Distinguished Professor of Psychiatry and Biobehavioral Sciences
Senior Semel Scholar
David Geffen School of Medicine at UCLA
Telephone (310) 825-5213

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IND 7

From: Alan DeRossett <reply-to+6ac4fde7f805@crm.wix.com>
Sent: Friday, February 16, 2024 10:10 PM
To: akahler@rcdsmm.org
Subject: [Topanga Lagoon Resto] Top Lagoon Inquiry/Comment Form - new submission

Alan DeRossett just submitted your form: Top Lagoon Inquiry/Comment Form
on Topanga Lagoon Resto

Message Details:
Name: Alan DeRossett
Email: alan@mb1.com
Comments/Questions: will read looking for marine restoration opertunities for Angel Sharks

Reply directly or go to your site's Inbox:

Respond Now

If you think this submission is spam, report it as spam.

To edit your email settings, go to your Inbox on desktop.

IND 8

From: asakimoto@gmail.com
To: TopangaLagoonRestoration@gmail.com
Subject: Topanga Lagoon Restoration public comment
Date: Tuesday, February 20, 2024 1:26:53 PM

Hello,

I would like to voice my support for Alternative 2 outlined in the EIR for the Topanga Lagoon Restoration project. Topanga Creek and Topanga Lagoon are a rarity among Southern California ecosystems in that they retain water year-round, making them a critical habitat for spawning steelhead trout and the endangered tidewater goby. We have been working for decades to preserve and restore these ecosystems - as a student, my son worked with Topanga community leaders to clear wrecked and abandoned cars from the creek in the hopes that we might enable a return of steelhead to their historical spawning routes. In the ensuing two decades, we have seen a gradual yet gratifying return of steelhead to Topanga Canyon, however the tidewater goby continues to bear its endangered status and we must do all we can to protect the few that remain. Of the various measures proposed, Alternative 2 provides the most comprehensive efforts to continue this restoration and allow these rare and endangered fishes a habitat to live and hopefully thrive.

Regards,
A concerned citizen

IND 9

From: samir patel
To: TopangaLagoonRestoration@gmail.com
Subject: Topanga Ranch Motel
Date: Friday, February 23, 2024 3:22:11 PM

Hello,

I'm interested in the restoration project and the Topanga Ranch Motel. How would one be able to help restore the Topanga Ranch Motel and operate it. My family has operated small motels in the Southern California for over 40 years and would like to have the opportunity to run the Topanga Ranch Motel. Besides, we live in Sunset Mesa which will allow us to make sure it is being run properly. Any details would be greatly appreciated?

Thanks,
Sam Patel
949-735-8406

IND 10

TOPANGA Motel

Topanga Motel should be run by the topanga community.

We would love to be involved in creating a local hub serving the surfers beach goers and families going to the beach with a coffee shop.

We would love to run it. Hiring local people

IND 11

From: Madelyn Glickfeld <madelynglickfeld@verizon.net>
Sent: Saturday, February 24, 2024 11:53 AM
To: 'TopangLagoonRestoration@gmail.com' <TopangLagoonRestoration@gmail.com>
Subject: RE: Online access to the meeting

There are so many questions from people who should be getting answers to the questions. It is not enough to document the questions and answer them in the final EIR. People need to get answers to their questions so that they can make recommendations on the alternative that is finally selected. This is a great analysis to look at four alternatives, but people need answers to their questions before the final project is selected.

IND 12

From: Madelyn Glickfeld <madelynglickfeld@verizon.net>
Sent: Saturday, February 24, 2024 12:18 PM
To: 'TopangLagoonRestoration@gmail.com' <TopangLagoonRestoration@gmail.com>
Subject: Selection of an alternative: Motel or another alternative for historic preservation and education

I understand that this motel could have historic significance. However there are two reasons why it should not be preserved. One, find out if it can be restored at all—it has not been upgraded or used for decades and would be extremely difficult and costly to restore. Two, if you are talking about historic cultural significance, it appears to me that the restoration of some land to the Tongva Tribe for their uses and for educational purposes, and their participation in managing the resources would be a far superior historic cultural preservation alternative. I suggest that a historic re-creation of a Tongva Village based on historic information and possibly using artifacts that have already been put in museums, along with activities organized by the tribe (if they would like to do that), should be done. It would be great for this to be operated by State Parks along with tribal representatives. I suggest that the Malibu Feed Bin also has been there for a long time, and illustrates the farming and ranching in the Santa Monica Mountains. The current farming and many domestic farm animals and horse barns are also big users. The Feed Bin (in some form) maybe at a smaller footprint would make this whole visitor experience richer and help keep what is important to the community.

There is not much left in Malibu that is an "old Malibu" business or building. The businesses in this area do mean a lot to the residents. I would choose lagoon restoration over retaining the rest of the businesses but because the intersection of Topanga and PCH are further from the restoration area, I support the alternative I suggested above.

Madelyn Glickfeld

IND 13

From: Madelyn Glickfeld <madelynglickfeld@verizon.net>
Sent: Saturday, February 24, 2024 12:38 PM
To: 'TopangLagoonRestoration@gmail.com' <TopangLagoonRestoration@gmail.com>
Subject: Pedestrian Access Safety across the Highway to the beach. and Provision of Space for Ride Hailing Apps

1. I am concerned with adding parking to land side of PCH without adequate opportunity for safe pedestrian access to the beach and back. People parking on the land side of PCH exit their cars too close to traffic. They carry a lot of stuff to take to the beach. They also take small children to the beach while carrying stuff. No one needs to explain the problems of speeding cars and drunk, speeding or inattentive drivers to anyone who drives or crosses the highway. There must be a pedestrian safety plan and real visitor information about where they should and should not cross the highway. Despite the, I think that there will be more injuries and deaths. Increasing the parking should not cause this.

In addition, The Department of Beaches and Harbors and the California Department of Parks and Recreation should start designating areas for arriving and departing Ride Hailing App services. If people can park in the Valley or Santa Monica and take a ride hailing app to this location and others up and down the coast it would provide much more access than you can provide on the site, and at no public cost. I realize that putting in ride hailing locations does not generate big parking fees (or it should not, as an incentive to use it) but the risk to pedestrians, visitor frustration with inadequate public transportation (public schedules for recreational activities have much less priority that for work transportation) would be greatly mitigated by this option of designating places both on the seaward and landward side of the highway for ride hailing app pick up and delivery.

Madelyn Glickfeld

IND 14

From: Madelyn Glickfeld <madelynglickfeld@verizon.net>
Sent: Saturday, February 24, 2024 1:00 PM
To: 'TopangLagoonRestoration@gmail.com' <TopangLagoonRestoration@gmail.com>
Subject: Sea Level Change and Wetlands Restoration

I need to look at the studies but it is clear that the residents and visitors don't fully understand what the future of beaches are under climate change. The map you showed about projected sea level rise shows that there will be very little beach left over time. The people don't understand that the excavated sediment that you will deposit may augment beaches to the south, but not likely to this beach as the movement of sand in the ocean is southward. The whole idea that sand comes from inland watersheds and it is what keeps beaches alive is not understood by the average person in this public meeting. It is probably not well understood by most of the specialists working on this EIR. There should be a sea level rise expert on this team and they should be in the meetings to give a further explanation of what kind of beach will be left (if any). The Department of Beaches and Harbors recognizes the need to move their current facilities landward, but doesn't say enough about whether there will be any beach left to visit.

Most importantly, clean dredged sediments of the correct size will be desperately needed to help our beaches survive in the long run, and yet the public doesn't not understand this at all. They will fight efforts to "dispose" sediments into the ocean unless they are convinces that it is not polluted, will not be put on rocky habitat in the ocean and reduce kelp reefs and that it will be critical to preserve some beach. There needs to be a big public education effort for this project and others up and down the coast to help people understand why they should go through the traffic and noise problems and how important these projects are.

They will also fight making the lagoon bigger if they are not convinced that floods coming down the canyon will not impact their homes. I think that flooding through the creek to the ocean will be increasing in volume and speed no matter what happens here. But I think a wider lagoon will dissipate the speed of flow that would happen through a narrow channel, rather that make it worse. I hope. But you should have expert analysis if you already have not.

People still have their heads in the sand about climate change. There is so much change in people's lives and they need to understand why they should endure the inconveniences (real) of doing this project. People are very supportive of nature here but those in the room, don't see this as a benefit to the environment. The benefits to nature (bringing back nature, and important wetlands productivity and habitat is the main purpose of this project. You did a great job of explaining what the possible project is but after so many decades and public discussion, you need to do that conversation again.

Last, don't expect everyone to read the EIR. You did more than you have to—putting real analysis into alternatives before you select one. But when a final alternative is selected and detailed, you will need to do another "Final Draft EIR" That you circulate for comments, answering all of the questions people will raise in these hearings. Getting final answers when they don't have the final plan is not going to play well.

These are my initial comments based on the public meeting you held this morning. **Thank you for all you DID do.! All of the comments I made in previous emails are reproduced below.**

Sincerely,

Madelyn Glickfeld

IND 15

From: Judy Villablanca <reply-to+30faf78a9995@crm.wix.com>
Sent: Saturday, February 24, 2024 2:25 PM
To: akahler@rcdsmm.org
Subject: [Topanga Lagoon Resto] Top Lagoon Inquiry/Comment Form - new submission

Judy Villablanca just submitted your form: Top Lagoon Inquiry/Comment Form on Topanga Lagoon Resto

Message Details:
Name: Judy Villablanca
Email: judygrobv@gmail.com
Comments/Questions: Please add me to your mailing list. I would favor maximum restoraiton of the lagoon, since we have lost the majority of California coastal wetlands.

Reply directly or go to your site's Inbox:

Respond Now

If you think this submission is spam, report it as spam.

To edit your email settings, go to your Inbox on desktop.

IND 16

From: Steve Levin
To: TopangaLagoonRestoration@gmail.com
Subject: Alternative 2: Maximizing Lagoon Habitat: A Sustainable Approach to Topanga Lagoon Restoration
Date: Saturday, February 24, 2024 4:36:29 PM

In my perspective, the optimal approach for the Topanga Lagoon Restoration Project is to prioritize alternatives that maximize the lagoon habitat. A key focus should be on expanding the lagoon wetland and restoring the bank habitat. Rather than allocating resources to renovate the dilapidated Topanga Ranch Motel and its 25 structures, these funds could be more effectively utilized in enhancing the lagoon habitat and addressing other crucial areas.

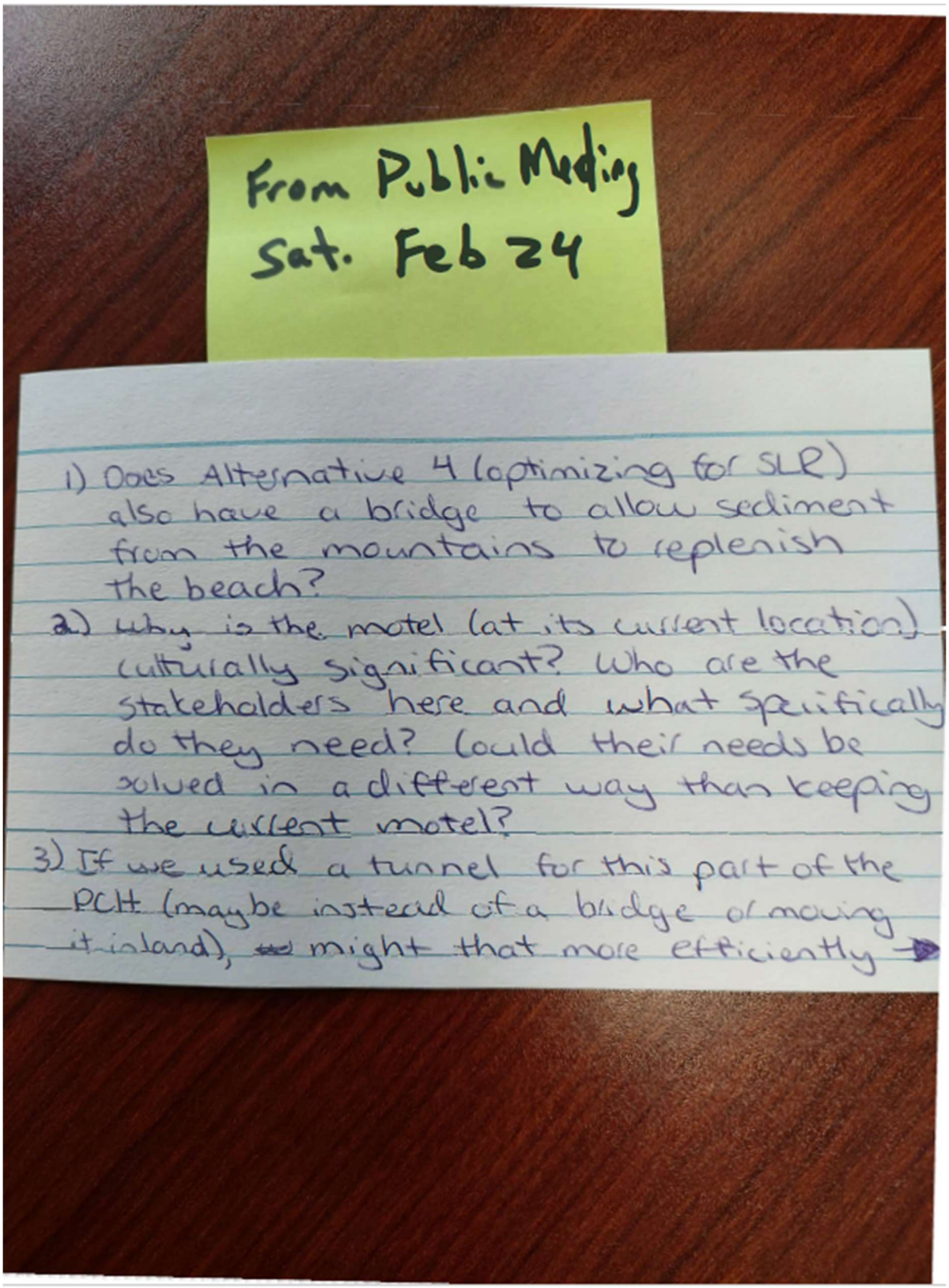
The Topanga Ranch Motel, currently in a state of disrepair, lacks the significance of historical or cultural value. Therefore, it seems reasonable to suggest the removal of these structures. The remaining businesses have no historical or cultural value and should be removed. By doing so, the obstacle posed by the proximity of these structures would be eliminated, facilitating the restoration of the lagoon habitat.

Moreover, it is essential to acknowledge the prevalence of non-native, invasive plants, particularly the unmanageable and out-of-control nasturtium, within the project area. The removal of approximately 256,000 cubic yards of soil is proposed as a means to maximize the lagoon habitat, but in addition it will help in eradicating these invasive species. This approach not only addresses the immediate concerns within the project area but also ensures a more sustainable and ecologically sound restoration process.

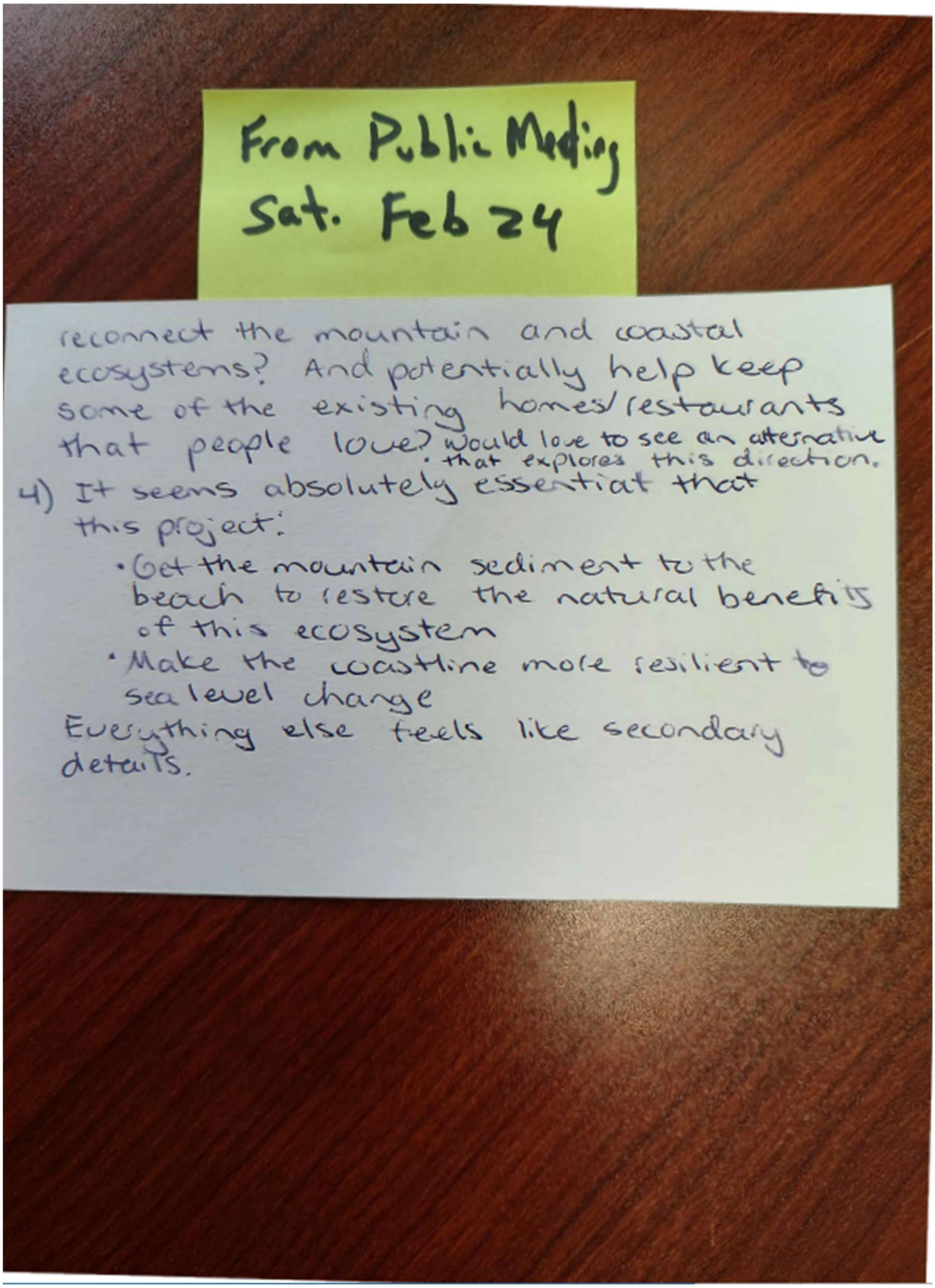
In conclusion, the restoration project's primary focus should be on maximizing the lagoon habitat by expanding the wetland and repairing the bank habitat. Allocating resources away from the dilapidated Topanga Ranch Motel and other structures, along with the removal of non-native invasive plants, will contribute to a more effective and environmentally friendly restoration effort.

Steve Levin
Woodland Hills Resident

IND 17


From Public Meeting
Sat. Feb 24
1) Does Alternative 4 (optimizing for SLR) also have a bridge to allow sediment from the mountains to replenish the beach?
2) Why is the motel (at its current location) culturally significant? Who are the stakeholders here and what specifically do they need? Could their needs be solved in a different way than keeping the current motel?
3) If we used a tunnel for this part of the PCH (maybe instead of a bridge or moving it inland), might that more efficiently

IND 17



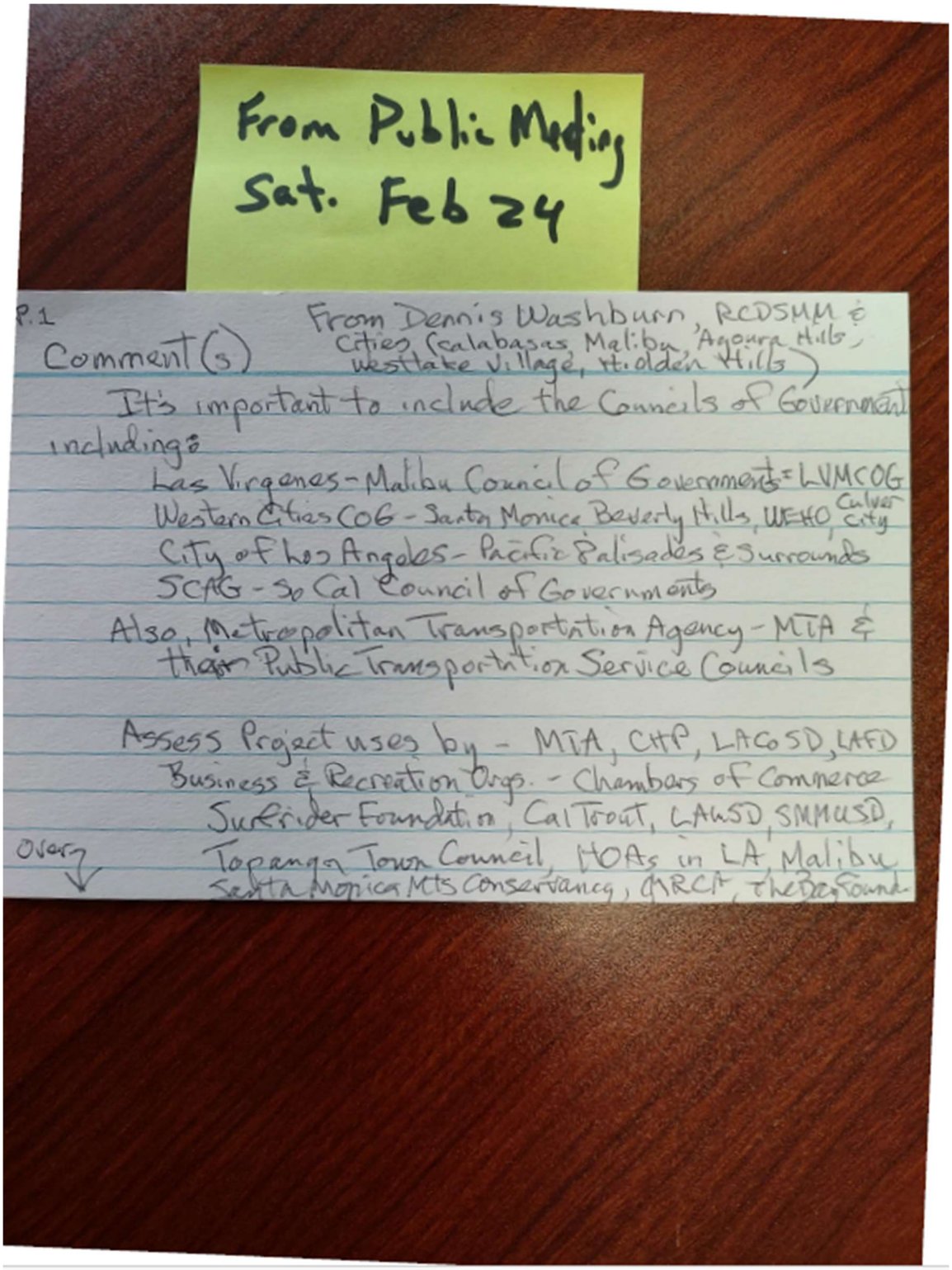
From Public Meeting
Sat. Feb 24

reconnect the mountain and coastal ecosystems? And potentially help keep some of the existing homes/restaurants that people love? Would love to see an alternative that explores this direction.

4) It seems absolutely essential that this project:
   - Get the mountain sediment to the beach to restore the natural benefits of this ecosystem
   - Make the coastline more resilient to sea level change

Everything else feels like secondary details.

IND 18



From Public Meeting
Sat. Feb 24

P.1

Comment(s) From Dennis Washburn, RCDSMM & Cities (Calabasas, Malibu, Agoura Hills, Westlake Village, Ht. Olden Hills)

It's important to include the Councils of Government including:

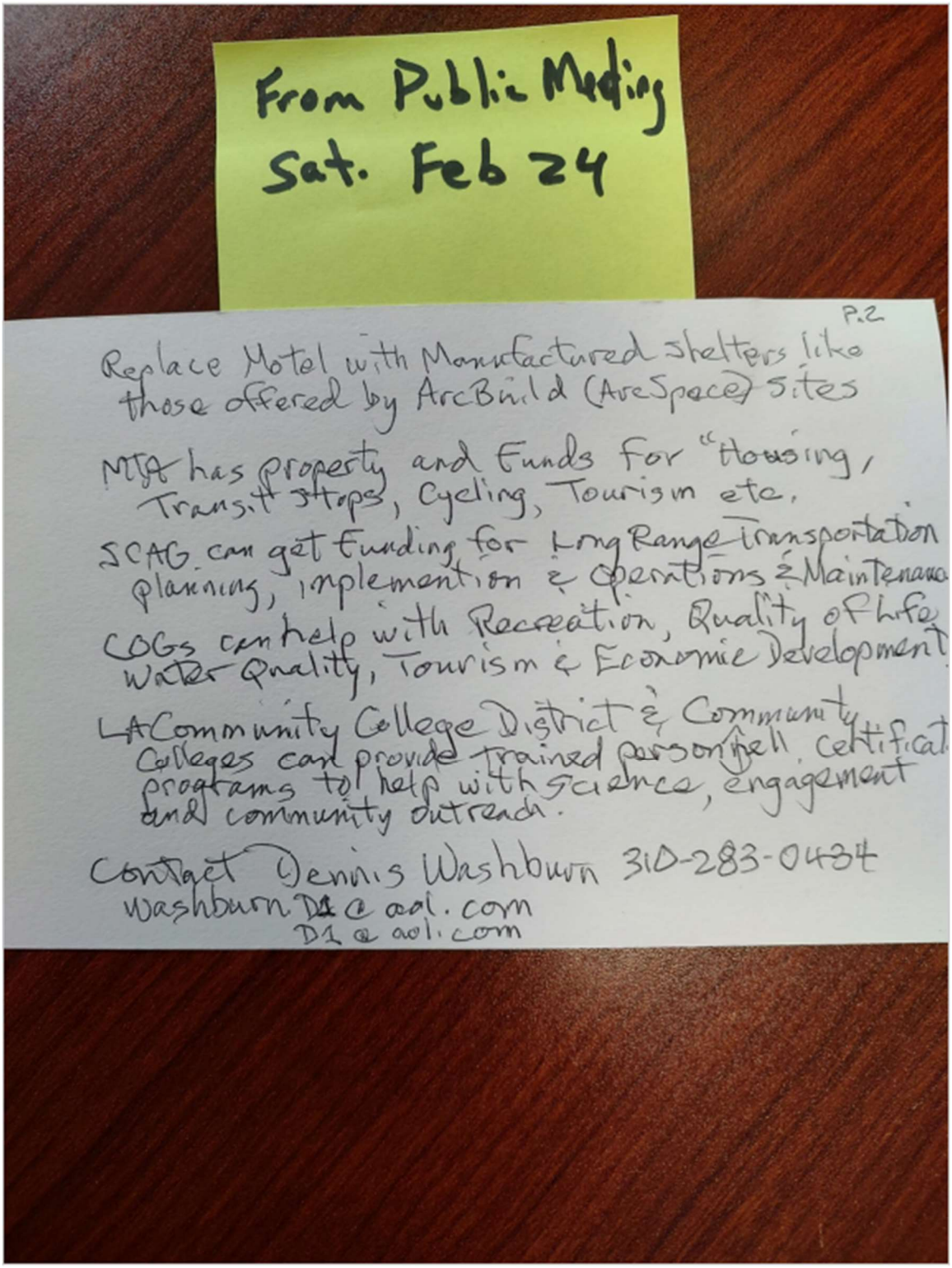
Las Virgenes - Malibu Council of Governments = LVMCOG
Western Cities COG - Santa Monica, Beverly Hills, WEHO, Culver City
City of Los Angeles - Pacific Palisades & Surrounds
SCAG - So Cal Council of Governments

Also, Metropolitan Transportation Agency - MTA & their Public Transportation Service Councils

Assess Project uses by - MTA, CHP, LACoSD, LAFD
Business & Recreation Orgs. - Chambers of Commerce
Surfrider Foundation, Cal Trout, LAUSD, SMMUSD,
Topanga Town Council, HOAs in LA, Malibu,
Santa Monica Mts Conservancy, RCDSMM, the Bay Foun-

Over

IND 18



From Public Meeting
Sat. Feb 24

P.2

Replace Motel with Manufactured shelters like those offered by ArcBuild (AreSpace) sites

MTA has property and Funds for "Housing, Transit stops, Cycling, Tourism etc.

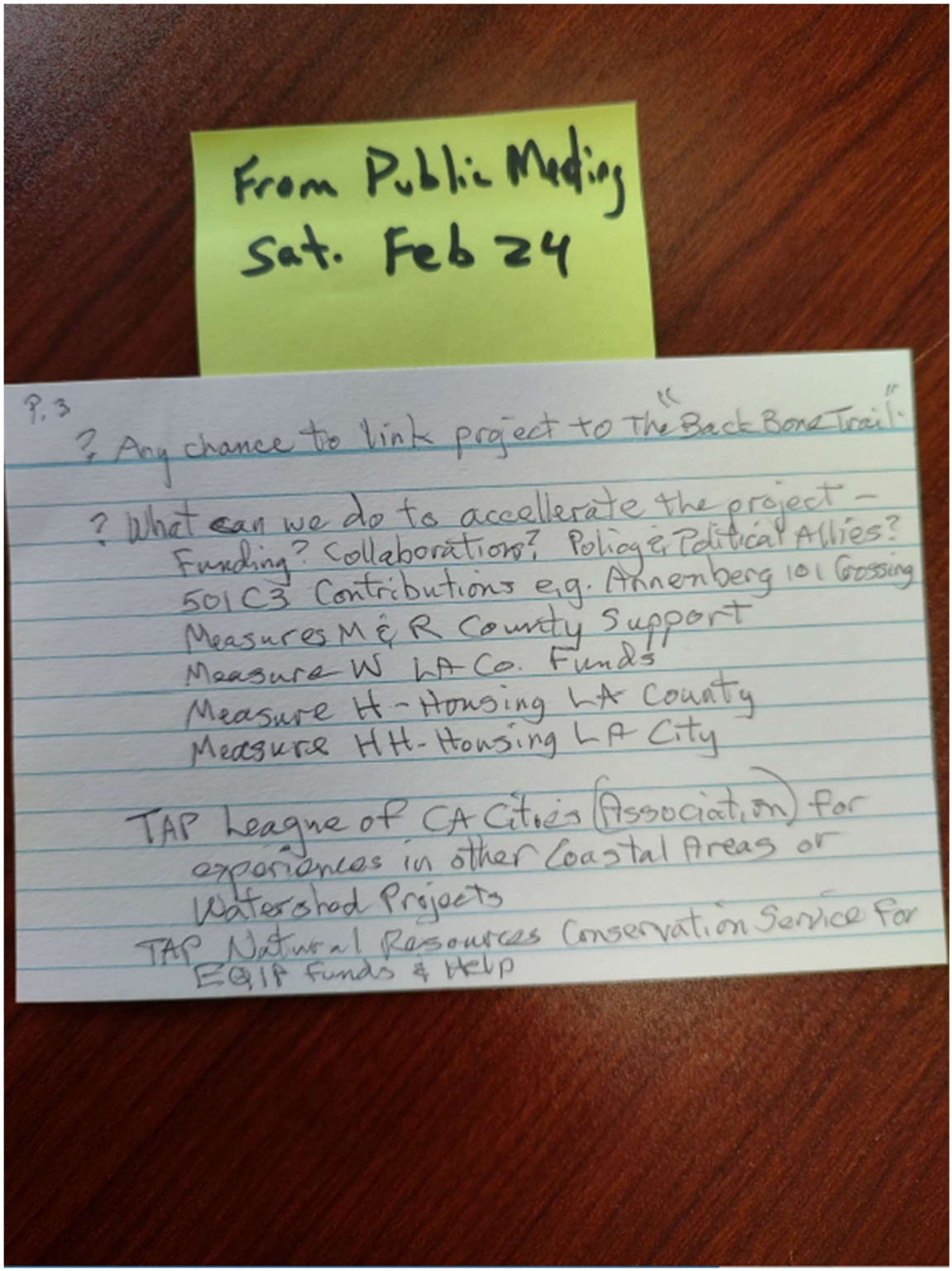
SCAG can get Funding for Long Range transportation planning, implementation & Operations & Maintenance

COGs can help with Recreation, Quality of life, Water Quality, Tourism & Economic Development

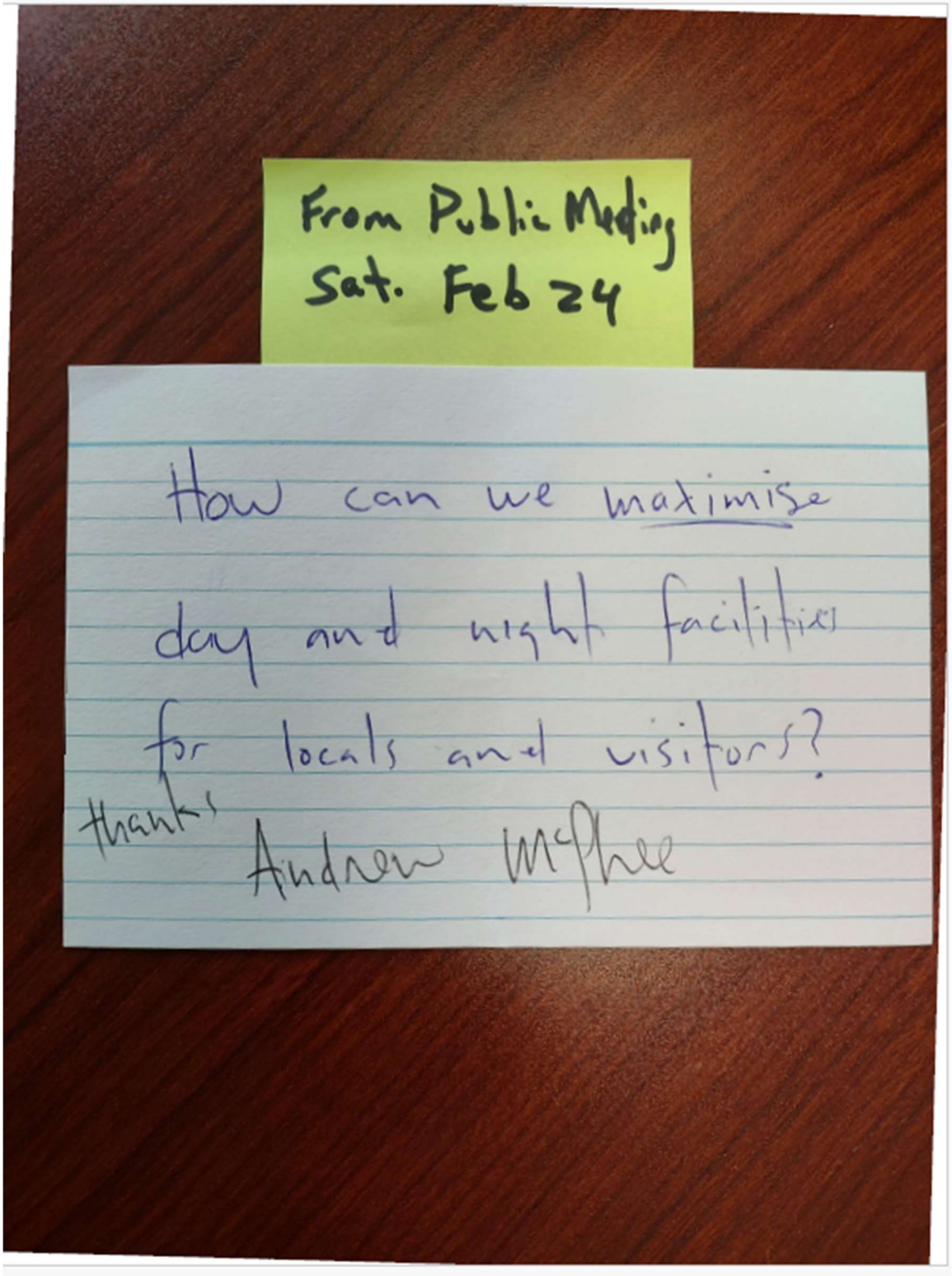
LA Community College District & Community Colleges can provide trained personnell certificat programs to help with Science, engagement and community outreach.

Contact Dennis Washburn 310-283-0434
Washburn D1 @ aol.com
D1 @ aol.com

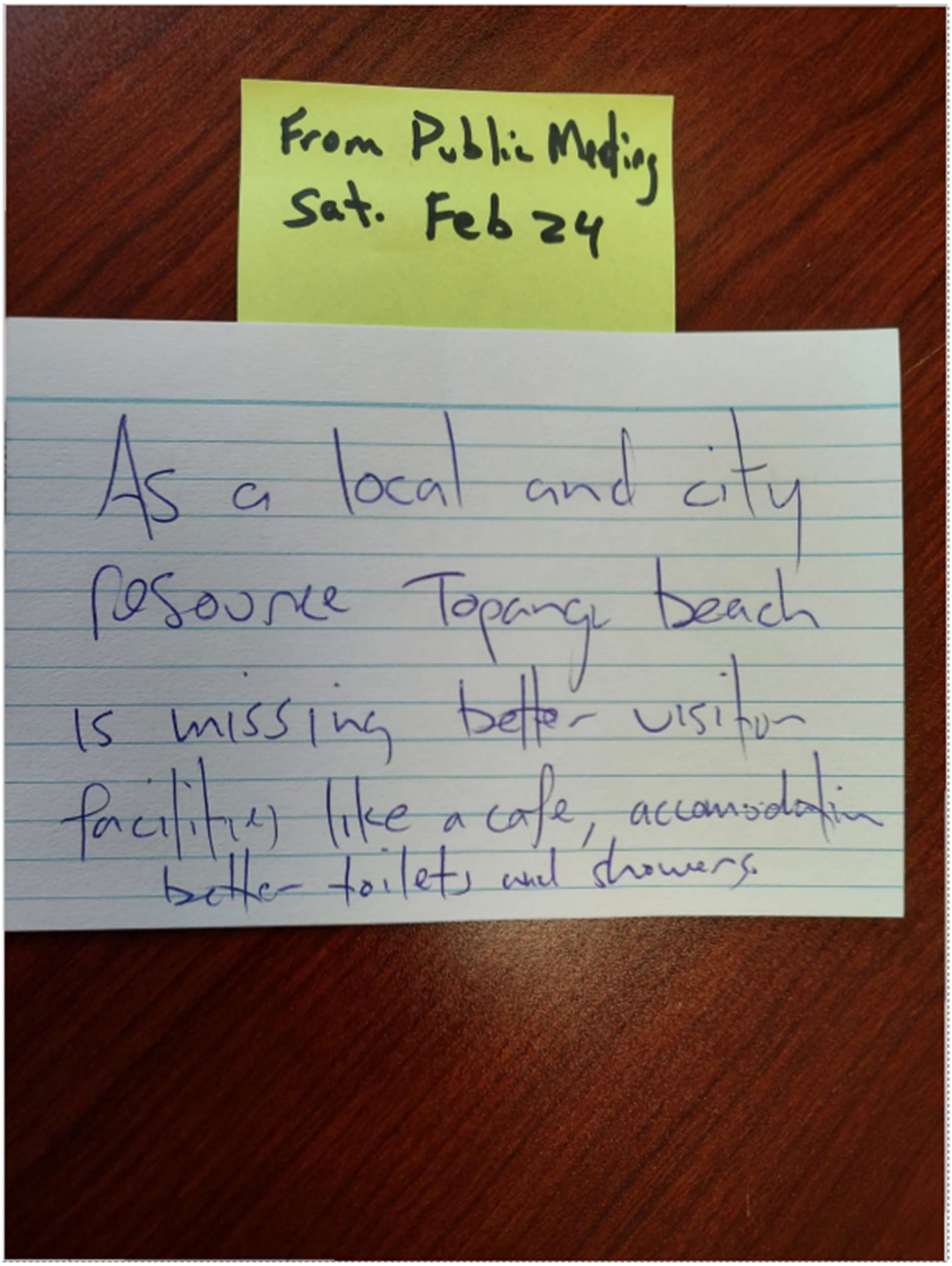
IND 18


From Public Meeting
Sat. Feb 24
P. 3
? Any chance to link project to "The Back Bone Trail"
? What can we do to accellerate the project – Funding? Collaborations? Policy & Political Allies?
501 C3 Contributions e.g. Annenberg 101 Crossing
Measures M & R County Support
Measure W LA Co. Funds
Measure H - Housing LA County
Measure HH - Housing LA City
TAP League of CA Cities (Association) for experiences in other Coastal Areas or Watershed Projects
TAP Natural Resources Conservation Service for EQIP Funds & Help

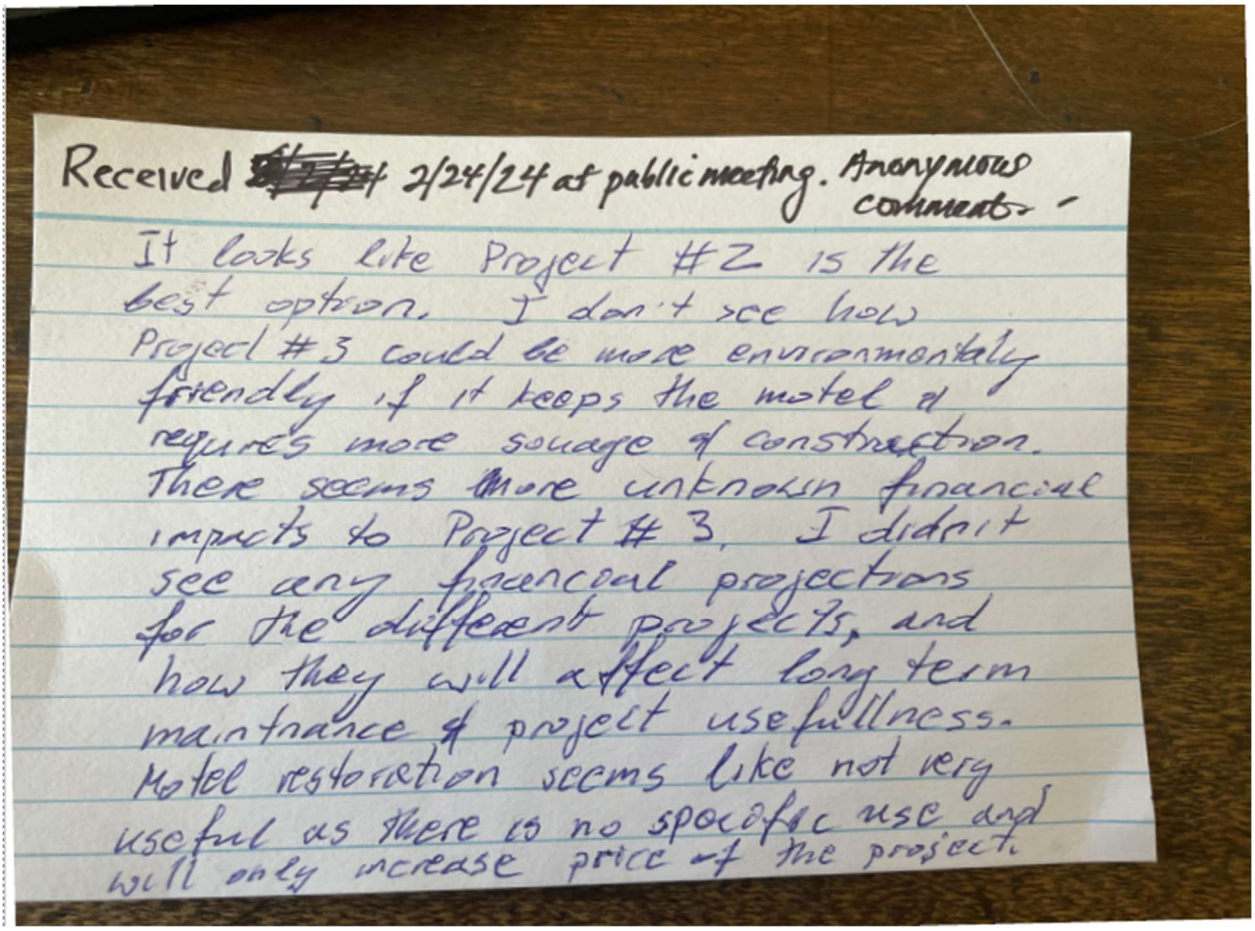
IND 19


From Public Meeting
Sat. Feb 24
How can we maximise
day and night facilities
for locals and visitors?
thanks
Andrew McPhee

IND 20


From Public Meeting
Sat. Feb 24
As a local and city resource Topanga beach is missing better visitor facilities like a cafe, accomodation better toilets and showers.

IND 21



Received [redacted] 2/24/24 at public meeting. Anonymous comments -

It looks like Project #2 is the best option. I don't see how Project #3 could be more environmentally friendly if it keeps the motel & requires more sewage & construction. There seems more unknown financial impacts to Project #3. I didn't see any financial projections for the different projects, and how they will affect long term maintance & project usefullness. Motel restoration seems like not very useful as there is no specific use and will only increase price of the project.

IND 22

From: David Tokofsky <reply-to+d1521773bd71@crm.wix.com>
Sent: Sunday, February 25, 2024 8:06 AM
To: akahler@rcdsmm.org <akahler@rcdsmm.org>
Subject: [Topanga Lagoon Resto] Top Lagoon Inquiry/Comment Form - new submission

David Tokofsky just submitted your form: Top Lagoon Inquiry/Comment Form
on Topanga Lagoon Resto

Message Details:
Name: David Tokofsky
Email: davidtokofsky@gmail.com

Comments/Questions: Does the location fall within LAUnified or both LAUSD and SM Unified

Reply directly or go to your site's Inbox:

If you think this submission is spam, report it as spam.

To edit your email settings, go to your Inbox on desktop.

IND 23

From:	akahler@rcdsmm.org
To:	Chloe Kim; TopangaLagoonRestoration@gmail.com; chas.yen.is@gmail.com
Subject:	Re: Public Comment - Topanga Lagoon Restoration Project ; beach parking
Date:	Tuesday, February 27, 2024 10:36:56 AM
Attachments:	image.png image.png image.png image.png

From: Chloe Kim <chloe.kim.2019@gmail.com>
Sent: Monday, February 26, 2024 9:26 PM
To: TopangaLagoonRestoration@gmail.com <TopangaLagoonRestoration@gmail.com>; chas.yen.is@gmail.com <chas.yen.is@gmail.com>
Subject: Public Comment - Topanga Lagoon Restoration Project ; beach parking

Hi there,

My name is Chloe Kim and I have been surfing at Topanga since 2014 and started being regular at Topanga from 2020 onwards. I am a frequent user of the beach parking lot, even on days when roadside parking is available I prefer to use the paid parking lot. I feel unsafe using the roadside parking due to road side noise, road side accidents, or vehicle vandalism. Safe parking is a necessity for surfers and Topanga has been great at providing it, as much as it provided consistent surfing.

I have read through the EIA report and fully agree to the objectives and proposed project outline. Restoring the lagoon, preparing for coastal erosion, and connecting the beach to the trail is a wonderful idea. I agree that not moving the PCH should be one of the key considerations to minimize traffic disruption and CA budgets.

However, one thing I notice is that the **paid parking at the beach will be reduced to about 60% of current capacity** by doing a quick spatial analysis of the maps provided in the EIA. Including street parking it reduces to about 40% of current capacity. **Reduced beach side parking for us surfers is a major concern** than a non-surfer can imagine; especially when you carry a 9' board and other gears around OR when you are a family and need to take young kids to the beach. Carrying surfboard and beach gear around across PCH is stressful and unsafe.

I think there are **possible modifications to the current plan** we can consider to maximize parking at the beach. Here is my rather simple suggestion that the expert team can take as an additional consideration.

IND 23

1. Make the landscaping area (bush area) along the ramp a new lot area - achieve paid lot capacity to 80% of current, reduce unmanaged bush area.
2. Move the ramp access away from upper parking lot exit. Make ramp access exit only. - achieve road safety and minimized user confusion. achieve lot capacity to 100%.
3. Separate emergency vehicle access path

Below are details for each suggestion;

1. Make landscaping areas from the parking lot to the beach access a lower parking area. <u>Achieve 80% of current paid lot capacity + Increased parking revenue</u>

a.The landscaping area (I call it the bush area) is poorly maintained except near the top of the north stairs where local surfers made a garden. Rest of the bush area collects trash, urine, and rodents. Vegetation often grows out and obstructs views to the beach/ocean. The plan could make clean retainer walls of this bush area and make parking alongside the ramp to the lifeguard tower. It would be able to provide a clean environment, great access for surfers to the beach, and minimize reduction of parking spaces near the beach. With the lagoon restoration the area would have a lot more natural resources than the wall side bush too.



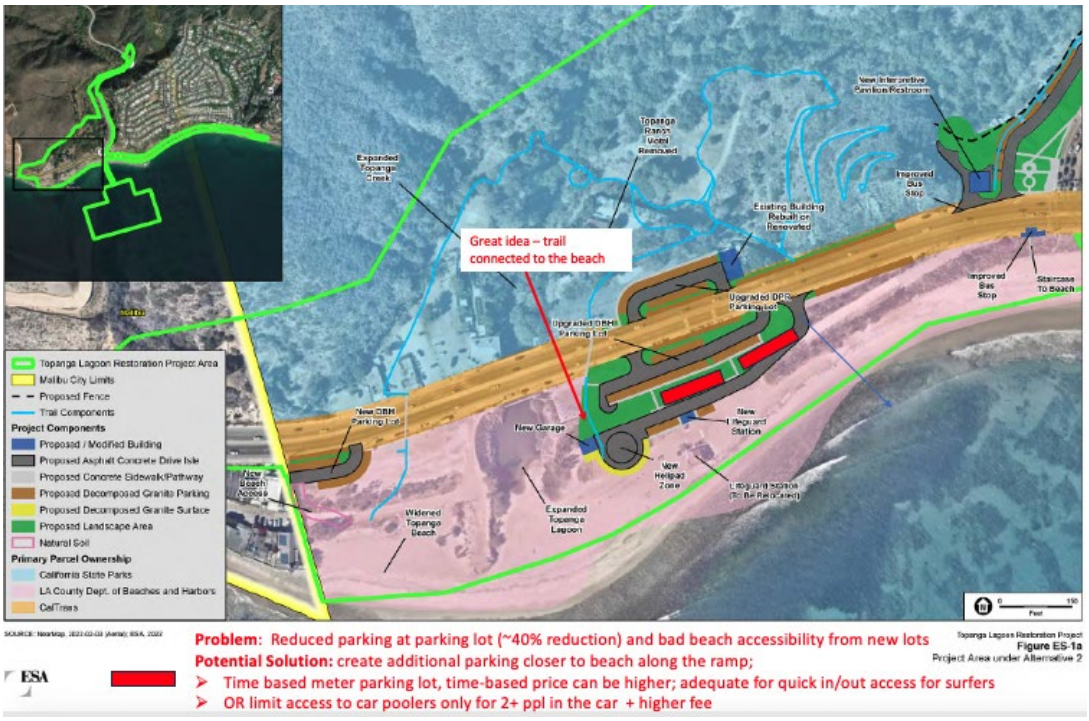
b. Eligibility for this lot can be only for max 3 hr use and pricing of this newly added lot can be higher time based, for example El Porto's $1.5/hour (or was it $2/hr) so it has a quicker turnaround and users with limited time at the beach can leverage the time based parking. For a quick morning surfer or 1 hr surfer like my friend who has a new born baby, this lot would be a perfect use case.

c. We could also make it for "carpool only" so whoever is driving with more than 2 passengers can use the convenient lot.

d. It could simply have a more expensive tariff too, given the accessibility.

Please see the diagram below and added red blocks for the added lot area.

IND 23

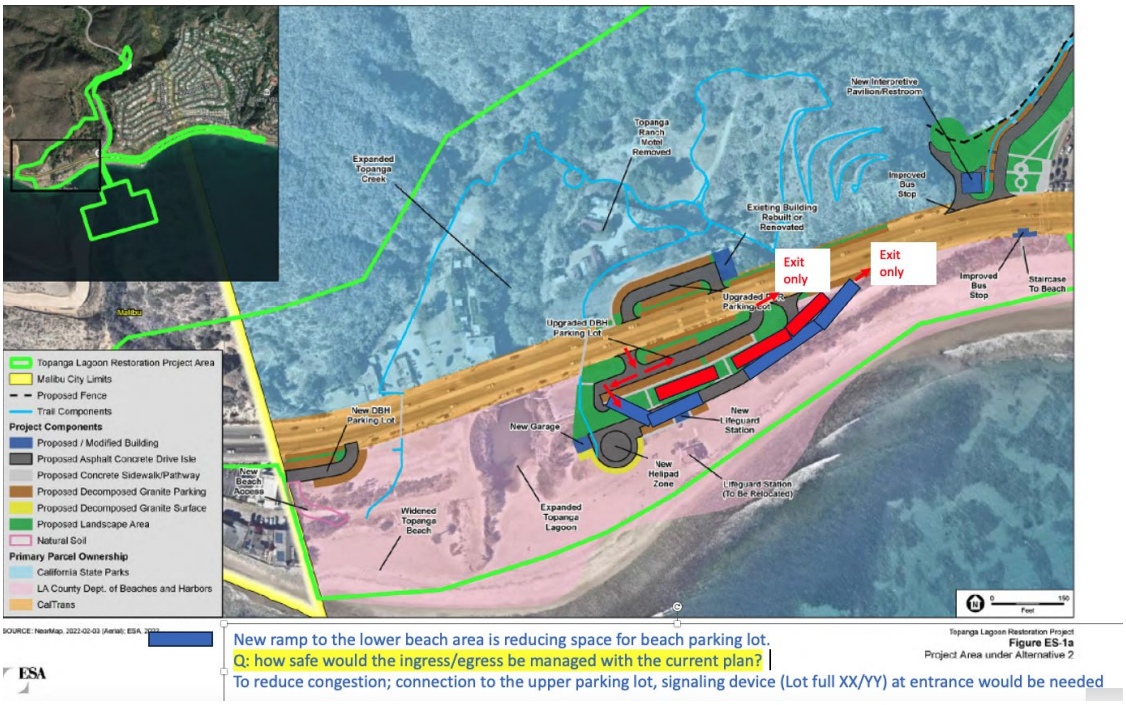


2. **Ingress & egress path to the lower ADA lot is too close to the beach parking egress path, and needs to move farther apart. <u>Achieve ~ 100% of current paid lot capacity + Increased parking revenue</u>**

a. Currently ramp users can use the signal at the TCB and PCH to access the ramp. However, in the plans there is a separate ingress egress too close to the beach parking lot exit without any mention of traffic control. I believe there are experts for this, but the way it is designed currently is likely to create increased potential accidents by multiple way traffic and not a clear traffic management plan.
b. By moving the ramp's ingress egress further apart, more beach side parking can be created. Close to 100 % current beach paid lot capacity.
c. Also ramp having its separate access and difficult ingress egress is likely creating traffic congestion. If the upper and lower lot can be connected through a north ramp it could be the best case of all protecting drivers from making rouge turns and managing minimized congestion.

Please see below diagram and added red block for parking and further out placed ramp in blue.

IND 23



3. **Lastly, separate emergency vehicle access** from parking congestion in any case.

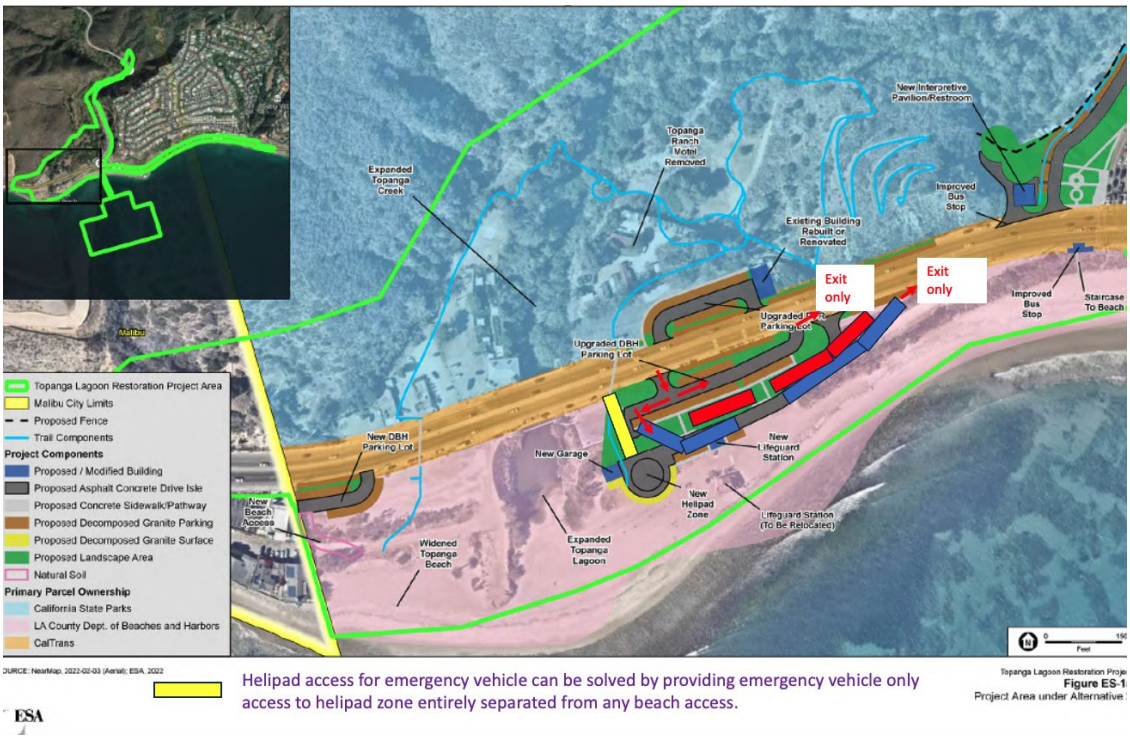
I have seen lifeguards and firefighters clearing the access to the helipad or to the lifeguard tower.

a. Moving the helipad to the beach would need to consider uninterrupted access to the helipad by emergency vehicles.

b. The only way I think it is possible is by providing a separate access path to it that only emergency vehicles can use.

Please see below image. I've added a suggested helipad access route in yellow so emergency vehicles do not deal with traffic at the parking lot.

IND 23



As much as I wish to attend the hearing on Wednesday, I can't due to work travel. Hope this suggestion can be read out and considered with the alternative plans.
Not suggesting a silver bullet but asking for consideration to minimize reduction of beach parking. The beach parking lot has been a valuable resource for peace in mind surfing at Topanga.

Cheers,
Chloe

IND 25

From: Tom <reply-to+79d078282ec4@crm.wix.com>
Sent: Wednesday, February 28, 2024 10:18 AM
To: akahler@rcdsmm.org
Subject: [Topanga Lagoon Resto] Top Lagoon Inquiry/Comment Form - new submission

Tom just submitted your form: Top Lagoon Inquiry/Comment Form
on Topanga Lagoon Resto

Message Details:
Name: Tom
Email: treedphoto@gmail.com
Comments/Questions: In my opinion I think Alternative #2 is the best. This alternative best meets all of the restoration goals and prioritizes the survival "of the rarest fish and wildlife species". We once had 30 acres of pristine and we now have less than one acre. The plan would increase the wetland's and area,. It may not get it to back to the 30 acres, but it will make the wetlands a priority and increase the wetlands area the most.

Reply directly or go to your site's Inbox:

Respond Now

If you think this submission is spam, report it as spam.

To edit your email settings, go to your Inbox on desktop.

IND 26

BRODY 2/20/2024

Please consider a hybrid

Alt 4 - Max Managed Retreat

+

Alt 2 - Max Lagoon habitat

ALSO,

Please consider Allowing concession to continue to operate as an Evening Restaurant.

Also, consider the Sewer OPTION

IND 27

2/28/2024

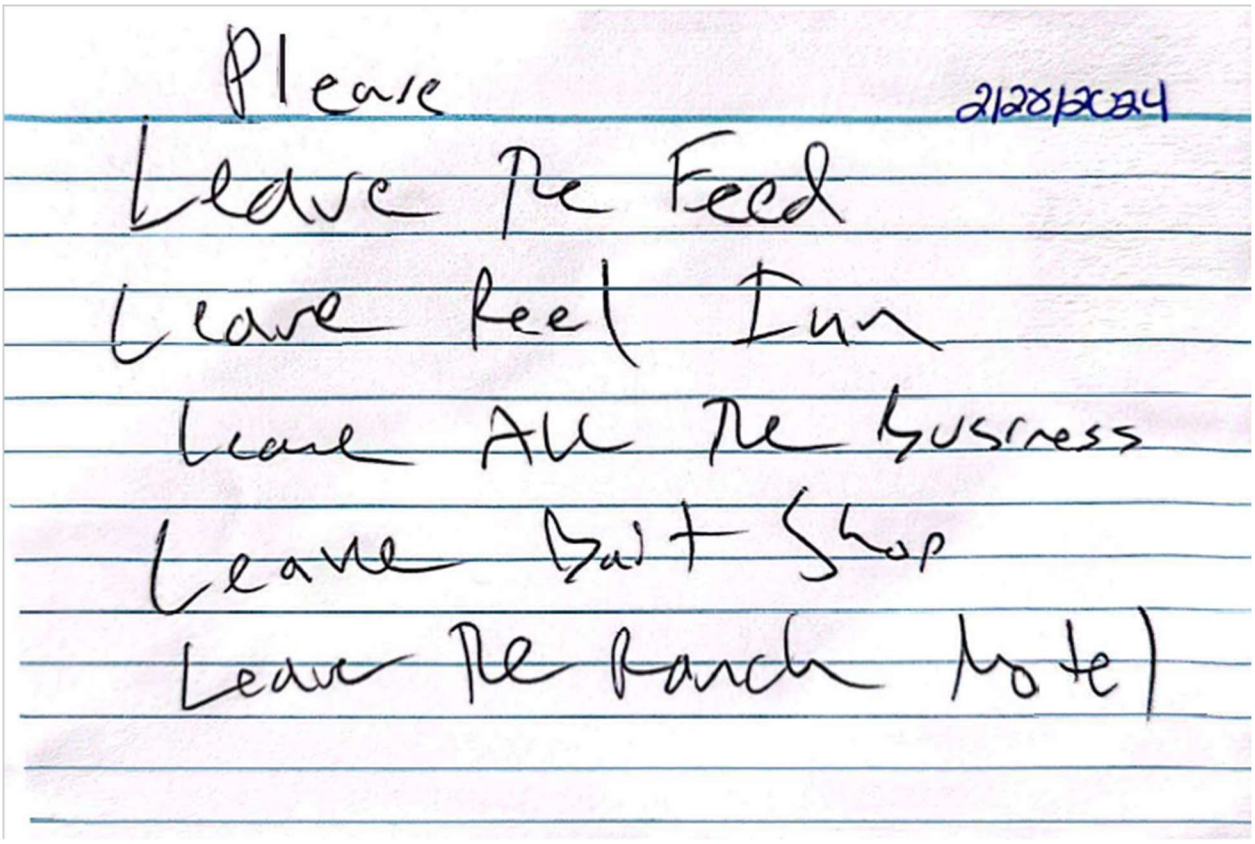
I support opening The Topanga Beach Motel with needed modifications.

I also support camping in the park.

James Erickson
P.O. Box 647
Topanga CA 90290

ABSOLUTLEY Keep
Cholada Thai / Reel INN open

IND 28


Please
2/28/2024
Leave Pe Feed
Leave Reel Inn
Leave All Pe Busness
Leave Bait Shop
Leave Pe Ranch Motel

IND 29

From: michael anapol
To: TopangaLagoonRestoration@gmail.com
Subject: Feb 27 meeting in Topanga
Date: Thursday, February 29, 2024 8:50:32 AM

Comments: First comment of the evening pointed out the fact that Malibu Lagoon which went through a similar process has suffered in the quality in the surf break at all three points 2) You need to keep lifeguard station, bathrooms and parking open as long as posable so as to let the surfers access to enjoy their surf spot and beach 3)How could the major reconstruction of the bridge not interfere with traffic flow on PCH 4)If you plan on widening the beach and making more parking and sand space for more beach goers is their a pan in place for more sanitation workers, bathrooms, trash receptacles which will all be needed 5) How is it possible to control what this excavation sends into our ocean, bacteria, pollutants, pesticides. 6) What happens to animals that presently make this area their home 6) Providing 1 to 1 temporary parking, what does this mean in real world 7) Concession stands. Who decides who stays and what new food comes in. Topangan's are fussy health conscious eaters and would prefer something other than a fast food chain 8). What will happen to the free parking along PCH that is presently used everyday 9). Has any thought been put into putting parking meters in the parking lot to do away with those horrible frequently broken ticket purchasing machines that bare presently there. As you might have noticed from this Topanga meeting our surfers don't really want a years long project that only makes a busy beach more crowded with no guarantees as to the negative effects that most certainly will occur no matter what your report claims. Look back over history at this sort of project and the negative outweighs the positive especially in regards to the locals who use it daily. Thank You M F Anapol

IND 30

From: Chad White <chad@werefreeradicals.com>
Sent: Thursday, February 29, 2024 4:13 PM
To: Topanga Lagoon Restoration Project
Subject: Topanga Lagoon Restoration Project

To Whom It May Concern,
My name is Chad White, Topanga resident and lifelong Topanga surfer 1978-20024 (so far). I am vehemently opposed to this project for myriad reasons listed below, each meritorious enough to put a stop to the insanity of this proposal;

1. Health and Safety
The proposed park flanking PCH and Topanga will be overrun by the unhoused and with no security to mitigate the issue, the park will be unusable and unsafe within one week of opening (human feces, litter, used needles, mental health dangers). Many fires have been started by the unhoused population in Tuna canyon during Santa Ana wind events during cold nights and this is 100% going to happen here.

2. Fire Trap!
Reducing the Traffic to two lanes north and Southbound PCH will have a knock-on effect of impacting southbound Topanga canyon blvd traffic. Even with the roads fully open, rush-hour backups are typically up to the s-curves meaning residents will be unable to escape in the event of a fire or other emergency. Cal Trans can not be claim this won't be an issue when it already is every day. One lane each direction will back up traffic all the way to the 10 freeway and past the maybe pier every single day that the project is ongoing leading to a massive loss in productivity and increased emissions from gridlock traffic along the entire coast.

3. Danger of assault.
Parking on the land side of PCH means that the only safe access (safe from traffic) is under PCH. Close to 50% of surfers that frequent Topanga Beach in the pre-dawn twilight hours are women who will need to decide take the chance of crossing under PCH with the likelihood of encountering the unhoused population (come to the beach and see for yourself) or cross the highway as opposed to now when they can park directly at the access points. (Leave your office and go have a look at the situation first hand and ask yourself if you, your wife, daughter or friend should feel safe in this situatiuon).

4. PCH Becomes more dangerous
As mentioned above, the danger of PCH is real. Those looking for a shortcut will jaywalk and put themselves in harms way, especially the younger teens who are in a hurry to check the surf. Moving the majority of the parking to across the street is a terrible idea because everyone will need to cross the street even just to assess the surf, even if there are underpasses. More traffic means less patience at a time where PCH is already making headlines for being so deadly, dozens killed within a stones throw of this project.

5. Death of a100 years of deep, multicultural community
For over 100 years, Topanga beach has been a critical part of surf culture and there are a minimum of 200 people who surf the wave daily and have done so for a century. I started surfing Topanga when I was 11 years old, I am now 57 (46 years), my son started surfing Topanga when he was 4, he is now 24 (20

years), my wife started surfing at AGE 60 (3 years) and has been so warmly embraced by the surfing community and she feels safe parking in the existing lot for that reason. That's 69 years for my small family alone. ITS NOT ABOUT THE SURFING! It's about the parking lot, the stairs, checking the surf, having conversations, sharing losses and looking out for each other, business connections, mental health–like every other community we need it now more than ever. *Reconfiguring the lot will displace and disperse our community.*

6. Crime

There have been a rash of break-ins and auto thefts recently in broad daylight at Topanga Beach. Check the CHP record if you doubt me. Parking across the street without clear visibility will make the problem exponentially worse. We catch them from Tim to time but without visibility, this type of crime will explode

7. Unintended consequences

This project is not needed, the population that uses Topanga Beach didn't ask for it and it will result an environmental and cultural disaster just like the Malibu Lagoon "RESTORATION" project that when completed resulted in the death of over ten thousand fish whose stinking, rotting corpses were a stark reminder the the interested parties got it wrong. All of the army corps of engineering and heal the bay studies amounted to nothing and there is zero accountability. The flow of the lagoon soon undermined historical landmarks that had been there for 100+ years (Adamson House and the world famous Mailbu Wall) and required the installation of groins and seawalls which caused further erosion and created additional hazards on the beach. The interested parties absolved themselves of any responsibility for the damage done (damage that continues to worsen to this day). That project has been an unmitigated disaster for Malibu and has resulted in the destruction of 2 of 3 perfect surfing points that will never come back with no benefit to the ecosystem, just destruction, dead birds and fish on a grand scale, the main attraction that Malibu scared forever leading to dangerous overcrowding at the one remaining point. A CRIME.

8. Storm water flow

As with the Malibu example, the feasibility and hydrology reports are purely theoretical and academic but even to the causal observer, they are so clearly misguided and illogical as to be laughable–seemingly attempting to defy basic physics and fluid dynamics. To suggest that the project will direct floodwater to the west while also claiming an increase in beach sand is so ridiculous that I hardly believe you're trying to claim it. The ocean currents 100% of the year flow north to south all day, every day (observably west to east if standing on Topanga Point) so all flow will be in the direction of Chart House point (Mastros) and will inundate the entire beach during storm activity. There wiill be NO flow to the west because the ocean current will not allow it and without the narrow channel caused by the bridge, the flow will overtake the entire beach rather than breaching at the top of the point. But you say we'll dig a channel right? See above Malibu. During storms, the ocean currents are even stronger so when there is a breach it will be to the east (south) and it will cross the entire beach at high tide all the way to the Signal at Topanga. A heavy rain event + a tide of five feet or more and a swell over six feet or more will erode the entire beach and undermine your overbuilt infrastructure

8. The surf

The above sand and debris flow will destroy the fragile reef structure that makes the waves at Topanga so unique and RARE. There are only a handful of classic cobblestone point breaks in California and Topanga is a classic. Similar projects ruined Malibu as I mentioned and this will be no different, changing the river mouth changes the wave and the wider the river mouth the words the wave shape will be. Thousands of surfers enjoy this wave every year, the spend money locally, they take care of the beaches and keep the

area relatively crime free. The wave itself benefits the local economy and provides mental health and solace in an increasingly stressful world.

9. More Trash and more Poop

More people means more trash and more need for functioning bathrooms, the current septic is already stressed and the solutions put forth are slapdash at best and I've yet to hear a solution on the other sanitation issues that will arise if there is an increase in demand for the beach/lagoon.

10. Fill Dirt dumping

There is reef out there adjacent to the proposed dumping site. When the fill dirt hits the water it will migrate with the tide, current, swell etc. it will cover natural habitat for Seabass, Halibut, Lobster, Sheapshead etc. You're killing a thriving habitat to *possibly* resotore one and the irony is lost on no one except your team. The other unintended consequence is the surf spot, again the environmental impact reports are academic but I can poke holes in them so easily it makes me wonder if you're even trying to be convincing or do you assume those of us who've observed this beach and it's changes year over year for 4 plus decades are too stupid to understand?

All this so MAYBE some fish can thrive someday on the other side of PCH?

This project can't be allowed to continue. I vote YES ON OPTION ONE (1) **NO CHANGE.**

Everyone involved should be ashamed for even considering this folly, what a disgraceful bunch you all. Shame on you all. SHAME!

Sincerely,

Chad E White

516 Fernwood Pacific Drive, Topanga CA 90290
310-418-1196

IND 31

Residential and Commercial Property Owner's Concerns related to Topanga Lagoon Restoration DEIR

Concerned and Impacted Parties:

1. **Residents and Commercial Property of Adjacent Topanga Beach Drive/Pacific Coast Highway (BLUE Highlight)**
   a. **Michael Bender and Kathy Eldon: 18814 Topanga Beach Drive**
   b. **Ron Kurstin: 18824 Topanga Beach Drive**
   c. **Robert Culbert 18830 Topanga Beach Drive**
   d. **Chester and Christine Griffiths 18834 Topanga Beach Drive**
   e. **Anne Ready: 18842 Topanga Beach Drive**
   f. **Dembo Realty "Board Riders" Commercial Building: 18820 Pacific Coast Highway**
2. **Residents of Las Tunas Beach: 95 Homes**
3. **Agencies governing the Topanga Lagoon Restoration Project (listed but not limited to):**

Issues/Concerns of Adjacent Residential/Commercial Land Owners and Westward Las Tunas Beach Front Residential Owners:

1. **NONE of the Immediate Adjacent Impacted Residents or Commercial Owners (Listed Above) were contacted related to the imminent dangers to their residential/commercial properties.** 31a

   NONE of the impact studies included the residential/commercial properties and the potential damage to the properties with the "Westward Expansion of the Topanga Lagoon" not limited to flooding, foundation damage, change to the already beach erosion leading to ocean wave damage or complete loss of function of the Properties. Nor were any studies performed on the impact on the westward Residential Homes of Las Tunas Beach. 31b

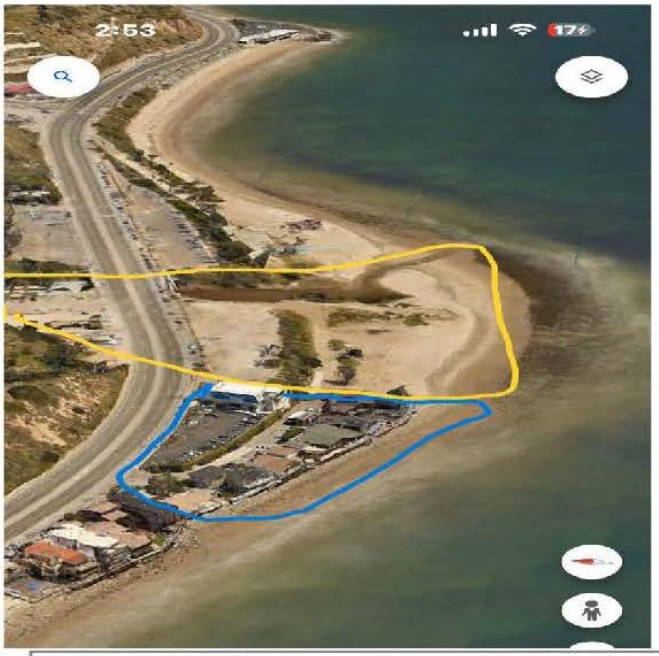
   Furthermore, no studies presented evaluated the impact of displacing 100,000's of Tons of "Dirt" into the Eastward Pacific Ocean off Topanga Beach on the Westward Residential Properties or Beach erosion especially in light of downdraft effect of the potential "land mass" resembling a current impedimentary structure (ie: Natural Groin"). The only presented data evaluated by residents was the impact on the "Surf" and "Wave Break" at the Point. 31c

   a. **The "Lead Agencies" that are engaging in the Topanga Lagoon Restoration Project must formally conduct studies on the impact of the project on the adjacent residential p/commercial properties and furthermore indemnify the property owners with a corresponding Protective Bond for any damage or loss to the homeowners related to the Restoration Project in perpetuity as no one can predict the ultimate future impact of such a project on the residential/commercial properties despite the forecasted analysis.** 31d



IND 31







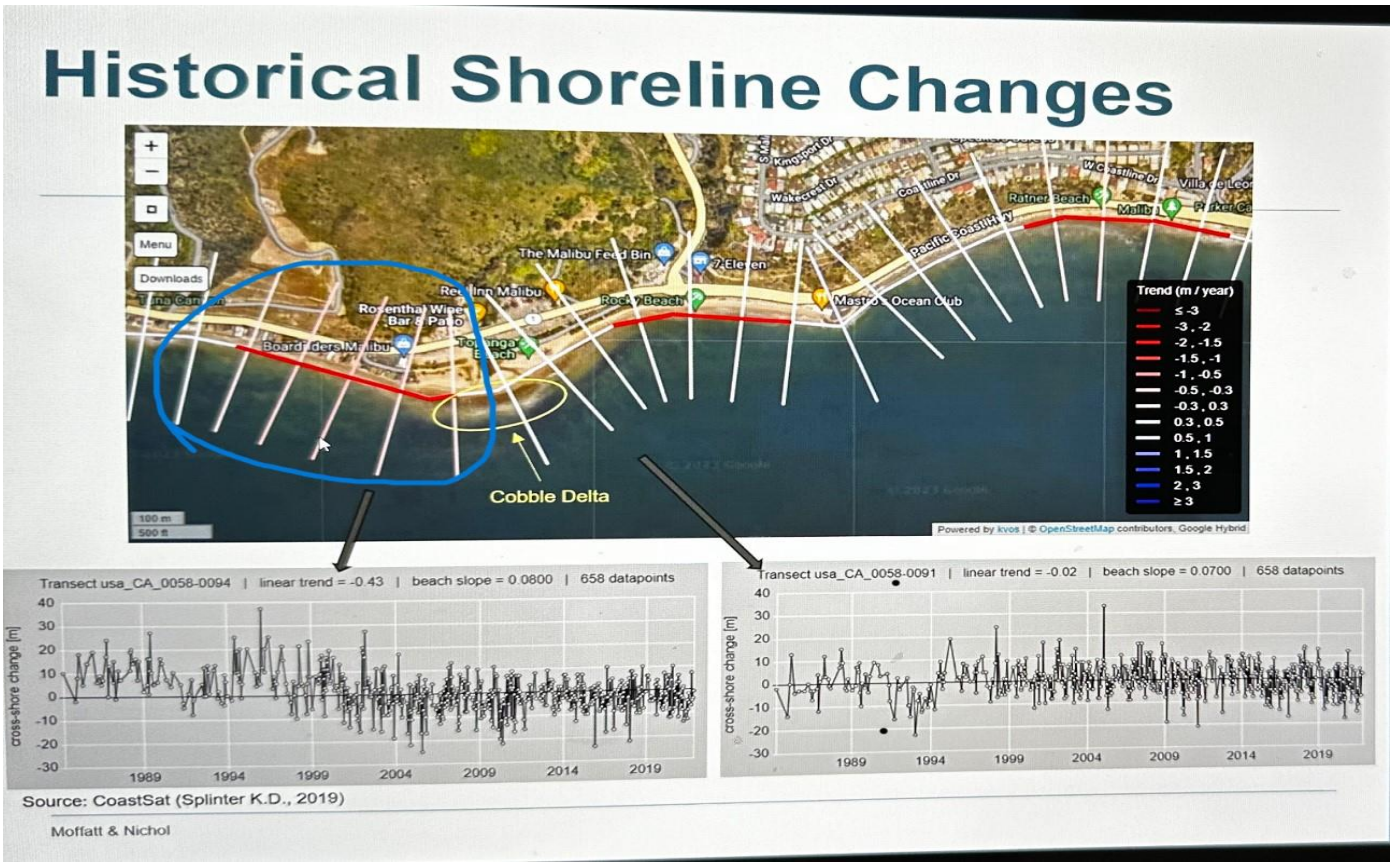


SOURCE: Project Boundary (ESRI, Maxar & Nearmap, 8/2021); Biological Survey Area (BSA, DRM 9/21/2022)

Topanga Lagoon Restoration Project

Figure 3.3-12

b. Caltrans, the Coastal Commission and Interested Agencies must conduct a study to address the "Erosion of the Beach" adjacent to the Lagoon Project as part of the planning as mandated to bea in compliance with ***SB 272 (10-7-2023) Sea Level Rise Planning and Adaptation***. 31e



c. Representatives the City of Malibu to our knowledge has not been engaged in the Topanga Lagoon Restoration Project which is concerning as the LCP of the Coastal Commission grants jurisdiction to the City of Malibu up to the Western boarder of the Project. 31f

2. The Noise, Dirt and Disruption from the construction of PCH-Bridge and excavation of landfill was never addressed to the adjacent. 31g
3. Impact of Beach Bathroom Replacement: Local Wastewater Treatment Facility or hook up with LA City Sewer. 31h
4. Final Decision regarding the disposal 100.000's tons of excavated landfill dirt: Is the Coast Commission going to allow dirt to be placed in the Ocean? Is the presence of large hauling trucks permissible on PCH? 31i

Requests:

1. Formal Meeting with all Homeowners of Topanga Beach Drive
2. Action Plan to investigate impact of the Topanga Lagoon Restoration Project on the Homeowner's Properties.
3. Property Damage Bond in case of future Homeowner Damage due to the Topanga Lagoon Project
4. Engage City of Malibu in the Planning Process
5. Future issues will be addressed as they are encountered.

31j

Thank You.

Residential Owners of Properties on Topanga Beach Drive, Dembo Realty and Residential Owners of Properties on Las Tunas Beach.

IND 32

March 6, 2024

To whom it may concern:

We are residents of Santa Monica and own property in Topanga Canyon. Having attended two of the public meetings for this project and reviewed the DEIR, we would like to offer our full support for Alternative 2. It is rare that we are afforded the opportunity to restore and renew a habitat that we have damaged. We have this possibility with the Topanga Creek and Lagoon. It is an important watershed and we can reverse years of damage and revitalize a coastal wetland habitat supporting species diversity.

In alternatives 3 and 4, the restoration of the Topanga Ranch Motel and preserving several of the businesses in the area are proposed at the cost of the lagoon. Firstly and importantly, where is this "importance" of the Topanga Ranch Motel coming from? It has not been open to the public since 2002, that is more than 20 years! During that time it has been vacant and deteriorating. No one cared enough to maintain it. Restoration of this facility at this site will be very expensive since it is in such a poor state and must comply to today's codes. Add to the restoration expenses, the need to hook it up with a sewer system miles away and it is even more expensive, in time and money. For what? Maybe 20 cabins….open for public lodging? Really? With so few lodgings it becomes exclusive not inclusive, serving only those able to nab a reservation. Office space? How will it be functional for today's office needs when the restoration must comply with preserving historic aspects? Visitor serving….for what? And what couldn't be better served in a newer facility? If this structure is so important that it needs to be saved, it makes more sense to move it in its current configuration to another site where it can be restored and maintained more easily.

The businesses that are nearby have been staples for the community. They have served the community well and it is too bad that they may be victims of this project but they can move. Pacific Coast Highway is lined with businesses and homes. There is no lack of them. There is a lack of natural wetland habitat, habitat that contributes to the health of the mountains, sea, and divergent species, including man.

Only one alternative addresses this fully. The alternative that restores and renews the coastal wetland habitat. Trying to make right what we altered. Please support Alternative 2.

Thank you,

Dr. Sally Reinman
Mr. Marcel Geloen.

IND 33

From: Andy Cracchiolo <reply-to+9388e9688df1@wixforms.com>
Sent: Friday, March 8, 2024 2:10 PM
To: akahler@rcdsmm.org
Subject: [Topanga Lagoon Resto] Top Lagoon Inquiry/Comment Form - new submission

Andy Cracchiolo just submitted your form: Top Lagoon Inquiry/Comment Form on Topanga Lagoon Resto

Message Details:
Name: Andy Cracchiolo
Email: crunchers9@yahoo.com
Comments/Questions: As a regular snorkeler at Topanga I am very concerned about the stresses huge amounts of water flowing out of the creek has had on the marine life. Most people don't know, but just off the sand I see many species there, some year-round. I've made friends with a Garibaldi that I have photos of going back several years. I also frequently see and photograph Calico Seabass, Opaleye, Perch, Octopus, Smelt, Sargo. and even a Giant Seabass. These fish are native to the area, just like the species mentioned in the DEIR but are there RIGHT NOW. We need to clean up the creek water before thinking about expanding the lagoon.

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IND 34

From: M.K. Smith
To: topangalagoonrestoration@gmail.com
Subject: Topanga Ranch Motel Restoration
Date: Saturday, March 9, 2024 9:48:42 AM

Hi there,

My name is Keon Smith, Las Tunas beach resident. I was at the meeting on February 28, 2024 at Topanga town hall.

To restate my opinion I strongly support alternative 3. I feel that it would be in the communities best interest to restore Topanga Ranch Motel, turning each building into a business space. Ideally for local vendors. There could even be a small percentage of each transaction that is charged to go towards the upkeep and full restoration of the park and beach.

Having the motel restored with working facilities along with the art, music, Chumash education center, and food suppliers a space will be provided for those of the Malibu and Topanga communities to gather and enjoy Topanga beach to a greater extent.

I also had the idea of the park being turned into a temporary drive on movie theater, access being the right of Reel Inn along the dirt road. Each vehicle could pay 100 dollars, as it would be a fundraiser, and bring about a greater awareness of the park and its improvements.

I would happy to provide more of my ideas of reaching the younger demographic and community involvement. Again, the Topanga Ranch Motel should be preserved, reserved, and shown as a cultural site and the site should be open for local businesses to take space and exhibit art, music, and food preserving Malibu and Topanga's cultural and historical creative roots.

Please reach out if you need volunteer involvement.

Thank you,

Keon Smith

IND 35

From: Lucinda Mittleman <reply-to+04487197fbca@wixforms.com>
Sent: Wednesday, March 13, 2024 9:20 PM
To: akahler@rcdsmm.org
Subject: [Topanga Lagoon Resto] Top Lagoon Inquiry/Comment Form - new submission

Lucinda Mittleman just submitted your form: Top Lagoon Inquiry/Comment Form on Topanga Lagoon Resto

Message Details:
Name: Lucinda Mittleman
Email: lucindalm@gmail.com
Comments/Questions: I live near Will Rogers State Beach and I am a long time Topanga Canyon Docent. I was able to attend the presentation at the Annenberg Community Beach House. I am very much in favor of the lagoon restoration project and support the Alternative 2 plan to maximize the lagoon. I consider myself a preservationist when it comes to preserving important architectural and cultural landmarks. In this case, though, the importance of restoring one of the last coastal wetlands in California outweighs the importance of some buildings that were inappropriately placed in the fragile landscape, served the public a relatively short period of time, and are mostly of sentimental value. If necessary, keep one structure and make use of it as a visitor center with displays of the natural and cultural history of the lagoon area. In the end, I would think the renovation and upkeep of these structures would be costly to an under budgeted State Parks. If the goal of this project is to restore the lagoon, then do it in a way that will have the most positive impact on the lagoon ecosystem. What a wonderful enhancement to our coast it will be to have the restored lagoon, and what a nice addition to Topanga State Park.

Reply directly or go to your site's Inbox:

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IND 36

From: Angela de Mott <reply-to+cd4160f9fed8@wixforms.com>
Sent: Friday, March 15, 2024 4:34 PM
To: akahler@rcdsmm.org
Subject: [Topanga Lagoon Resto] Top Lagoon Inquiry/Comment Form - new submission

Angela de Mott just submitted your form: Top Lagoon Inquiry/Comment Form
on Topanga Lagoon Resto

Message Details:
Name: Angela de Mott
Email: angelademott@verizon.net
Comments/Questions: Please use all your efforts to restore the lagoon with Alternative Plan 2. It's the nature that's most important, NOT the buildings! Thank you, Angela de Mott

Reply directly or go to your site's Inbox:

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IND 37

Comments on Topanga DEIR

Karen Martin PhD, Distinguished Professor Emeritus
Pepperdine University
March 15, 2024

Thank you for the opportunity to comment on the Topanga Restoration DEIR. This is an impressive amount of work with excellent detail and clear explanations. It is exciting to see this project take shape.

I provide some corrections for the biology and mitigation of impacts to California Grunion *Leuresthes tenuis* and some relevant recent publications (see below). This iconic endemic native fish spawns onshore during semilunar high tides, leaving its eggs out of water throughout incubation, buried under a few inches of warm beach sand. Topanga Beach is host to large, frequent grunion runs.

1) ES-47, MAR-2, #3: the Walker Scale estimates the total density of grunion rather than counting them (Martin et al. 2021, cited in DEIR).
2) Last line on 3.11-20, The grunion is now classified as a member of the New World Silversides family, Atherinopsidae, along with jacksmelt and topsmelt (Dyer and Chernoff 1996).
3) On 3.11-21, grunion have now extended their range northward and regularly spawn in San Francisco Bay and Tomales Bay (Roberts et al. 2007, Martin et al. 2013).
4) 3.11-21, more recent citations for grunion hatching (Griem and Martin 2000); for extended incubation (Moravek and Martin 2011).
5) Section 3.11-21, last para., August is likely the latest date for spawning, not September. Grunion have a unique recreational fishery with bare hands only, and are protected from hunting by a closed season from April through June, with no take permitted. Gear restrictions and a bag limit during the open season, along with fishing license requirements, also help to protect this resource. Beach grooming effects on grunion (Martin et al. 2006) and effects of beach nourishment on grunion (Martin and Adams 2020) include deep burial of eggs preventing release of hatchlings, and disturbance of sand leading to surface exposure and desiccation of eggs.
6) Section 3.11-27, first para., the spawning zone between the MHT and the Highest High Tide lines of the sandy beach meets the definition of Essential Fish Habitat for reproduction of grunion, according to the Magnuson-Stevens Act.
7) section 3-11.30, The mitigation measure MAR-2, 3rd para., mis-characterizes the limit of the spawning zone as the Mean High Tide when it is actually the Highest High Tide from any semilunar syzygy tide during the spawning season. The egg zone is located between the MHT and the Highest High Tide lines, keeping the eggs out of water throughout incubation, buried under a few inches of warm beach sand. Below the MHT is not suitable for grunion spawning.
8) Mar-2, 3.11-32, #3, the Walker Scale estimates the total density of grunion rather than counting them (Martin et al. 2021). #5, ii., the grunion season ends in August in this location, not September.
9) Figure 3.3-4, the fish habitat map, the grunion spawning / egg incubation zone in the upper intertidal sand could be added to this map. The area moves with the tides and with coastal erosion, so the zone is somewhat labile in location.

Comments on Appendices:

10) Appendix K, Mitigation Measure 16, p. 121 (p. 885 of Appendices pdf) is very good. On p. 122 (p. 886 of Appendices), the time for protection of the grunion egg zone is March through August at this location, not September.

11) Appendix N of Appendix K, p. 78 (p. 1668 in Appendices pdf), Topanga Beach is used for spawning by grunion every year consistently throughout the season. Ratner Beach is used when sand conditions permit. Both are important grunion spawning beaches. The grunion is a member of the New World Silversides family, Atherinopsidae, along with jacksmelt and topsmelt.
12) Appendix N of Appendix K, p. 79 (p. 1669 in Appendices pdf), grunion have now extended their range northward and regularly spawn in San Francisco Bay and Tomales Bay (Martin et al. 2013). Beach grooming effects on grunion (Martin et al. 2006) and effects of beach nourishment on grunion (Martin and Adams 2020) include deep burial of eggs preventing release of hatchlings, and disturbance of sand leading to surface exposure and desiccation of eggs.
13) Appendix K p. 85 (p. 1675 and 1677 in Appendices pdf), Fig. 64 and 66, moving the dredged materials: The mitigation measures state that trucks will stay several meters above the highest high tide line while driving on the beach to avoid grunion eggs. In my experience that will be very difficult for the trucks coming across the bar of the lagoon mouth, as that area in spring is usually quite narrow and covered with water at highest tides.

    In addition, most summers, the cobble at the rocky point on the lifeguard building is usually fully exposed and erosive, meaning that at high tide, no sand is exposed in that area and there would be no path for a truck. If that building is demolished before this process, or if the truck were to divert its path landward above the building, that would solve the problem of navigation over that area above the highest tideline.
14) Appendix N, p. 118 (p. 1708 in Appendices), Table in Appendix 4 of states that there is "moderate potential" for grunion runs at Topanga Beach but "level of use is unknown from year to year." This is incorrect; Topanga Beach is one of the ten most important beaches for grunion spawning in their entire habitat range and they appear consistently throughout the season every year (Martin et al. 2020).
15) Appendix P of Appendix N, p. 2 (p. 1730 in Appendices pdf), a source for grunion presence at Topanga Beach is Martin et al. (2020).
16) Appendix R, p. 2 (p. 1751 in Appendices pdf), California Grunion, last column: Present in the ocean and lagoon, adults observed annually throughout the season spawning on beaches. Eggs incubate out of water in the upper intertidal zone of the sand, between one semilunar high tide and the next, from March to August. Larvae may use the lagoon as a nursery area.

Literature cited that is not already cited in the DEIR

1. Dyer B. S. and B. Chernoff. 1996. Phylogenetic relationships among atheriniform fishes (Teleostei: Atherinimorpha). Zoological Journal Linnean Society 117: 1-69.
2. Griem J. N. and K. L. M. Martin. 2000. Wave action: The environmental trigger for hatching in the California grunion, *Leuresthes tenuis* (Teleostei: Atherinopsidae). *Marine Biology* 137: 177-181.
3. Martin K. L. M. and L. C. Adams. 2020. *Case Study*: Effects of repeated sand replenishment projects on runs of a beach-spawning fish, the California Grunion. *Journal of Marine Science and Engineering 8, 178* DOI:10.3390/jmse8030178.
4. Martin K. L. M., K. A. Hieb and D. A. Roberts. 2013. A southern California icon surfs north: local ecotype of California Grunion *Leuresthes tenuis* (Atherinopsidae) revealed by multiple approaches during temporary habitat expansion into San Francisco Bay. *Copeia* 2013: 729-739.
5. Martin K. L. M., E. A. Pierce, V. V. Quach and M. Studer. 2020. Population trends of beach-spawning California Grunion *Leuresthes tenuis* monitored by Citizen Scientists**.** *ICES Journal of Marine Science* 77(6): 2226-2233.
6. Martin K. L. M., M. Schaadt and S. Lawrenz-Miller. 2021. The Walker Scale: Details of a method for assessing beach-spawning runs of California Grunion *Leuresthes tenuis* (Atheriniformes: Atherinopsidae). *Ichthyology and Herpetology* 109, 4. doi.org/10.1643/i2021018

7. Moravek C. L. and K. L. Martin. 2011. Life goes on: Delayed hatching, extended incubation, and heterokairy in development of embryonic California Grunion, *Leuresthes tenuis*. *Copeia* 2011(2): 308-314.
8. Roberts D., R. N. Lea and K. L. M. Martin. 2007. First record of the occurrence of the California Grunion, *Leuresthes tenuis*, in Tomales Bay, California; a northern extension of the species. *California Fish & Game* 93: 107-110.
9. Martin K., T. Speer-Blank, R. Pommerening, J. Flannery and K. Carpenter. 2006. Does beach grooming harm grunion eggs? *Shore & Beach* 74: 17-22.

IND 38

From: Stacy Sledge-Baldino <reply-to+54dc9cf4bb16@wixforms.com>
Sent: Wednesday, March 27, 2024 11:43 AM
To: akahler@rcdsmm.org
Subject: [Topanga Lagoon Resto] Top Lagoon Inquiry/Comment Form - new submission

Stacy Sledge-Baldino just submitted your form: Top Lagoon Inquiry/Comment Form
on Topanga Lagoon Resto

Message Details:
Name: Stacy Sledge-Baldino
Email: SSLEDGE@VERIZON.NET
Comments/Questions: I have participated in the Topanga Lagoon public workshop and recent forum and can say that I fully support having this project's main focus be to restore the lagoon to its fullest. With that said, I realize the importance of having a local restuarant operate near the location, but this may not be possible. I DO NOT support keeping the entire Ranch Motel as an over-night operation, but rather support preserving one building, if possible, to act as visitor or informational space. I STRONGLY OPPOSE ANY OVER-NIGHT ACTIVITIES AT THIS LOCATION. Topanga and Malibu are high-fire severity zones, and with TCB South to PCH being the main evacuation route for Topanga, camping with any open flames should be outlawed and off-limits. If there is any camping, it should be highly supervised on a 24/7 basis with an ONSITE RANGER. I appreciate all the work done to make this project a reality.

Reply directly or go to your site's Inbox:

Respond Now

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Topanga Beach Motel

Topanga Beach Motel must be an integral part of the Lagoon Conservation vision. It has a unique history to serve locals and visitors alike. We want to follow in its historic footsteps and serve the community with a considered approach.

A successful place not only has great design but a truly personal touch. We would love to create a Topanga Motel that would host the local community and nature lovers from further afield alike. A cultural and environmentally aware business.

Community

We want to start serving the community. Connecting with local beachgoers, surfers, and hikers, as well as nature enthusiasts from all over alike. The Motel and cafe operate as one where locals and visitors get introduced to the Lagoon conservation efforts as well as can meet one another at the cafe's large communal tables that serve as a simple gathering spot.
Offering the locals surfboard storage and healthy post-swim beverages will make this a space the local community will truly embrace.



The Cafe

Thousands of Topanga beachgoers and surfers would be the core audience alongside the Topanga natives and PCH commuters, to create a sustainable business, who would stop in for a coffee and a simple meal. Set in beautiful nature and a garden curated with native plants.

Offering the locals surfboard storage and healthy post-swim beverages will make this a space the local community will truly embrace. As well as where they can learn about the Lagoon.

The Motel

These same thousands of visitors and Angelitos who do weekend trips to Ojai or Santa Barbara would stay for a night at the Topanga Beach Motel, as it offers a unique experience.

The motel would offer affordable bunk beds in a bunk house for surfers, and a surfboard shed where surfers can leave their boards overnight; to cater to the surf community and hikers on a tighter budget. To make it a financially viable business, the rest of the houses are a mix of mid-price to up-scale price points. The Motel design would feel welcoming for all price point accommodations alike, using natural materials for the interior and connected to its surroundings, whilst keeping the original exterior.



Culture + Conservancy

The cafe has a conscious point of view and a considered approach to the products we sell and serve. As well as the people who would work with us, and the way we live our lives. Caring for the earth.

We want one of the units to be used as a store and gathering space. This would be used to help ***create a culture around conservancy***, a space in which we can host projects around conservation, the store would sell considered products that follow the narrative of local culture and conservation.

And we would invite all local conservation workers to use the Cafe as a gathering spot. Seating everyone AROUND ONE TABLE.



We cannot wait to talk with you!

IND 40

From: Jessica Thompson
To: TopangaLagoonRestoration@gmail.com
Subject: Public comment on Topanga Lagoon Restoration
Date: Thursday, March 28, 2024 9:33:44 AM

Regarding the Topanga Lagoon Restoration project:

As a lifelong residents of Pacific Palisades and now Topanga Canyon this project both pleases and concerns us.

We absolutely support conservation efforts to restore the lagoon and wetlands for animal and plant habitat and to protect against sea water rise. We hope these efforts move forward.

We are however greatly concerned by any effort to commercialize the area with new development that will congest and bring more cars and people. There are very few natural and peaceful locations left in Los Angeles. If it is the projects intent to bring a Malibu like development to the foot of our canyon we will fight it with every tool we have. We don't want anything that resembles Malibu or Santa Monica.

Developers should stay away. They have ruined many once lovely parts of the City. Topanga has a long history of protecting our Canyon from development projects that will ruin the historic community here.

Furthermore we want to protect the businesses that are currently part of the fabric of lower Topanga. This includes the Malibu Feedbin, Cholada, and the Reel Inn.

If the intent is to truly improve the wetland, then wonderful! If there is a behind the scenes effort to simultaneously redevelop for tourism, and commerce then we are completely against it.

I am quite sure the bulk of the Topanga community will have the same general opinion.

What reassurances will we have that the intent is as stated, and is not driven by commercial interests? We would like to know.

Sincerely
Jessica Thompson and Family
Topanga Canyon CA

IND 41

Fw: questions on lagoon restoration

From: Brad Folb <Brad@hollywoodoffices.com>
Sent: Thursday, March 28, 2024 10:22 AM
To: TopangaLagoonRestoration@gmail.com <TopangaLagoonRestoration@gmail.com>
Subject: questions on lagoon restoration

How will this project affect the beaches to the north of this project? How will it affect the homes to the north of this project? Will there be additional erosion? Will sand levels be affected? There are some existing groins in the ground. Will these be removed or modified as a result of this project? What effect will this project have on the groins in the beach to the north some of which have been removed and some of which have not? Will there be potential increase chance of liquefaction on the beaches to the north as a result of dredging and expanding the lagoon? Potential subsistence? Could it affect the foundations of the homes? Will this bring a greater number of visitors to the beaches to the north of the project that presently have light visitation? If there is heavier visitation, what would be the environmental impact of such? How will human waste and homeless populations be impacted at the project and adjacent areas? There is a significant homeless population in the area and this project will surely affect them. Will there be an increase in the threat of wildfire in the area as a result of the project? What effect will this have on local plantlife and wildlife including protected marine life during and after the project?

If any of the answers to the above is that there will be no significant impact, what is the specific basis of this finding other than speculation? If there are impacts on the issues above which are not addressed in the draft EIR, then what steps are being taken to mitigate them?

This looks like a wonderful project with many great benefits. Please study the effects on the adjacent environments which are ignored completely in the draft EIR and absolutely will have a significant effect on the local environment and implement reasonable measures to mitigate those effects. By incorporating thought and planning into the neighboring environments as well, it will be an even better project.

IND 42

From: Florence Nishida <reply-to+a1d039a8ce8c@wixforms.com>
Sent: Sunday, March 31, 2024 4:44 PM
To: akahler@rcdsmm.org
Subject: [Topanga Lagoon Resto] Top Lagoon Inquiry/Comment Form - new submission

Florence Nishida just submitted your form: Top Lagoon Inquiry/Comment Form on Topanga Lagoon Resto

Message Details:
Name: Florence Nishida
Email: florence.nishida@gmail.com
Comments/Questions: I would like to see a maximum amount of the Topanga lagoon area rebult and restored to a more natural lagoon. Preserve some less than 50% portion of the old Topang motel buildings for use of Park office, mgmt, or meeting space. Expand as much as possible the outlet of Topang Cyn creek to the ocean, and rebuild the PCH bridge to accommodate that. A small walking trail along the lagoon natural areas would be very good. Build parking space either farther north along PCH or slightly farther inward from PCH, to avoid filling up much of the space for the lagoon with asphalt and cars.Build the lagoon as "natural" in function and appearance as possible. Florence Nishida good luck getting started ! It's been well over 20 yrs since the first talk of this, and since people were moved off.

Reply directly or go to your site's Inbox:

Respond Now

If you think this submission is spam, report it as spam.

To edit your email settings, go to your Inbox on desktop.

IND 43

From: gilbert dembo <gilbertdembo@gmail.com>
Sent: Sunday, March 31, 2024 1:10 PM
To: TopangaLagoonRestoration@gmail.com
Subject: Topanga beach park

Dear Topanga restoration planing committee

This park and beach was for the use of all of the people of the los angeles area. When the land was purched from the LosAngeles athletic club, the state said that it would be a visitor serving regional park. The lagoon and wet land should come 2nd . Look at the facts.

For over a hundred years the existing bridge worked. Work the expanion of the beach park and lagoon around the old bridge,. Spend more money on the beach and park resortation for the visitors, not the fish. You will cut the cost of the restoration by 50% without the new

bridge and be finished in a shorter time with less disruption. Also, the exporting of dirt should, if being dumped in the ocean in a location with a depth of 300 feet or more, not off shore to save money. the Topanga Brake must be preseverd . Gilbert Dembo

IND 44

From: Tam Taylor <tamtay45@icloud.com>
Sent: Monday, April 1, 2024 2:04 PM
To: TopangaLagoonRestoration@gmail.com
Subject: Alternative 2 endorsement

To all who have brought these plans to us:

I would like to enter my comments on the proposed alternatives for the Topanga Lagoon.

I enthusiastically endorse Alternative 2 as it provides for the fullest level of restoration of the lagoon. Our natural resources are finite, and we should take every opportunity to give nature its due. The land/sea/creek/vegetation in Topanga are a benefit to us; we should repay it by protecting, preserving and expanding the valuable asset that it represents to the health and well being of plants, animals—and people.

I have attended many of the meetings as these plans have been developed, and I want to commend all the participants—agencies, consultants, residents and businesses—who have worked so tirelessly to give residents of Topanga an opportunity to make our voices heard. There are a lot of trade-offs in this enormous project, and would they we could do it all. But we are forced to make choices, and mine is to give as much primacy to the expansion of the lagoon—and its related attributes—as possible. And it is now necessary to make these choices as the elements are forcing these changes upon us. We can't do nothing, so let's do the thing that gives the lagoon its rightful place.

What makes Topanga unique, and why we live here, is its natural environment, which has been expanded and preserved with great effort and commitment by residents, businesses and public agencies. Those benefits that residents enjoy will also be greatly enhanced for visitors to Topanga, making the state park and even greater contributor to the well being of us all. I feel strongly that our responsibility is to extend that legacy, providing generations to come as much of the wonder, beauty and solace that comes from our hills.

Thank you for your service,

Tam Taylor
20685 Hillside Dr
Topanga, CA 90290

IND 45

From: Candace De Puy <foxwoodc@aol.com>
Sent: Tuesday, April 2, 2024 11:52 PM
To: TopangaLagoonRestoration@gmail.com
Subject: Restoration options

Please note I agree with option two.
Thank you.
Sent from my iPhone
Dr. Candace De Puy
818-789-3428

IND 46

From: William Alford <williamalva@mac.com>
Sent: Wednesday, April 3, 2024 4:22 PM
To: TopangaLagoonRestoration@gmail.com
Subject: Please Keep the Reel Inn

As a Topanga resident that enjoys our local eateries- I ask that the Reel Inn be kept as is and we can still dine at our familiar restaurant.

We don't need another fancy place, a chain place, a celebrity chef place or a cafeteria. We need our place that looks like Topanga and holds our memories.

We need to keep OUR heritage in tact and recognizable just as those past heritages you are striving to salute in your plans.

The Reel Inn is our gathering place, our place of our discussions, our shared ideas and our food.

Don't let it become a "Fond Memory".

We love the lagoon and your plan. Just please preserve our place in history. We are a historic people too.

IND 47

Scott Dittrich
PO Box 301
Malibu, Ca 90265
310 456-6504

I love our parks and ride my mountain bike in the Santa Monica Mountains at least once a week, alternating between parkland and MRCA. Having lived in the Rodeo Grounds for 28 years and next to the Feed Bin for two years before that, I have some familiarity with this land. I fought the takeover of the land by State Parks because that takeover was built on the lie that the land would provide a bridge between Topanga State Beach and Topanga State Park and that there was not a clear path forward to provide recreational opportunities for the public. (We quickly discovered that State Parks was attempting to circumvent our State's Relocation Act by a subterfuge using a private entity to officially purchase the land from the L.A. Athlete Club. They had owned but leased it to residents since the late twenties when they discovered that the cost of building their planned boat harbor was too high. In 2001, the residents formed an association, of which I was Co-President, and we hired attorneys Frank Angel and Craig Dummit to force State Parks to follow State Relocation Law. We attended many meetings at the time and soon realized that State Parks was not interested in public opinion but was only going through legally required motions. I hope that is not the case now, since I believe that this project as now conceived fails on many levels.

The land that the motel sits on is fill dirt, placed there when PCH was built. It was discovered that dumping the dirt removed when the bluffs were bulldozed was 1/3 the cost of dumping the excess dirt in the ocean. Now it is proposed to dump that same dirt in the ocean. Has anyone analyzed this dirt to learn the environmental impact of dumping? Those familiar with the land know it was a never pristine and a dumping ground for things such as old cars and other toxic trash.

There are a number of alternatives in the proposal. Before proceeding further, I'd suggest State Parks refine these to one proposal so that the public can correctly evaluate the actual proposed project. I suggest every considers some of the proposals:

The Motel.
During the various meetings surrounding the proposed purchase by State Parks in 2001, we saw that a variety of NGO's were salivating at the potential opportunity to take over the motel cabins. Even then, it was extremely run down and now is in such terrible shape as to make restoration unfeasible. Yet, on a larger scale, one must ask what purpose would rebuilding the cabins accomplish? Somehow the idea of showing these structures to be classic motor courts of the 30s would better be served with a fantastic on-line presentation, which is how people now get information today. And though it is not a pleasant memory, you might want to include the late 60s association with Charlie Manson, drugs, and ritual beheadings of chickens hung from Topanga Bridge into the mix, and, of course, the Topanga surfing culture that thee low-cost housing offered from the 60s to the 90s.

Visitors Center.

The idea of a visitors' center bringing what some have called Disneyland at the beach is another idea whose time has long passed. (*They cut all the trees and put them in a tree museum*). Again the information would be much better presented on-line. It is also counter to what makes Topanga and Malibu such a desirable location for visitors. Have you studied what L.A. County residents really want? I don't mean the activists who respond to EIRs, but visitors. Have you polled those who come to Topanga and Malibu currently. Not to do so will give you a very skewed picture. You will find that they much prefer the funky old Feed Bin, the Oasis, and the Bait Shop to some concrete and glass building with some officials name on it. In keeping the existing rural themed structures, you would in truth preserve a lost era of Malibu that has disappeared elsewhere on the coast - much better than anything that is being proposed. And we already have Malibu Creek State Park. I'd suggest you get the restorations there right before embarking on Topanga.

Topanga Beach,
Widening Topanga Beach is a total waste of funds. Topanga is a rock beach and not friendly for swimming. Try walking into the water even when the surf is minimal. You'll be walking on rocks and twisting your ankle and perhaps stepping on sea urchins. The rocks are why it was too expensive to build a boat harbor in the twenties and why it is a good surfing break. It is not Zuma or Santa Monica with expanses of sand.

The Bridge.
We already have a perfectly adequate bridge and the state is broke. As to the construction of the almost 6 times longer bridge, this is an environmental disaster. Trucking all the material needed for construction would add to an already burdened Coast Highway. And because of existing rock slides on PCH below Big Rock and the one at Paseo Miramar, plus Malibu Canyon being periodically closed, traffic is now terrible. This is having a negative impact on Malibu residents and businesses. as well as visitors. Construction of the so-called Lagoon restoration will be a traffic nightmare for years. Noticed how many houses and apartments in Malibu are now for rent - partly because of the extended commute all these road closures have caused. Have you considered the negative impact all this construction will have on businesses along the Coast Highway - or where surfers will park? The proposal promises to keep four lanes open. Unless of course there is an unforeseen issue which, as we know, never happens in construction projects.

The Lagoon.
While reintroducing Steel Head Trout is a noble idea, spending untold hundreds of millions of dollars (your estimates are off by a factor of four according to non-biased experts) for an untested project that will ruin an existing eco-system is foolish. Where in Southern California has the model been tested? And if anyone claims that the lagoon area is pristine, how can that be when people have lived there – and upstream thousands still do – and the homeless have always lived in the creek bed. There are cars buried in the creek and I have footage of a dumpster sailing along during a flood.

Recreation
If State Parks wants to serve La County residents and others, please provide low-cost accommodations with a campground in the Rodeo Grounds and Topanga Lane. This should be simple with just tent sites with a charcoal pit. And unlike other proposed campgrounds in Malibu, fire is not much of a danger because the area is very wet and even during a Santa Ana wind event, there are no houses downwind. It could require a foot bridge over Topanga Creek for access when water is in the creek. Such a campground can be built quickly and at a reasonable cost and provide

the recreational resources that is the very purpose of the best of our state park system. And it can be done while rethinking the entire project to focus on what is really needed.

All this means the proper solution is not the proposed huge intrusive construction that will forever change the character of the area from rural to urban. We must fight to preserve the reason people enjoy coming to Malibu and Topanga. So I ask that this entire proposal be reconsidered and the litany of negatives that such a grandiose scheme be considered.

Sincerely,

Scott Dittrich

IND 48

From: ken@torimaru.com <ken@torimaru.com>
Sent: Tuesday, April 9, 2024 2:59 PM
To: TopangaLagoonRestoration@gmail.com <TopangaLagoonRestoration@gmail.com>
Subject: Heavy Rain Years

In the past two years we have experienced bigger than average rainfall and hence sediment flow. Has this new information been examined? Previous studies appear to be limited to drought years.

Ken Torimaru
310.994.0379

IND 49

RE: Topanga Beach Lagoon Restoration Project

April 10, 2024

To Whom It May Concern,

I lived on Topanga Beach from 1966 to 1979, and now live on Las Tunas Beach. In my nearly 60 years here, I've seen how floods and storms impact the beach. The flood of 1969 washed cars and even houses into the ocean. A Volkswagen van got stuck in the surf line for a year until it finally deteriorated. The flood of 1994 sent a surge down Tuna Canyon and threw 15 beach houses. Here are some reasons why I think the Draft Environmental Impact Report (DEIR) is flawed.

1.
The DEIR calls for the lagoon's berm to be removed and dumped offshore, but the dirt is too contaminated by Coastal Commission standards. It was generated from past construction projects.

2.
The berm also serves a function to protect Las Tunas Beach homeowners from floods, and to prevent sand erosion from Topanga Beach State Park. The DEIR has no sand replenishment plan. I recommend partnering with the Army Corps of Engineers and studying the San Clemente Shoreline Project to create a plan for sand replenishment, and to better inform the restoration project overall.

3.
The DEIR's surf report was completed before the decision was made to dump dirt into the ocean. Therefore, the surf report is no longer adequate.

4.
The DEIR promises to keep four highway lanes open during construction, but that's not enough. In an emergency, responders and motorists need the middle lane and the shoulder to maneuver. Otherwise, there's catastrophic gridlock. Bicyclists also need a bike lane.

5.
On a summer weekend, beach parking overflows the lots, and backs up Topanga Canyon. The DEIR proposes removing beach parking not only during construction, but even in the final plan.

6.
Constructions projects in our area have historically taken years longer than estimated, and this project is the biggest. It will certainly take longer than five years, amplifying the issues listed above.

I ask the project managers to reevaluate the DEIR with better statistics and guarantees.

Sincerely,
Lloyd Ahern

IND 50

From:	Susan Duenas <sduenas@malibucity.org>
Sent:	Thursday, April 11, 2024 3:12 PM
To:	Jamie King
Cc:	Rosi Dagit; Jelly Kahler
Subject:	RE: Fw: Impact on State Beach Parking area

From: Susan Duenas <sduenas@malibucity.org>
Sent: Thursday, April 11, 2024 12:08 PM
To: topangalagoonrestoration@gmail.com <topangalagoonrestoration@gmail.com>
Subject: Impact on State Beach Parking area

Hi,

Our Evacuation Plan identifies the Topanga State Beach parking lot as a potential safe refuge area. Safe refuge areas are defined as, "temporary staging areas in a mandatory evacuation. They may also be used to help move traffic off the road to speed up the movement of people out of the immediate danger area." I've reviewed the alternatives for restoration of the lagoon and it doesn't appear to have a big impact on the parking area, but I wanted to confirm. Please let me know if my interpretation is correct.

Thank you!

Susan Duenas

Public Safety Director | Public Safety

Office: (310) 456-2489 ext. 313

23825 Stuart Ranch Road | Malibu, CA 90265

IND 51

From: Jaz Bennassar <reply-to+ff68562d3605@wixforms.com>
Sent: Thursday, April 11, 2024 2:31 PM
To: akahler@rcdsmm.org
Subject: [Topanga Lagoon Resto] Top Lagoon Inquiry/Comment Form - new submission

Jaz Bennassar just submitted your form: Top Lagoon Inquiry/Comment Form on Topanga Lagoon Resto

Message Details:
Name: Jaz Bennassar
Email: Jazgb55@gmail.com
Comments/Questions: Hello, My name is Jaz, I am a Topanga resident. I care deeply for the Steelhead trout and wildlife that will thrive from taking full action to restoring the Topanga lagoon and I believe that the public will immensely benefit from a state park where they may recreate. This is why I support restoring the lagoon to its prior acreage. Thank you so much for all your work.

Reply directly or go to your site's Inbox:

Respond Now

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To edit your email settings, go to your Inbox on desktop.

IND 52

On Thu, Apr 11, 2024 at 1:40 PM Natasha Roit <natasharoit@yahoo.com> wrote:

Dear all,

First, thank you for your extraordinary efforts on such an important project. I have observed firsthand how this project took shape from its inception and have been fortunate to communicate with you for many months. Your professionalism and responsiveness are noteworthy and very much appreciated.

I write to comment on the proposals' wastewater management portion and to express my **strong support for extending the sewer line along PCH**. This extension has a multitude of benefits:

1. It is environmentally beneficial because it can connect the businesses along that stretch of PCH to the sewer and remove them from septic systems with their concomitant environmental problems.

2. It will relieve the Sunset Mesa community from taking on additional risk, especially given ongoing hillside movement where potential spillage can create not only significant environmental issues, including ultimately seeping into the ocean and Malibu Creek, but also further destabilizing an already fragile hillside.

3. This extension is doable from an engineering perspective, and I have previously shared with you the engineering plans for this extension. I will be happy to provide them again if needed.

And

4. Through a prism of a broader perspective, your project looks to the future -- the future of endangered life and its protection, as well as the future of the community for the next generation and beyond. This present-future view should include an improvement that will move the affected community into the future in terms of waste management, in step with other communities, such as Malibu City.

Thank you again for all of your efforts, and if there is anything I can do to answer questions or assist in any way, please do not hesitate to reach out.

NATASHA ROIT, ESQ.
LAW OFFICES OF NATASHA ROIT
(310) 883 3111 (direct)

California Trial Lawyer of the Year
Top 50 Female Attorneys in California
Ethical Lawyers of America
Appreciation Award, Judicial ADR Committee
Profiled, Loyola Lawyer
Featured, The American Lawyer

IND 53

From: k bens <karinbens@gmail.com>
Sent: Thursday, April 11, 2024 5:49 PM
To: TopangaLagoonRestoration@gmail.com <TopangaLagoonRestoration@gmail.com>
Subject: Topanga Lagoon Restoration

I am a long time Topanga Canyon resident and a Topanga Canyon Docent as well. I listened to the presentations online.

I am in favor of the lagoon restoration project and support Alternative 2 plan to maximize the natural lagoon ecosystem.

Thank you,

Karin Benson
2558 Burson Road
Topanga, CA 90290

IND 54

From: Catherine Tirr <catherinetirrstudio@gmail.com>
Sent: Thursday, April 11, 2024 7:46 PM
To: TopangaLagoonRestoration@gmail.com
Subject: Lagoon Restoration

Please include my vote for Option 2 of the restoration.

Thank you,

Catherine Tirr

IND 55

From: Lisa <reply-to+9280a3bc3259@wixforms.com>
Sent: Thursday, April 11, 2024 7:50 PM
To: akahler@rcdsmm.org
Subject: [Topanga Lagoon Resto] Top Lagoon Inquiry/Comment Form - new submission

Lisa just submitted your form: Top Lagoon Inquiry/Comment Form
on Topanga Lagoon Resto

Message Details:
Name: Lisa
Email: lisarand714@gmail.com
Comments/Questions: Alt 2!

Reply directly or go to your site's Inbox:

Respond Now

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IND 56

From: Dorothy Steinicke <dorothysteinicke@gmail.com>
Sent: Thursday, April 11, 2024 8:11 PM
To: TopangaLagoonRestoration@gmail.com
Subject: Topanga Lagoon DEIR

I am urging the adoption of Alternative 2, to provide maximum restoration and the best chance for the survival of endangered steelhead trout. This opportunity will not come again. I urge you to take it.

Dorothy Steinicke
Topanga State Park volunteer

IND 57

From: healypatt@aol.com
Sent: Thursday, April 11, 2024 8:49 PM
To: topangalagoonrestoration@gmail.com
Subject: EIR comment on the topanga lagoon restoration

I recommend alternative 2 be adopted since it restores the most habitat.

Sincerely, Patt Healy

IND 58

Kraig Hill
(310)456-8229
kraig.malibu@gmail.com

April 11, 2024

Danielle LeFer et al
California Department of Parks and Recreation
Angeles District
1925 Las Virgenes Road
Calabasas, CA 91302

Re: Comments on Topanga Lagoon Restoration Project Draft EIR

Danielle LeFer et al:

Here are comments on the Topanga Lagoon Restoration Project Draft EIR, as presented at https://www.topangalagoonrestoration.org/.

First, a little about my background, so that you can weigh these comments accordingly. I've spent most of my career doing policy analysis for both non-profit environmental organizations and for-profit resource extraction companies (fisheries, mining), to help them operate in environmentally-sustainable ways. In my Master's work on Coastal Zone Management at the University of Washington (where I also earned a law degree), I studied a variety of potentially relevant things, including something about both estuarine restoration and anadromous fish behavior. I grew up in Big Rock, a few miles up the Highway from Topanga, and returned here in the late 1990's. I've surfed at Topanga (though not for years). I've hiked all over the general lagoon area over the years, and as recently as last week. I am currently Chairperson of the City of Malibu Planning Commission – in which role I represent foremost the public interest (which is often but not always coincident with that of the City government).

I've watched the public meeting on Youtube, read the summary pages and skimmed the whole report (please forgive me if I've missed anything essential). As I've thought about the project over the years, and more recently read and listened in a more focused way, I had been thinking that Option 3 made sense: restoring some habitat and also some of the "historic" Ranch Motel. But the more I've read, and the more I've listened to Topanga and Malibu locals, the more I've come to favor a "less is more" approach, one which doesn't come directly under any one stated alternative.

Broadly, there's an inherent contradiction in attempting both to restore the lagoon habitat and create more recreational opportunities for humans. These goals are at odds with each other in that locale. Perhaps the proposal has gone this way because, with at least seven different agencies directly involved, it's susceptible to being a "too many cooks" situation, with each agency's contribution necessarily based in its own institutional agenda. Well, the plan has some good aspects, but other aspects seem to be solutions searching for problems. Foremost, the project needs to better focus, prioritize and articulate its priorities.

How exactly is the word "restoration" being used in the project title? Be more accurate in your word choice. In this location, restoration would mean, at a minimum, removing the entire 20-30 foot depth of fill upon which PCH was built, from the ridgeline that ends in Charthouse Point to the

ridgeline West of Cholada restaurant. Historically, it appears that the creek has meandered and made outfall at different points North and South between those two ridges. So, short of restoring the terrain and the suite of ecological interactions that are implied by that, what you're really proposing is a sort of "new, improved" ecosystem, one which is no less inherently artificial than what exists there now. That's not necessarily bad, but it points up that there's a certain arbitrariness in the mission; that it would be difficult to measure "success" in the end.

I appreciate that there may be too much institutional momentum for the agencies to consider the "do nothing" alternative. Collectively you seem determined to do a longer bridge and some amount of lagoon restoration. (By the way, increasing the length of the bridge from 79 ft to 460 ft would make it not "four times as long" as was said in the public meeting, but rather 5.8 times as long.) I under–stand the rationale for widening the bridge, but am skeptical that Topanga Creek, with its inherent topography and flow characteristics, through miles that include steep rocky gorges, will ever support sustained populations of Steelhead trout. (Tidewater gobies, maybe.) It's more a seasonal storm runoff than a year-round watercourse. Some years it doesn't even open to the ocean. And, while you refer to the Topanga watershed as "pristine" in your Powerpoint presentation, with thousands of residences upstream, it's not that. Even if every septic system in Topanga were working properly (not likely), would you ever drink from the stream? My educated guess is that the odds are stacked against the fish, in terms of terrain dynamics and water quality. Such a high-risk gamble does not seem to provide sufficient rationale for the project, in terms of total costs and benefits (accounting for all so-called "externalities" and long range projections).

That said, it's worth cleaning up the greater delta area. There is a significant amount of concrete chunks of old foundations, chunks of asphalt roadway, several old rusty vehicles, all readily apparent on the surface. Given the presence of that material and the historical uses of the site, one wonders what other toxic materials are impregnated throughout. One paradigm in cleaning up shipping harbors that have experienced long-term toxic pollution is to leave the seabed in place, optionally capping it with clean material ("cap in place"), rather than dredging it and taking the risk of spreading more toxins into the environment in the process. I wonder whether this approach might work best here, after removing the obvious surficial debris. Toxicity testing should be done to identify areas that might be best left in place versus others that might be okay to excavate and/or dredge. The extent of lagoon excavation might be constrained by such a determination. Let the plan follow the science, not *vice versa*.

The plan discusses excavating and removing 200,000 cu. yards of material from the lagoon area (I don't recall if that number corresponds to the 8-acre version or the 10-acre version), and dumping it offshore. But I haven't seen what the plan is to clean the contamination out of all that material.

Section 2.6.2, Option 2 discusses trucking material from PCH to Malibu Canyon Road. And then where? That sounds like it could add more chaos in the highest traffic areas in Malibu.

No concept of restoration could be fulfilled without a massive effort to remove invasive plants, some of which are notoriously difficult to eradicate. The area is full of plants like bamboo, spurge, mustard, nasturtiums, palm trees, various (European) grasses, etc. It wouldn't be surprising if the majority of the biota is non-native. Throughout the Santa Monica Mountains, efforts to remove non-natives, while valiant, have been piecemeal. I don't know how you can begin to talk about restoration when the invasive species problem is so evidently intractable.

Perhaps the bridge length need not be as long as specified. Perhaps making it twice as long, for example, rather than nearly six times as long, would provide some benefit to the movement of fish (which might not take to the canyon anyway), while still providing the social benefit of a cleaner, safer pedestrian underpass. In terms of flow dynamics, roughly doubling the width of the underpass would have the greatest effect; increasing its width beyond that out to 5.8x would have increasingly marginal benefit, while creating exponentially more disruption of both the local environment and things like traffic impacts.

A less-long bridge would avoid a substantial amount of excavation and removal of the fill material on which the PCH was laid. And it would likely shorten the project timeline and minimize the sorts of anomalies that tend to make Caltrans projects sometimes take longer and cause more traffic delays than expected.

A less-long bridge would also require less concrete (and steel). Consider that concrete cement production is the third highest single category contributing to global greenhouse gases, behind only energy production and transportation. (Multiple sources, e.g., the journal Nature, Scientific American, etc. attribute 9% of GHG to it, when including all gases such as methane; and ~12% of global CO2 emissions alone.) Make sure the project complies with the California Global Warming Solutions Act of 2016, SB-32 (building on AB-32 of 2004), to require that the State reduce GHG emissions to 40% below the 1990 levels by 2030. That implies minimizing concrete usage to the extent practicable. Also, using more concrete than necessary would cause the project violate CEQA provisions requiring that the project be the alternative of least environmental impact.

Caltrans says that throughout the bridge construction there will always be two lanes of PCH in each direction, by virtue of a temporary bridge South of PCH. Malibu residents have seen from Caltrans' approach with the Trancas Cyn bridge, the proposed Malibu Seafood Crosswalk and the Corral crosswalk and underpass (to name a few) that they seem to improvise more often than one might expect of an agency that deals with semi-permanent infrastructure. Given Malibu's recent experiences with Caltrans' approach, could the public be given any material assurances that the project would happen as planned, on schedule, without any traffic bottlenecks? Perhaps a performance bond tied to specific targets, or some inducement along those lines?

The overall vision, with humans recreating on both sides of PCH, implies more pedestrian traffic from one side of PCH to the other. Yes, a new underpass could become more relevant than the current one is now. But is that enough? With more people generally, wouldn't there be more impetus for pedestrians to cross PCH directly? That's one of the top accident spots on PCH in the greater Malibu area. I'm not sure what the solution should be, but it probably means somehow isolating pedestrians from PCH. Maybe it's a freeway-style center divider (more than just K-Rail?), running from Topanga Canyon Blvd (TCB) to Cholada restaurant – but then I don't know how westbound cars would get into the parking lot on the beach side without providing an opening, which pedestrians could abuse. People tend to take shortcuts where they find them. In any case, having recreation areas on both sides of PCH means that hazards to pedestrian will become an even bigger problem. This is another fundamental contradiction still unresolved: how to increase interaction between both sides of the highway without increasing interaction *across* the highway.

Moving the lifeguard/restroom building further back from the Mean High Tide Line makes sense. But there is insufficient rationale to cut down the bluff/berm above the beach to create a wider beach. Rocky Topanga Point will never be sandy like Santa Monica Beach. A wider, flatter storm-

wave zone would invite sea rise to come further on shore, sooner, eroding closer to the PCH. Plus, that higher terrain is both scenically aesthetic and provides a spot for surfers to survey the swell. It's part of the "cultural terrain."

The vision about the Ranch Motel is neither clear nor convincing. "Restoration" would be impossible. It's so crappy and rotted, you could tear it down and build some facsimile, but to what end? Sure, preserving some historical memory would be appropriate, but that could be done with no more than an "interpretive" roadside plaque. It might be better to make the motel's flat area the one visitor-serving park, with a few picnic tables and a basketball court. And a public pool! (I'm half kidding, but there would be a demand for it.) A "park" there could also keep humans out of the lagoon area below to the North as much as possible. (Yes, people should be allowed to quietly hike in a wilderness context, but no, don't develop it as a Disney-esque "interpretive trails experience.")

In calling the area where the Feed Bin is now the "Gateway Corner," you are envisioning some sort of visitor center to encourage recreational use of the Santa Monica Mountains. But first, the need to promote greater use of the mountains is questionable. From the City's perspective, the more our area becomes an Instagram destination, the more traffic we experience. There'd be yet more pressure on local businesses to be tourist-serving rather than resident-serving (not that there isn't a little overlap). Sure, let's serve some visitors, but the greater area doesn't need additional promotion at the expense of the region's rustic lifestyles. Visitors too don't appreciate getting stuck in several hours-worth of beach traffic, which already happens inevitably on Summer weekends, and at other times with increasing frequency. Why aim to create more traffic?

Second, even if more visitor promotion isn't obviously a perverse goal, the need for visitor center building(s) is unclear; it might have made more sense a few decades ago. Nowadays, the visitor center is the Internet – if you want to go hiking, you can go online and look up a map. Maybe the most that visitors would need is the sort of kiosk you see at a campground or trailhead, with a "you are here" map of the greater area, and a few interpretive panels (perhaps about the hoped-for *Salmonidae* and maybe something about the prehistoric humans).

Apropos, the prehistorical narrative here appears to have been "captured" by Tongva supporters. My understanding (my late father was a UCLA archaeologist) is that, over many millennia, Topanga Canyon was a shifting boundary between pre-Tongva and pre-Chumash, perhaps centuries per occupation. I suspect it may have more often been Tongva, but if there's to be any cultural/educational component, the Chumash should have their due. Has the Project been in touch with Julie Tumamait-Stenslie to hear what she thinks? I haven't spoken with her for several years – is she still the Chief?)

All that said about limiting structural development, it would be nice if you had an espresso cart concession and a few tables, so Topangans and Malibuites would have a place to meet people from Santa Monica and points East for coffee.

And please let's keep the Feed Bin, even if eliminating other businesses. It's a local institution, and at least informally, an historical feature. As a "gateway" to the Santa Monica Mountains, you can't get more iconic than the Feed Bin.

Regarding sewage treatment options, if the only restroom is the one south of PCH, then perhaps the OWTS 1/2-mile upstream would be sufficient. But if you were to include a visitor center and other

places such as the Reel Inn and the gas station(?), then the connection to the sewer pipe at Coastline Drive starts to make more sense. (I'm not qualified enough to say how much treatment you'd need for X amount of hypothetical new development.)

But then, traffic impacts – if you choose the Coastline sewer option, the additional year of lane closures will likely be more than "intermittent," as suggested. Experience says you'd have one lane closed consistently for some months. (Even now, Caltrans has dropped the ball about the slide at Porto Marina – I've climbed around on that slide enough to see that the portion that's on the highway is detached from the body of the slide above, so is no longer functioning as a "toe" stabilizing the rest. That detached "toenail" could be removed right now, graded away in a day or two, without affecting the main slide at all – which would then still need a retaining wall like the one near Coastline.)

The traffic impacts associated with a sewer pipe, and those associated with bridge construction, need to be analyzed in terms of wort-case scenarios due to the hundreds of thousands of daily lives they would affect over weeks, months or even years.

If the project area were connected to the sewer, who else would benefit – the Reel Inn, the gas station? (Possibly not Cholada, as they're on the other side of what could be a wider creek.) Would they each pay into the system? What does the Regional Water Quality Control Board have to say?

There is no rationale for additional parking spaces. Unlike areas in Malibu, this area is never over-parked. Plenty of surfers park on PCH, but that's to avoid the parking fee; the lot is never full. (Maybe the project could dedicate funds to reduce the parking fee, so fewer would park on PCH?) In any case, you should expect to install a small handful of electric car chargers.

In Malibu we've struggled with how to develop bike lanes. (I've been an avid cyclist where I've lived elsewhere in the world, with it having been my main transportation, but you couldn't pay me to ride on PCH.) Bikes Lanes are more hazard than benefit if implemented in isolation – if you were to put in a mile or two here or there it would become an attractive nuisance with respect to the unsafe stretches before and after. To have safe, viable bike lanes, you'd need to have an integrated system extending from Santa Monica that keeps bicycles isolated from vehicles as much as possible. (And good luck with that.) Otherwise, the highway is a *de facto* freeway, as much as we wish it weren't. Integrating short-distance bike lanes here and there in a piecemeal way is just asking for trouble.

You should ensure that all lighting complies with the strictest dark sky requirements. Malibu's Dark Sky Ordinance is a start, but even it allows too much ambient and reflected light for the sensitive ecosystem that's being proposed. (And remember, there is no longer much need for bright safety lighting, because modern cameras can work in virtually no light at all.)

What is the long-term staffing? Maintenance? You say you will monitor plantings for five years, but you need an overall plan that's designed to run in perpetuity. (By comparison, the MRCA does some good things but consistently fails to maintain and monitor the sites it develops. Don't be them.)

Relatedly, how frequently will the Lagoon need to be dredged to remove the rocky material that washes down the canyon into it? Every ten years? Wouldn't that necessarily disrupt habitat, which might need to be "restored" pretty much from scratch each time? In other words, what is the project

lifespan, realistically? How long before the isolated eddies in the lagoon turn eutrophic, killing more life than they sustain? That's a real concern, given how intermittently the lagoon breaches to the ocean.

You have not articulated any benefits of the "no action" alternative. Surely there must be some. One might be that whenever humans intervene to engineer "nature," almost invariably something goes wrong, often catastrophically. Think Biosphere II, or cane toads in Australia… or Malibu Lagoon and the breach pattern that's currently (no pun) undermining the Adamson House lawn. Not intervening, or intervening minimally with a soft touch, might by the most environmentally sustainable option.

I don't think that this project has been adequately publicized in Malibu, one of the communities that it will affect the most. I've seen no ad or notice in the Malibu Times, for example. When the City Council held a hearing about it on Monday April 8th, there were only three public speakers – two of whom are neighbors adjacent to the project with their own private concerns, and the third was someone I myself notified, knowing that he used to live in "the Snakepit." No one else commented, in a community that would have a lot to say if they knew about this. For that matter, I don't recall ever hearing about any EIR Scoping meeting, despite having always been fairly tuned-in to matters of environment and development in the area. This project will affect Malibu more than just about anywhere beyond the site itself. After waiting for ~22 years, perhaps you could toll the process a bit longer to get more feedback from Malibu folks?

By way of summary, here I'll try to be more prescriptive, incorporating more of my subjective preference. Given that there is no single "preferred alternative articulated; and given that the mission of "restoration" *per se* is, in the end, arbitrary (as noted above, at 1), a more critical consideration of project goals is called for. Which among all of the elements is clearly beneficial and likely to succeed? Here's a short list:

- Removal of the debris (concrete, asphalt, etc.) and toxic material (only where found in concentration in finite areas susceptible to removal).
- Demolish the Ranch Motel, which is currently an attractive nuisance (whether anything else is built in its place or not).
- Move the lifeguard/restroom structure currently near the surf zone further upshore.
- Make sure the helicopter landing zone works optimally.
- Keep the Feed Bin and the Reel Inn.

That might be all. I still have questions about how essential (or not) either sewage option might be.

Beyond that, the next plausible options might include:

- Widening the creek mouth with a PCH bridge perhaps twice as long as the existing one, in order to (A) provide for a safer, more attractive pedestrian access walkway from one side of PCH to the other, and (B) substantially mitigate the most significant hydrological and biological constraints imposed by the now too-narrow bridge. Any more widening (lengthening the bridge) is likely to have marginal benefit (at much greater cost), aimed

at habitat goals (gobies, steelhead) that remain too hypothetical, while requiring significantly more displacement and haulage of fill dirt, and greater likelihood of construction-related traffic impacts on PCH.

- A systematic program to remove invasive species from the greater lagoon area. This is likely a necessary step if you wanted to create an ecosystem than can sustain (re)introduced fish species.

- Perhaps a minor amount of dredging in the lagoon – an acre or two – enough to attract a few more bird species, and to create a few scenic options for short hikes, but without expecting to reinvent the whole ecosystem or open up the whole area to easy human intrusion. Less is more.

- Sprucing up the motel site – as distinct from the lagoon area – with a small, conventional park consisting of a few picnic tables, a restroom, and perhaps a basketball court or the like. (Personally, I'd like a pool; I know that must seem farfetched, but maybe it could be an option under the category of climate change cooling/resilience adaptations). The park could have a kiosk with local info (trails map, environment, historic motel blurb, prehistoric peoples) – no need for a big visitor center anywhere. In a corner of the park, an espresso cart, so Topangans and Malibuites have a place to meet Santa Monicans for coffee. That could even be under an open gazebo-like structure, to be functional even on a rainy day.

- Between the park and parking lot, a handful of electric car chargers.

- If creating any sort of recreational opportunities on the North side of PCH (such as a park), then measures to prevent pedestrians from crossing PCH would become crucial. (e.g., K-Rail or taller barrier – but as I said, I don't ultimately know how to engineer this human-behavioral problem).

Beyond that, the rest of the proposed elements seem to be in the realm of diminishing returns and/or beyond the alternative of least environmental impact.

Respectfully,

Kraig Hill
Big Rock, Malibu

IND 59

From: Gerlinde Gautrey <gerlinde.gautrey@gmail.com>
Sent: Friday, April 12, 2024 7:38 AM
To: TopangaLagoonRestoration@gmail.com
Subject: Topanga Lagoon Project

After years of planning and meetings I am hoping that the "All Go" will finally be given to this project.
Alternative 3 seems to a layperson like me the best solution. It will enhance the water quality in and around Topanga Beach and Lagoon and provide for better and safer access to the beach. With more storms and raising sea levels a project that improves coastal resilience needs to be done sooner rather than later.
I am looking forward to see all the improvements!
Gerlinde Gautrey
310 612 1774

IND 60

From: Louise Ratliff <louise_ratliff@yahoo.com>
Sent: Friday, April 12, 2024 11:12 AM
To: TopangaLagoonRestoration@gmail.com
Subject: Adopt Alternative 2!

Dear Restoration folks.

Endangered fish and habitat that can not occur anywhere else should be a high priority, and resiliency for sea level rise is also very important. Based on the recommendations of my fellow members of CNPS, I agree that Alternative 2 in the EIR is the best possible plan.

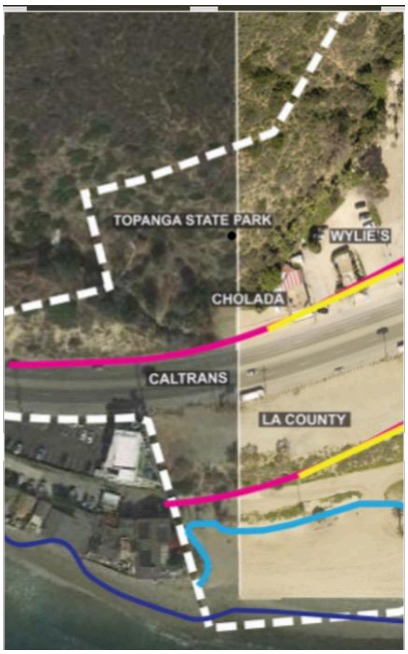
Sincerely,
Louise Ratliff

LA Santa Monica Mountains Chapter, CNPS

IND 61

Topanga Lagoon Draft EIR Public Comment:
I was raised close to the proposal site and feel concerned about the project. Below are my comments and concerns coming from a local resident. The potential to restore the lagoon host promise, yet I believe the project's scope is concerning. I admire the detail in the EIR and look forward to engaging with the final draft.

Bridge Size and Construction Area Mass:



In ALL 3 of the plan alternatives, the lagoon bridge length is recommended to be 460 feet from the existing size of 79 feet. Yet, the temporary bridge, which will be the first thing constructed, AND beach side, will be 170 feet by 31 feet. Why is the only recommendation in all 3 alternates, for the bridge size to be 460 feet, which is nearly 6 times bigger? What is the justification and requirement to make the bridge that big? Do the Steelhead Trout need 460 feet to be able to swim upstream, if so where will they be removed to during that 5-7 years of construction? Will they be in a habitat that adheres to those standards proposed and required in this project? The construction area is massive and it feels deceiving for all of the Malibu residents, commuters, school and public buses, least of all surfers and visitors who will be navigating it daily, to see the visual plan that they will be living with for 5-7 years.

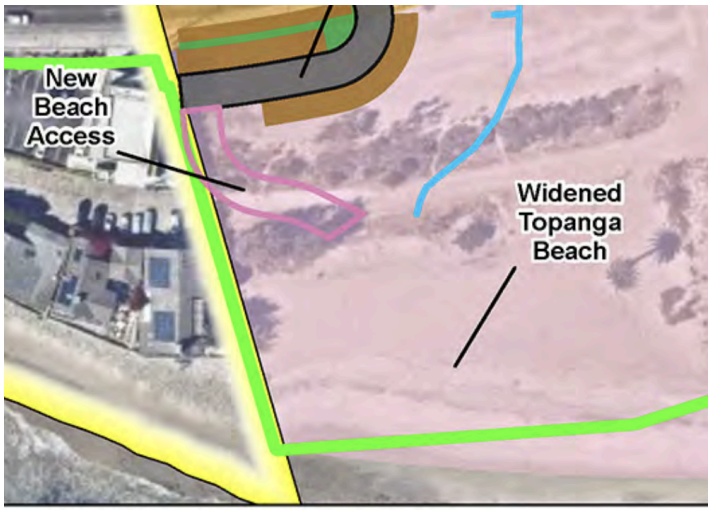
I feel concerned about the traffic and accidents that would come from this construction. The threat of increased traffic doesn't merely suggest potential inconvenience—it forewarns of a greater likelihood of horrific accidents, fatalities and unbearable congestion. We cannot stand by as the situation deteriorates, risking more lives in the process. We owe it to ourselves and future generations to address these pressing issues head-on, with immediate action and profound care for the well-being of our community: I imagine the construction of the new bridge would further exacerbate the already existing problems with PCH.



IND 61

Concessions:
Proposal is to first eliminate 5 of the 6 longstanding concessions in the area: Cholada, Wiley's, Rosenthal, Oasis, and the Feed Bin. The only existing concession kept in the plan is the Real Inn with 20 parking spots. It is further allocated that the Visitation center will create/ house future concessions, and most of the plan parking for visitation or beach access, will be fee based. In lieu of conservation and restoration, I feel concerned that removing these concessions will cause monetary losses for the local businesses that the community enjoys. If this plan goes into effect, I urge the government to provide monetary compensation for the local businesses that will be removed.

Adjacent Residential/ Business Stakeholders
The report does not adequately address the concerns and involvement of the borderline adjacent residents whose lives and properties, already facing the real threat of Sea level rise, and erosion, stand to be **directly affected by the project.** I have a growing concern that the project, in its current form, poses unacceptable risks to our community, environment, and way of life.



The Draft EIR, while extensive, glaringly omits a critical component: the impact of those most directly impacted the local stakeholders and community. This oversight is not merely procedural but indicative of a project that has fundamentally misjudged its potential to inflict irreversible harm on our community and environment.

Under Alternative 2, the maximum increase in lagoon has the potential to cause drastic environmental effects on the current adjacent residents west of Topanga Beach. Through removing the existing berm, to widen the lagoon, indicating a breach of the water to turn westerly, during storm drainage, the EIR has failed to investigate if this plan will affect the existing coastal residential properties, which reside along and below Pacific Coast Hwy. I am concerned about unintended consequences such as increased risk of flooding, elevated erosion, changes in drainage patterns, or other environmental hazards that could affect our homes directly and our safety.

The DEIR claimed that "The total area graded would be 15.89 acres. No excavation is proposed within regulated waters and wetlands; however, **limited disturbance to this area (approximately 0.33 acres) would occur temporarily during bridge demolition".** I argue

that this limited disturbance claim is inaccurate and an oversight. Construction and eventual visitor traffic could drastically alter the tranquility and natural soundscape of our area, impacting the quality of life for residents and potentially disrupting wildlife behavior that the project is aiming to protect. The proposed 5-7 years of construction will produce significant harm for the current community members and has the potential to disrupt the current environment.

Recommendation:

- **The EIR must be redrafted as the governing body must investigate the impact on the western Adjacent neighboring residents and local businesses. The governing body has failed to study the environmental effects on residents and the economic impact on existing businesses.**
- **I suggest an immediate and binding commitment to not proceed with any construction or implementation until unanimous approval from the local community and city council is obtained.**
- **I suggest a transparent and inclusive Malibu stakeholder engagement process for the future before plans are finalized.**

IND 62

From: Kenneth Widen <kcwiden@hotmail.com>
Sent: Friday, April 12, 2024 1:50 PM
To: topangalagoonrestoration@gmail.com
Subject: Lagoon

Hi
I prefer option 2, but I would not want a visitor center built. I would prefer to see more area for wetlands and wildlife.
Ken

Get Outlook for Android

IND 63

From: Elisabeth Bersin <reply-to+2aa833ff57f8@wixforms.com>
Sent: Friday, April 12, 2024 1:51 PM
To: akahler@rcdsmm.org
Subject: [Topanga Lagoon Resto] Top Lagoon Inquiry/Comment Form - new submission

Elisabeth Bersin just submitted your form: Top Lagoon Inquiry/Comment Form on Topanga Lagoon Resto

Message Details:
Name: Elisabeth Bersin
Email: ebersin6@gmail.com
Comments/Questions: I support Alternative 2 the Maximum Lagoon Habitat I believe this is crucial to our precious Ecosystem Thank you

Reply directly or go to your site's Inbox:

Respond Now

If you think this submission is spam, report it as spam.

To edit your email settings, go to your Inbox on desktop.

IND 64

Fw: Birds

From: REINHART PESCHKE <stephaniefaulkner114@gmail.com>
Sent: Friday, April 12, 2024 2:20 PM
To: TopangaLagoonRestoration@gmail.com <TopangaLagoonRestoration@gmail.com>
Subject: Birds

To Whom it may Concern :-)

I am in favor of alternative #2 Maximon Lagoon habitat.

Thank you for your time,

Stephanie

IND 65

From: Lou Porter <itsmelouporter@gmail.com>
Sent: Friday, April 12, 2024 2:22 PM
To: TopangaLagoonRestoration@gmail.com
Subject: Topanga Beach Changes

Hi everyone,

My name is Lou. But surfers, surfer girls and groms at Topanga Beach know me as Topanga Lou or Malibu Barbie. I've been coming to Topanga Beach since i was a little girl.

I've been taking pics of the beach sunrise, what's been going on at Topanga Beach throughout the day, the Topanga Beach iconic palm tree on the bluff, and filming surfing videos for 9 years now. I film for about 6 hours per beach day. Then i hang out at the beach bc I'm a beach girl at heart for several hours after I'm done filming.

A few years ago the locals at Topanga Beach named me the official Surfing Photographer at Topanga Beach. Which i take that title very seriously with great humility. They invited me to sit in front of the lifeguard station to film, which is the primo spot to sit & film.

I'm also disabled & park in the handicap parking spot near the lifeguard station at the beach level. My camera gear & beach gear are too heavy for me to carry from the parking lot on the street level down to the beach.

I hope you will keep the Topanga Beach iconic palm tree on the bluff. It's what makes Topanga Beach Topanga Beach. On that bluff I've seen:
Weddings, hula dancers, native peoples from the area perform sacred rituals. I hope you'll keep the bluff as is.

I watched the online meeting and the handicap parking was never addressed. Where will that be when you start changing everything? I need to park very close to where i sit & film.

Sincerely,
Lou Porter
AKA
Topanga Lou & Malibu Barbie

IND 66

From: Tamara Gould <reply-to+73bd39d11f85@wixforms.com>
Sent: Friday, April 12, 2024 2:25 PM
To: akahler@rcdsmm.org
Subject: [Topanga Lagoon Resto] Top Lagoon Inquiry/Comment Form - new submission

Tamara Gould just submitted your form: Top Lagoon Inquiry/Comment Form
on Topanga Lagoon Resto

Message Details:
Name: Tamara Gould
Email: tamara@wakingstate.com
Comments/Questions: I am greatly in favor of Alternative 2. Thank you!
Tamara

Reply directly or go to your site's Inbox:

Respond Now

If you think this submission is spam, report it as spam.

To edit your email settings, go to your Inbox on desktop.

IND 67

From: Dr. Chris Harz <reply-to+8e0e5f67d50c@wixforms.com>
Sent: Friday, April 12, 2024 2:35 PM
To: akahler@rcdsmm.org
Subject: [Topanga Lagoon Resto] Top Lagoon Inquiry/Comment Form - new submission

Dr. Chris Harz just submitted your form: Top Lagoon Inquiry/Comment Form
on Topanga Lagoon Resto

Message Details:
Name: Dr. Chris Harz
Email: harznet@drchrisharz.com
Comments/Questions: Please do NOT tear up the corner of Topanga and PCH. The wetlands proposed would be great now, while it's been raining, but would be dry and smelly on a normal year. I am a longtime (40 years plus) resident of Topanga Canyon. Please add me to your mailing list.

Reply directly or go to your site's Inbox:

Respond Now

If you think this submission is spam, report it as spam.

To edit your email settings, go to your Inbox on desktop.

IND 68

From: Fadeout Media <fadeoutmedia27@gmail.com>
Sent: Friday, April 12, 2024 2:42 PM
To: TopangaLagoonRestoration@gmail.com <TopangaLagoonRestoration@gmail.com>
Subject: lagoon thoughts/ideas

Hi there hope you are doing well!

Here are some things I think might be important

•i hope there are some 3D renderings of the final proposal being presented to the public. I get that there's a lot of data to present and the drawings are fine, but some kind of virtual tour with a view like Google Earth would be really helpful. Seems like a giant expensive project, and all the more reason to invest in graphic/animation and make the project more tangible to residents.

•the berm is awesome for viewing surfers and seeing the whole beach and meditating etc. would be sad to lose that perspective. It also provides wind blockage that allows for setting up a beach hangout but have wind and sand and cigarette/illegal fire smoke blocked...Can we at least get a lookout tower near the lone palm tree? Or make the new lifeguard station with a lookout with public access?

•I'd like to see some of the hotel preserved, but seems like those buildings are pretty far gone and such a bummer that no effort was made to preserve them since lower Topanga evictions 20 years ago.

•Seems like Malibu Feed Bin being demolished os forgone conclusion. Please don't build ultra modern welcome center and expansive parking lot that looks like a shopping center or community college or police station/town hall combo. This is the entrance to nature and recreation and should fit in with land and culture. Hell, make it look like Malibu Feed bin....

IND 68

•please don't destroy Reel Inn. Imagine being able to have dinner overlooking the new lagoon.

•rosenthal wines, maybe there's space for them in new configuration but this is lowest on my list of places to keep. Maybe they and Cholada and bait shop could all be above the lagoon on flood proof pylons..

•That rendering of just a huge guardrail that whole stretch seems really unnatural and uninviting. At the least make it a bit of a boulevard with some planters and natural design elements, not just brutalist concrete and steel.

•what can be done to hold contractors responsible for time and cost overruns?

•would be nice if new parking lots were porous pavers and not heat absorbing asphalt, that drain into sewage treatment system. runoff from bridge and gas station could do into same system

• new parking and structures along 27 on west side on last curve near pch should be well integrated with the land and trees and ideally not very visible from any hiking paths around the lagoon

•hiking path up the big hill behind Reel Inn is so awesome and would be nice if this whole area had integrated hiking trails and easy access to beach under PCH at both west and east end of the new bridge.

•What tech might exist in a few years that makes on site water treatment more manageable, and help avoid an extra year of shutdowns for new sewers, that are just gonna end up dumping into the ocean anyways

• there needs to be more parking for the disabled and for surfers and for families near the beach, not less. reducing parking on south side of PCH increases chances for pedestrian accidents

• what can be done to hold the sheriffs department and beaches & harbors accountable for upkeep and security of the beach both pleasantly and in the future? It seems that other beaches to the east get regular maintenance and tractor combing for trash and Topanga Beach is always a wreck. Also, there are constantly both leashed and unleashed dogs, cigarette smokers, and often illegal camp fires. Lifeguards say they don't even bother calling police because they don't show up.

IND 68

•would be nice if there was a small dog park nearby or back corner near surf shop so people would have an option besides bringing their dog illegally onto beach and ruining experience for people with children or just wanting some peace away from barking dogs

• please make sure bridge designs are put through appropriate wind and noise tests so we don't end up with some low resonant hum or unstoppable whistling

•how many college campus style emergency stations will there be in parking lot and near beach and who will they be connected to?

•there needs to be family and all gender bathrooms included in the facility designs both at the beach and at welcome center.

Thanks!

Michael

Michael Hari | fadeout media
fadeoutmedia.com
info@fadeoutmedia.com

From: Becky Rickley <beckyrickley@yahoo.com>
Sent: Friday, April 12, 2024 3:25 PM
To: TopangaLagoonRestoration@gmail.com <TopangaLagoonRestoration@gmail.com>
Subject: Public plan comments

To whom it may concern,

I have reviewed the proposed plans for Topanga Lagoon Restoration and would like to offer support for Alternative 2. My issue with Alternative 3 is the use of Topanga Ranch buildings for overnight use by State personnel. If Topanga Ranch were instead used for a public purpose, that would be an improvement on any plan that intends to leave them in place. Alternative 4 expands the beach which is a great benefit in California, but beach expansion is not the point here and the proposed retaining wall is a future problem, as can be seen up and down the coast where other retaining walls have been built and have failed. Generally, it is my belief that if this is a lagoon project, maximizing lagoon habitats and restoring the lagoon environment would seem to be the point.

To that end I strongly disagree with the use of seepage pits or anything other than a sewer connection at PCH and Coastline. Sewage and alternate methods of its disposal have been a struggle in Malibu for decades and the ocean, waterways, and environment have suffered irreparable harm because of these shortsighted solutions. These half measures that negatively impact the environment need to stop. I was especially displeased and disappointed to see these suggestions within this project that purports to restore the lagoon.

Further, I think the description of the sewer connection at PCH and Coastline is at best skewed. I have seen multiple estimates for this sewer line installation and none as high as the plan projected. Moreover, there is no discussion that a connection to the sewer at PCH and Coastline is a permanent, safer plan. Additionally, the commentary within the report (that I found no studiesincluded to support) indicates that the soil conditions in this area are amenable to alternate methods of wastewater disposable. That is not an accepted conclusion by experts and entities who have performed soils and groundwater tests, come to the opposite determination, and opine that the County would not permit alternatives to sewer. Further, the plan omits that the County reimburses the costs of a sewer line when the sewer is dedicated to the County, so the actual cost is zero, not 9-10 million dollars. Additionally the report omits that other business along the sewer route are required to share the initial cost of installation. As there are at least 2 businesses to share in the cost, the lagoon restoration would be initially responsible for 3 million dollars, even accepting the report's 9-10 million dollar estimate. Further still, in providing analysis, the report neglects to factor in the offset cost of maintenance that the County would assume after dedication, as opposed to the ongoing maintenance of seepage pits and the like.

Further, the plan to bring the sewer connection into Sunset Mesa has already been tried and failed magnificently with the gas station. These hillsides are moving. The gas station admittedly dumped 35,000 gallons of sewage into the hillside and the environment before the spill was discovered. What should we assume the actual spill amount was if 35,000 gallons is what the gas station admitted?

Further, as a resident of Sunset Mesa and downhill from the proposed sewer connection into Sunset Mesa's sewer system, I have an additional concern. The infrastructure in Sunset Mesa was built in the 1960's. It is not suitable to handle the homes that exist today and it is grossly unfair to tax Sunset Mesa
further. Additionally, all residents here know that when sewer saddles need to be replaced or upgraded, it is the residents who are paying those costs. I personally paid those costs 3-4 years ago. Moreover, how long has Topanga Canyon now been closed because of a sliding hillside, which still cannot be contained, with no clean up in sight? Multiple sections of PCH are still cordoned down to one lane. How many times have homes in Sunset Mesa been uninhabitable because of
slides? Who does not remember the slide under Coastline Dr. homes and onto PCH that cut off access to Malibu for months and required a specialty crane be brought in with the reach to clear the slide
debris? These are known, ancient slides. Placing a sewer on this hillside is a ticking time bomb.

You are bring more people into the area and that will increase overtime. The number of parking spaces trumpets that. That is fantastic, as all Californians should be able to enjoy the natural beauty of the State we all support. Areas, such as Topanga Lagoon, that were mistreated in the past should be restored. However, this project needs to address sewage issues and not repeat errors of the past and leave future generations to deal with the damage we create. Do it once and do it right.

Thank you for the opportunity to provide input.

Rebecca A. Rickley, MFT
(310) 466-3929

IND 70

From: Susan Mahler <sfmahler@verizon.net>
Sent: Friday, April 12, 2024 3:31 PM
To: topangalagoonrestoration@gmail.com
Subject: Comments on proposed lagoon development

I don't feel I know enough to make a choice.
However, I remember many years ago the lower Topanga community of homes was completely removed so that the state could develop trails and other outdoor benefits for the public. I knew someone who lived there for years and was brokenhearted at the destruction of his community. The lower Topanga community was close knit and devastated when they had to move. As far as I know the state never opened the area up to the public with the trails and opportunities for hiking and walking and being in those natural surroundings.. Now again we are being told that by removing the businesses and more, the public will benefit by being able to enjoy nature. Not sure this will happen. It didn't happen before and a close knit community was destroyed.
What monies will be used to fund the projects including the proposed welcome center?

IND 71

From: Karen Harper <docentkaren23@gmail.com>
Sent: Friday, April 12, 2024 3:32 PM
To: TopangaLagoonRestoration@gmail.com
Subject: Topanga lagoon restoration project

To Whom it May Concern,

I feel that the endangered fish, local habitat and rising sea level should be a top priority when making decisions regarding the Topanga Lagoon Restoration.

Thank you for your consideration of the local natural habitat and its important role in the ecosystem.

Karen Harper

IND 72

From: Susan Nissman <nissman@aol.com>
Sent: Friday, April 12, 2024 4:29 PM
To: TopangaLagoonRestoration@gmail.com
Subject: COMMENT: Topanga Lagoon Restoration Project DEIR

April, 12, 2024

RE: “Topanga Lagoon Restoration Project" DEIR: **Support Alternative 2: Maximum Lagoon Habitat**

To Whom it Concerns:

Thank you for this opportunity to comment on the subject DEIR. And, thank you all who have dedicated themselves over the past many years to shepherding this critical restoration forward.

As a 47+ years resident abiding within the Topanga Creek Watershed, home to Topanga Creek and its many tributaries, all still free-flowing natural streams without barriers or cemented channels — the vision that our currently threatened and compromised lagoon will finally and more naturally receive these waters, while also enhancing fish passage, native habitat, beach size, cleaner waters, public access, public safety, and protect against sea rise erosion, is clearly most comprehensively represented in **Alternative 2.**

I was also struck by the many common actions proposed in all three alternatives, but believe Alternatives 3 & 4 unnecessarily limit the scope of improved and expanded habitats and beach expansion that Alternative 2 offers without sacrificing historical, interpretive elements, bridge and roadway improvements and public access benefits. Alternative 2 supports ALL beneficial uses for the public and the native habitat.

Thank you again for this opportunity.

Sincerely,

Susan Petrulas Nissman
1577 N. Topanga Canyon Blvd.
Topanga, CA 90290

nissman@aol.com

IND 73

From: 00350340 Cohen <scohen43@gmail.com>
Sent: Friday, April 12, 2024 4:40 PM
To: TopangaLagoonRestoration@gmail.com <TopangaLagoonRestoration@gmail.com>
Subject: I approve of option 2

IND 74

From: Christine Griffiths <clanderton@me.com>
Sent: Friday, April 12, 2024 4:50 PM
To: TopangaLagoonRestoration@gmail.com
Subject: Comment for Topanga Lagoon Restoration Project DEIR

April 12, 2024

California Department of Parks and Recreation

Attn: John Ota, Environmental Scientist

RE: Comments on Topanga Lagoon Restoration Project DEIR

Dear Mr. Ota:

As a resident of Malibu since 2005, I've been drawn to this community for its rural charm and the natural beauty of its coastal environment. In my endeavor to contribute constructively to the decision-making process concerning the Topanga Lagoon Restoration Project, I've thoroughly immersed myself in the comprehensive 904-page Draft Environmental Impact Report (DEIR) and its additional appendices spanning nearly 3000 pages. This thorough review has enabled me to grasp the project's scope and implications, and I'm grateful for the opportunity to offer my insights to the lead agency tasked with making crucial decisions.

After careful consideration, I find myself advocating for **Alternative 1: No Project/No Build***, where it states there would be "no change to the lagoon footprint and now new bridge constructed." This option, as outlined in the DEIR, represents a deliberate choice to preserve the existing environment and avoid potential negative consequences associated with the proposed project alternatives.*

My endorsement of **Alternative 1** *is grounded in several key concerns:*

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- **1. Lack of Post-Project Oversight and**

IND 74

- **Enforcement Plan:** *The DEIR reveals a significant*
- *oversight in all three build alternatives: the absence of plans for additional staff or a united multi-agency department to manage day-to-day (and Nightly) issues post-construction. This oversight is particularly concerning given the documented degradation*
- *resulting from human activities, including graffiti, littering, water contamination, as well as current issues not mentioned in the DEIR which are 24/7 unhoused individuals camping, nightly building and use of fire pits, daily dog attendance and a growing*
- *number of theft and illegal activity, all of which pose ongoing threats to the area. Some of these current issues may be beyond the State Parks and Department of Beaches and Harbor Staff duties, but if the Project does not have a more unified and multi-agency*
- *oversight department, with a stringent and enforceable plan, it's hard to imagine, these same type of issues will not be a threat in the future.*
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- **2.Uncertain**
- **Environmental Impact:** *The proposed relocation of*
- *endangered species, for the 5-7 years duration of construction, raises questions about the project's efficacy and the hypothesized successful outcome. Given the speculative nature of monitoring reports, the investment risk of $70 million, to increase the population*
- *and survival of Steelhead trout in the Topanga Lagoon watershed, seems unjustified without a clear understanding of the project's success rate.*
-
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- **3.Unnecessary**
- **Changes to Beach Access and Increased Fee-based Parking:**
- *Contrary to claims in the DEIR, current access to Topanga State Beach is not a significant issue, as there is direct access for the entire length of Topanga State*

Beach, ample free and fee-based parking (though the lot is often only ½ full) and an under-bridge

- *pedestrian crossing pathway already in place. (Though there is NO signage or management/enforcement to the pedestrian pathway) The proposed alterations, in fact, restrict direct access, reduce free parking, re-introduce an under-bridge pedestrian crossing*
- *pathway but increase a fee-based parking lot. Restricting all parking for the 460 foot width of the bridge in each alternative, further creates potential walking congestion on PCH, radically changing the rural charm and accessibility that attract visitors,*
- *surfers and locals alike to this cherished coastal destination.*
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- **4.Preservation**
- **of Historical Landmarks:** *The removal of the historical*
- *landmark Topanga Beach berm, (helipad) a clifftop edge offering the closest and unparalleled white water views of the coastline, in favor of expanding the lagoon mouth, represents a profound oversight with irreversible environmental and cultural implications.*
- *Other beachside, coastal landmark's, Arch Rock (1906) and Castle Rock (1920) were destroyed to make way for the roadway, in the same area. Moreover, such actions directly contradict the Coastal Commission's commitment to preserving unobstructed coastal access*
- *and view corridors for the public.*
-

In conclusion, **Alternative 1: No Project/No Build** *offers a prudent course of action that prioritizes environmental preservation, community values, and responsible stewardship of our coastal resources. By reevaluating the project's objectives and embracing appropriate approaches to address existing challenges, we can ensure the long-term sustainability and vitality of Malibu's cherished coastal ecosystem for generations to come.*

In light of these concerns, I urge stakeholders to reconsider the allocation of funds for the project and prioritize addressing existing threats and challenges facing the area. This includes enhancing enforcement efforts, maintaining crucial amenities such as the

IND 74

Topanga Beach Berm, and investing in infrastructure improvements that align with the community's needs and values.

RECOMMENDATIONS FOR AGENCY STAKEHOLDERS:

Move lifeguard station back - With the threat of sea level rise, the lifeguard station can be moved back Now and not have to wait for a project this big and EIR restricted to be proposed.

Convert Topanga Ranch Motel to be low income housing for an artist community the area once housed.

Add signage and Paint - add signage and paint over graffiti on pedestrian pathway under bridge.

North side of Lagoon Restortation: Create dog friendly walking pathway around similar to George Wolfberg Park at Potrero Canyon in Pacific Palisades -

Thank you,
Chris Griffiths, Malibu, CA

IND 75

Fw: Recommend Alternative 2 as the environmentally preferred alternative

From: mswitter <mswitter@gmail.com>
Sent: Friday, April 12, 2024 6:57 PM
To: TopangaLagoonRestoration@gmail.com <TopangaLagoonRestoration@gmail.com>
Subject: Recommend Alternative 2 as the environmentally preferred alternative

TO:
California Department of Parks and Recreation,
1925 Las Virgenes Road, Calabasas, CA 91302
Attn: John Ota, Environmental Scientist
Dear Mr Ota,

We attended both of the local meetings that presented the findings of the DEIR to the public. We were extremely impressed by the quality of the analyses of the potential benefits and impacts under the alternative scenarios, especially that done for the nearshore environment and the surfing community.

We were both born (1937,1952) and raised in southern California and spent much of our childhood and young adult years at southern California beaches, so we have witnessed first hand the transformation of the coastal built and recreational environment along with the drastic loss of significant coastal habitat over that time. While the Topanga Motel is a wonderfully nostalgic reminder of a place where many people experienced memorable family beach adventures, it was part of a time with much less population pressure and greater social equality and accessibility. The same experience can not reasonably be recreated today, and the decades long controversies at Crystal Cove State Park highlight the problems that can arise by trying to re-create historic recreational facilities that can only be experienced by a miniscule proportion of the population. Preserving the motel buildings to serve other purposes (such as state park offices) at the expense of reducing unique and irreplaceable lagoon habitat does not appropriately balance the long term benefits and impacts of Alternative 2 vs 3.

The development of the Topanga Ranch motel was enabled largely because of the massive fill associated with the construction of the current PCH bridge. It seems perverse to consider the impact to the Topanga motel as a significant impact of Alternative 2, when maximizing the lagoon restoration would partially undo the massive damage that allowed for the motel development.

Only the native American cultural resources and the unique lagoon habitat with its associated rare and endangered species are truly irreplaceable going into the future. The alternative that best maximizes lagoon habitat area and climate resilience is Alternative 2 and should be adopted as the preferred alternative.

Sincerely,

Marti Witter, PHD (mswitter@gmail.com)

John Simons (johnthomas.simons@gmail.com)

Topanga residents

IND 76

Chester Henry Anderton Griffiths
818.584.9990
cgriffiths@tulane.edu

April 8, 2024

Architectural Designer
Resident of Las Tunas Beach
18834 Topanga Beach Drive,
Malibu, CA 90265

Public Comments Regarding DEIR Topanga Lagoon Restoration Project

Introduction

As a resident of Las Tunas Beach, I am encouraged to see the involvement of leading organizations in the Topanga Lagoon Restoration Project. The commitment to restore the lagoon to a more natural and rural state is a worthwhile effort; however, the broad scope and built-in alternatives of the project raise concerns. Outlined in the DEIR are focuses unrelated to the lagoon's environmental protection and rehabilitation; the project's extraneous proposals, separate from lagoon rehabilitation, ultimately challenge the entire project's efficacy and threaten a state of unnecessary environmental impacts for the lagoon's immediate communities - including, but not limited to, adjacent residents of Las Tunas Beach, residents and businesses of Topanga Canyon, the city of Malibu, public and private school busses, communicating drivers from the surrounding communities, and the longstanding Topanga Beach surfing community.

Having lived and grown up on Topanga Beach Drive, I applaud the efforts to rehabilitate the Topanga Lagoon, Creek, and Topanga Motel, to a more natural, self-sustaining condition. As collective purveyors of this land and its identity, it is in the stakeholder's best interest "to preserve [the] unaltered natural resources and rural characteristics"[1] of the area. Any project that diverts from this collective mindset would be considered a failure. To honor the sanctity and spirit of the southern Topanga Basin, I recommend a process of incremental change, a piece-by-piece adaptation tackling the speedy and practical "fixes" of the area, rather than an extensive multi-scope restoration.

Benefits, continued areas of focus

- **Habitat restoration**. The state of the lagoon is in dire neglect. As mentioned in public meetings, the presence of bird and dog excrement and human deposits is a primary cause of contamination and should be addressed accordingly. Increased state park staffing and public awareness of human involvement in water contamination will subside the human factor (signage, informative diagrams, and advocacy for best care practices). Restoring the lagoon north of Pch allows for increased biodiversity and a self-sufficient natural system that filters bacteria and maintains healthy water oxygen levels. North of Pch is mapped in the DEIR as a potential wetland, this area presents the best area for new walking paths and interpretive information as it would avoid the construction of a new bridge. Building a bridge in the way the DEIR presents will cause unnecessary issues of prolonged construction and traffic congestion. (further detailing pg.2)
- **The Gateway Corner**. Historically, this area was the "rodeo grounds," a low-rent housing community that fostered a lively ensemble of artistic expression. This is an exceptional

[1] *Malibu Municipal Code Section 17.02.030*

Chester Henry Anderton Griffiths
818.584.9990
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opportunity to restore what was once lost through public land capture. Opportunities include affordable overnight accommodations for beachgoers or campgrounds similar to Leo Carrillo.

- **Emergency facilities and beach safety.** Reallocating threatened emergency beach facilities, including the lifeguard tower, and infrastructural improvements to the emergency procedural resources and system are beneficial. Investing in these facilities will ensure a high degree of safety precautions and allow for more efficient means of evacuation from the beach in critical circumstances. The helipad's location on the berm services much of central and eastern Malibu's emergency evacuation needs, moving this crucial evacuation point onto the beach would threaten the speed and efficiency of emergency procedures. Centralized beach emergency facilities, including moving the lifeguard tower to a less threatening area along with improved beach surveillance infrastructure and storage for new and existing equipment, will create a safer, more responsible beach.
- **Strategies for sea level rise.** The DEIR presents motions to increase beach resilience against the threat of sea level rise - the most immediate being the relocation of the lifeguard and emergency facilities. Among the same provisions is dealing with the degree of sand displacement and erosion along the beach. The most vulnerable area to sand loss located at markers (1,2)[2] needs protection. A stable groin positioned west of marker 2, replacing the existing metal groin, will subdue the threat of sand erosion. Groins between markers 1 or other sand protection alternatives should be considered.

FIGURE 1.2: TOPANGA LAGOON PROJECT SITE WITH KEY FEATURES LABELED



[2] Appendix A: Scoping Summary, Firgure 1.2, pg.77

Chester Henry Anderton Griffiths
818.584.9990
cgriffiths@tulane.edu

Concerns

- **The Bridge.** In all built alternatives, the existing bridge will be replaced to six-fold its size. The plan for new construction suggests an alternative bridge that diverts towards the beach through existing parking during the intermediate period until completion. This is not a viable option. Issues with this approach: construction delays lasting more than 5-6 years timeline, considerable noise pollution, added congestion to an already busy Pch, heavy construction equipment in a large public zone, the area is prone to flooding and mudslides, limited accessibility for emergency vehicles. Pch is the main artery in and out of Malibu, these 4 lanes must be recognized as the only access/.
- Before any bridge alterations, other areas mentioned above should be handled first. Progression with achievable goals in mind will ensure a stable restoration. Considering that one of the project's primary objectives is to support the conservation of endangered species, such as steelhead trout and freshwater goby, it is imperative to address this aspect in the proposal. The Malibu Lagoon Restoration project, located approximately five miles away, is a successful precedent for facilitating fish passage. Given that this project positively impacted the same community, the proposal to undertake a similar initiative in Malibu—which could last between five to seven years—and cause substantial unintended results (erosion of sentiment near the Adamson house). This concern is heightened by the fact that the community is already vulnerable to natural disasters such as fires, flooding, and mudslides, in addition to experiencing significant traffic fatalities along the Pacific Coast Highway, which traverses the narrow 21-mile by 1-mile area.
- **Existing concessions**. Cholada, The Feed Bin, and Wylie's Tackle are valued within the community. They are integral to Topanga and Malibu residents as well as visitors of the area.
- **Traffic.** By starting on an incremental and existing need for restoration, progressive construction around the basin will be minimal and sectioned, avoiding drastic traffic increases.

Conclusion

The way forward is step by step. An approach that recognizes the achievable and timely aspects of restoration will be successful.

An additional recommendation is to involve community members in the design process. The community already exists, and the leading agencies have a responsibility to design in accordance with their values. Locals are a wealth of knowledge and an excellent resource to solve for design solutions. Consider the legacy of restoration, who will be involved in its creation, and which voices will contribute.

Thank you for your consideration.

IND 77

From: Brian Cinadr <bdcinadr@gmail.com>
Sent: Friday, April 12, 2024 7:42 PM
To: TopangaLagoonRestoration@gmail.com
Subject: Lagoon restoration

I'm a 30 year resident of Topanga. It's my belief that maximizing the lagoon, which I believe is alternative 2, should be the priority. Investing in "restoring" the natural habitat will easily pay dividends as opposed to spending money on man made infrastructure that won't add to the environment.

Thanks,
brian cinadr
19937 grand view drive
Topanga, CA
310-779-1218
briandavidcinadr.com

IND 78

From: Holly Beverly <hbeverly042@gmail.com>
Sent: Friday, April 12, 2024 8:10 PM
To: TopangaLagoonRestoration@gmail.com
Subject: Topanga Lagoon Restoration

Hi

I'm a Topanga resident and strongly support the "maximum lagoon habitat" proposal.

Please let me know if you need any additional information from me, thank you.

Holly Beverly

IND 79

SUNSET MESA PROPERTY OWNERS ASSOCIATION, INC.

TopangaLagoonRestoration@gmail.com

Dear Sir or Madam:

This will provide the comments of Sunset Mesa Property Owners Association, Inc. (SMPOA), a community of 450 residential homes, on the Draft Environmental Impact Report (DEIR) dated February 2024 for the Topanga Lagoon Restoration Project (Project).

The SMPOA homes are those depicted in the DEIR in Figure 2.1. All of the homes depicted closer (west) to the Project and *not* within the denoted "City Limit" line in that figure are part of SMPOA. As Figure 2.5 shows in an inset, all of the SMPOA area is within unincorporated Los Angeles County. Although the SMPOA community is outside the defined boundary of the Project as depicted in the DEIR, it is immediately adjacent to the Project and the California Environmental Quality Act (CEQA) requires a regional perspective. (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 575 ["an EIR may not ignore the regional impacts of a project proposal, including those impacts that occur outside of its borders; on the contrary, a regional perspective is required"].

As a residential community whose sole entrance to and egress from its residential neighborhood is via Pacific Coast Highway (PCH), SMPOA has the following comments.

1. We generally agree with the need to restore the Lagoon and upgrade various beach facilities in the Project area.

2. SMPOA prefers the wastewater upgrade option that the DEIR describes as an Advanced On-Site Wastewater Treatment (AOWTS). This type of on-site disposal seems to better accommodate sustainable growth (or restoration) in this area and avoids the multi-million-dollar construction project that would be required in the alternative—connection to a public sewer connection.

3. SMPOA prefers the AOWTS because it also will reduce traffic impacts caused by the alternative (public sewer connection in the Cal Trans right-of-way) due to the need in that public sewer alternative to have trucks idling (with associated diesel fumes) at the Coastline Parking Lot. (See Figure 2-8 in DEIR). PCH is a fragile road system, as is demonstrated currently by the impact of the Tramanto landslide, which has closed one of two northbound lanes immediately south of the

Coastline Parking Lot and compounded driving problems for all individuals in this immediate area.

4. SMPOA is concerned that any substantial construction in the Project area could likely result in a "spill-over" of beach traffic into the very limited public parking areas on PCH directly opposite Sunset Mesa. Our community has been adversely impacted (and still is impacted today) by individuals with RVs or bus-like vehicles who elect to park on a full-time or nearly full-time basis in this limited parking. SMPOA has contacted Supervisor Horvath's office about this problem and has also complained to the County Sheriff's Department about this issue. Any construction within the Project area should not be an excuse to simply shovel individuals seeking parking access "further down" (east) toward Sunset Mesa.

5. SMPOA requests that to the extent that the final selected alternative does involve a public sewer connection, that connection should not in any way run through Sunset Mesa. Any sewer line connection should be routed through an existing CalTrans right-of-way on PCH and not through this community.

6. SMPOA requests that to the extent that the final selected alternative does involve a public sewer connection running through the Cal Trans right-of-way at the bottom of the hillside below Sunset Mesa (Figure 2-8), SMPOA requests that a separate geological-hydrogeologic study be conducted to ensure that there are no environmental impacts to the slope and hillside due to construction of sewer pipeline materials at the bottom of the hill. Again, we reiterate that we are in an area of known landslides, with both slides at Tramanto and also in Topanga Canyon Road. While the slope supporting Sunset Mesa has not recently experienced a landslide, it is fragile and an additional study to ensure no adverse environmental impacts is appropriate pursuant to CEQA.

7. To the extent that the final selected alternative does involve a public sewer connection, then SMPOA requests that the proposed "Public Sewer Pipeline Proposed Staging Area" shown at the Coastline Parking and View Deck area (Figure 2-8 in DEIR) be strictly limited in times used for those trucks. SMPOA further requests that all trucks be either electric vehicles or hybrids to reduce the potential emission of diesel fumes from idling trucks. Wind patterns in this area often result in emissions from PCH impacting Sunset Mesa residents. Both Greenhouse Gas (GHG) emission considerations and human health considerations strongly support a mandatory "EV-only" policy for such trucks.

We appreciate your review of these comments. If you wish to contact the commentator, please contact the undersigned at the indicated email address.

Sincerely,



Norman A. Dupont
Member of the Board of Directors,
Sunset Mesa Property Owners Association, Inc.
(ndupont90265@gmail.com)

cc:
LA County Board of Supervisors, 3rd District
ssoudani@bos.lacounty.gov

IND 80

Laurence S. Wiener
Shareholder
T 213.626.8484
F 213.626.0078
E lwiener@rwglaw.com

350 South Grand Avenue
37th Floor
Los Angeles, CA 90071
rwglaw.com

April 12, 2024

VIA ELECTRONIC MAIL & U. S. MAIL

California Department of Parks and Recreation
1925 Las Virgenes Road
Calabasas, CA 91302
Attn: John Ota, Environmental Scientist
TopangaLagoonRestoration@gmail.com

Re: Comments on Topanga Lagoon Restoration Project DEIR

Dear Mr. Ota:

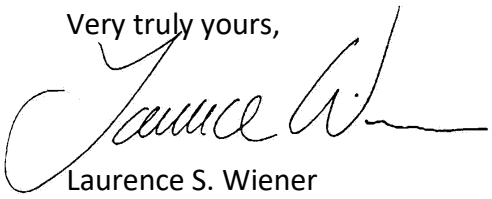
Our firm represents an unincorporated association of concerned residents and homeowners who live to the west of the Topanga Lagoon (the "Association"). On behalf of the Association, we submit the following comments on the Draft Environmental Impact Report (State Clearinghouse No. 2022050478), dated February 2024, which was prepared for the proposed Topanga Lagoon Restoration Project (the "Project"). The Draft Environmental Impact Report ("DEIR") was prepared by ESA for the California Department of Parks and Recreation ("State Parks"). Based on the numerous comments set forth below and attached hereto, the Association believes the DEIR fails to comply with the requirements of the California Environmental Quality Act (Pub. Res. Code §§ 21000, *et seq.*) ("CEQA"), and the State of California Guidelines for the California Environmental Quality Act (14 Cal. Code Regs §§15000 *et seq*.) ("CEQA Guidelines").

The Association's interests in this matter include ensuring that the proposed project does not adversely impact their homes. Based on the glaring defects and inadequacies in the DEIR, the Association requests that State Parks suspend any further consideration of the Project until the Project is revised to eliminate serious adverse impacts to their homes and the surrounding area and until a DEIR that fully discloses the potential impacts of the Project and fully complies with all other CEQA requirements has been prepared and recirculated for public review and comment. The Association objects to any further action on the Project until the necessary Project revisions and environmental review has been completed.

The Association believes, for the reasons explained in the comments below and in the comments provided in the letter prepared by ENGEO Incorporated dated April 12, 2024 and incorporated

herein, that the DEIR fails to conform to the requirements of CEQA, is fundamentally misleading and incomplete and thus fails to meet CEQA public disclosure policies, and must be substantially revised and recirculated for more meaningful public review before it can be relied upon by State Parks to make any determination as to the Project. While the Association is dismayed by the lack of involvement to date of the closest property owners, the Association hopes to be notified early of a revised and recirculated DEIR or any alternative project. The Association reserves the right to submit further comments.

Very truly yours,



Laurence S. Wiener

cc: Chris Griffiths
Lloyd Ahern
Walter Crampton, PE, GE, D.CE, ENGEO Incorporated

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Comments on Topanga Lagoon Restoration Project DEIR

The DEIR fails to provide "an accurate, stable and finite" project description on which to comment.

"[A] project description that gives conflicting signals to decision makers and the public about the nature and scope of the project is fundamentally inadequate and misleading. [Citation omitted.] 'Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal i.e., the 'no project' alternative[ ], and weigh other alternatives in the balance.' [Citation omitted.]" " '[A]n accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR.' " [Citation omitted.]" *Washoe Meadows Community v. Department of Parks & Recreation* (2017) 17 Cal.App.5th 277, 287.

The DEIR does not identify a proposed project, but describes four different alternative projects under consideration and relies on these alternatives, or shifting amalgamations of the three build alternatives, to assess potential environmental impacts. The EIR must identify a proposed or preferred project and also identify alternatives to that proposed project; it is not sufficient to simply set forth a range of possible alternatives without identified a proposed project. *Id*. The failure to present a proposed project and several clear, distinct alternatives leads to faulty analysis through the document making it impossible for the public to adequately evaluate the Project and for a decisionmaker to make an informed assessment on the environmental impacts of the Project. A decisionmaker, member of the public, or other interested party therefore has no way to assess the impacts of the proposed projects, or the distinct alternatives with varying project features, without a stable project description. For example: (i) how much will the lagoon footprint be expanded and how many channels will be included (how much grading is needed, where will it occur, and what grading plan will be followed?)?; (ii) how will wastewater be managed?; (iii) will the Project realign PCH? (iv) will the Project reuse the sediment dredged from the lagoon beach, or dispose of it off site?; (v) will the Project keep the Topanga Ranch Motel and restore it, or completely remove it?; (vi) where are the emergency access routes and beach facilities to be located? These are just a few examples of questions about how shifting Project features are described throughout the document.

"A DEIR that states the eventual proposed project will be somewhere in 'a reasonable range of alternatives' is not describing a stable proposed project. A range of alternatives simply cannot be a stable proposed project." *Id.* at 288. Here, the DEIR does just that, describing the "Project" in Section ES 3.1 as one of several potential alternatives or some yet-to-be described hybrid alternative:

> *"Four alternatives were identified to restore Topanga Lagoon….These alternatives allow consideration of the benefits and challenges of the different restoration*

> *approaches. A final "preferred" alternative will be selected at the end of the environmental review process that best meets the Project's needs while minimizing adverse environmental impacts. The Proposed Project alternatives provide different road maps to restoring the lagoon area and adjacent seasonally wetted and riparian habitats, buffering resources from future SLR, providing visitor-serving functions, and meeting the Project objectives….[¶]This EIR has identified and analyzed a range of possible Project alternatives. Each alternative includes multiple components that have been fully analyzed for potential environmental impacts. As State Parks considers which alternative to approve, some components from multiple alternatives may be combined to create a hybrid alternative. These could include inclusion of more than one wetted lagoon channel on the west side; road alignment and Topanga Ranch Motel configurations; implementation of living shoreline elements; alternative emergency access routes to the beach; and final placement of relocated beach facilities and helipad."*

(p. ES-2 to 3.)

This is contrary to CEQA's requirements. The presentation of different alternative projects in the DEIR without the designation of a stable project is an obstacle to informed public participation. Thus, the DEIR is fundamentally flawed and needs to be significantly revised to include a stable project description and recirculated pursuant to CEQA Guidelines Section 15088.5.

The DEIR fails to identify and analyze the significance of the impacts before proposing mitigation measures.

The DEIR universally fails to separately identify and analyze the significance of the impacts before proposing mitigation measures. The DEIR includes Mitigation Measures in the analysis of each impact discussed in Chapter 3 of the DEIR. Further, for each impact section the DEIR does not provide a significance determination of the impact prior to incorporating mitigation measures, but rather solely provides a significance determination for each impact that includes mitigation measures as applicable. These failures to meet the CEQA requirements subvert the purposes of CEQA by omitting material necessary to informed decision making and informed public participation. *See Lotus v. Department of Transportation* (2014) 223 Cal.App.4th 645, 658. The DEIR precludes both identification of potential environmental consequences arising from the Project and also thoughtful analysis of the sufficiency of measures to mitigate those consequences.

For a specific example of this failure, see the analysis of AES 3.1. The construction light and glare impacts are described as less than significant with mitigation incorporated. There is no analytical discussion of the potentially impact; rather simply a cursory statement that mitigation measure AES-1 would shield lighting from light-sensitive land uses. The EIR must indicate whether the Project's environmental impacts would be potentially significant if mitigation measures were not

adopted and separately determine if mitigation measures described in the EIR would substantially reduce or avoid the identified significant impacts. Thus, the DEIR should describe the impact. Light and glare would create a significant impact to the nearby homes, which are considered sensitive uses.

While this letter cites this specific example, this flawed analytical approach exists throughout the document across impact analysis sections. The DEIR must be significantly revised to identify and analyze the significance of each impact before proposing mitigation measures so informed decisions can be made and recirculated pursuant to CEQA Guidelines Section 15088.5.

The DEIR failed to meaningfully involve and consult nearby residents and community members in the project or DEIR.

An EIR is intended "to demonstrate to an apprehensive citizenry that the agency has … analyzed and considered the ecological implications of its action." *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 86, *supplemented* (1975) 13 Cal.3d 486. An EIR is intended to give the public and public agencies the information they need to make informed decisions, advancing "informed self-government." *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 563. To these ends, agencies preparing an EIR should consult with persons or organizations concerned with environmental effects of a project early in the CEQA process. CEQA Guidelines § 15083.

Residents and landowners adjacent to the western Project Site boundary line, and further westward down Las Tunas beach, should have been contacted related to the potential imminent dangers to the environment, including the general area west of the Project Site containing their properties, as a result of the Project early in the CEQA process. Their concerns with respect to project impacts to their property should be evaluated and disclosed in the DEIR, and avoided or mitigated to the extent possible.

As a result of the failure to meaningfully engage this community early in the CEQA process, the DEIR, as stated elsewhere in these comments, fails to adequately describe and analyze Project impacts.

The DEIR fails to study for impacts within the generally affected area of the Project, including those related to the damage of properties immediately adjacent to the Project site.

CEQA requires that an EIR describe and analyze significant effects of a proposed project on the environment. PRC § 21100(b)(1); CEQA Guidelines § 15126.2(a). CEQA broadly defines the "environment" as the physical conditions "existing within the area which will be affected by a proposed project. PRC §21060.5. The project area does not define the relevant environment for purposes of the CEQA when a project's environmental effects will be felt outside the project area; thus, agencies have an obligation under CEQA to consider geographically distant environmental impacts of their activities. "[T]he purpose of CEQA would be undermined if the appropriate governmental agencies went forward without an awareness of the effects a project will have on

areas outside of the boundaries of the project area." *Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, 387 , *as modified (Sept. 12, 2007)*. Here, the CEQA process is undermined and the DEIR is flawed because it fails to describe and analyze impacts to the environment in general to the areas west of the Project boundary.

For example, the DEIR fails to study potential damage, due to the Project, to the single-family homes west of Topanga State Park, approximately 100 feet from the Project boundary, which includes the westward expansion of the Topanga Lagoon in the various iterations of the Project described in the EIR, changes to the beach, and removal of current topographic features like the existing dirt knoll to the west of the current lagoon mouth and the helipad.

These homes may be damaged due to flooding, foundation damage, changes to beach erosion leading to ocean wave damage, or debris flow due to a westward-shifted and widened lagoon. The DEIR lacks description of the potential impacts and fundamental analysis of the severity of such potential impacts necessary to enable a decisionmaker to make an informed decisions on the Project, require mitigation measures to avoid such impacts, if possible, or revise the project to avoid such impacts.

The DEIR provides conclusory statements that: "No residences would be condemned or displaced by the Proposed Project construction or operation activities." (p. 3-6.) The DEIR does not, however, support this conclusion or adequately describe or analyze whether the potential impacts described above would cause impacts that would cause a loss of function of these properties or effectively displace these residents.

Further, the DEIR does not adequately describe or analyze impacts related to noise, dirt and air quality, and traffic disruption from the excavation of the beach or construction of PCH-Bridge specifically with respect to the adjacent properties to the west of the Project site.

The failure to address potential impacts to adjacent properties extends to the Appendices. For example, the morphology study (Appendix B) fails to analyze the beach abutting the single-family homes west of Topanga State Park, approximately 100 feet from the Project boundary, as a potentially impacted area. (p. 3 of Appendix B.)

The DEIR must be revised to study and describe project impacts on these properties.

The DEIR fails to analyze the impacts of depositing the beach fill in the ocean on the properties west of Topanga State Park adjacent to the Project boundary if removed fill is placed nearshore.

Some iterations of the Project appear to involve movement of fill to be placed nearshore. This option is subject to approval by the United States Army Corps of Engineers (USACE). There is limited description or analysis of the potential impacts from the option to place such fill nearshore with respect to potential impacts to the area west of Topanga State Park, including to

the homes adjacent to the Project site. Impacts of this decision should be fully evaluated and disclosed, including impacts to the properties and impacts related to contributing to potential beach erosion, especially in light of downdraft effect of the potential "land mass" resembling a current impedimentary structure.

The DEIR must describe and analyze additional alternatives that avoid or reduce impacts.

An EIR must describe a reasonable range of project alternatives sufficient to permit informed decision making and public participation. 14 Cal Code Regs §15126.6(a). An EIR must focus on alternatives that eliminate or reduce significant environmental impacts. Pub Res C §21002; 14 Cal Code Regs §15126.6(a)–(b). The DEIR fails to include adequate alternatives to allow decisionmakers to make informed decisions to reduce Project impacts. For example, there is no alternative where the western bank of the lagoon remains undisturbed from existing conditions. This alternative would reduce construction noise impacts by shifting grading and other construction activates away from the sensitive uses adjacent to the western boundary of the Project Site. Furthermore, this alternative would preserve the existing berm/dirt knoll upon which the helipad is located, providing several project benefits, including: 1) maintaining a feature that protects against flooding of nearby homes and prevents beach erosion, 2) maintaining more direct emergency access for first responders traveling from Malibu to the helipad, and 3) maintaining a high viewer exposure vantage point on the knoll.

The DEIR must be revised to include adequate alternatives that avoid potentially significant project impacts with respect to the properties adjacent to the Project boundary.

The DEIR fails to adequately disclose maintenance requirements and related impacts at the Project Site.

An EIR must identify and describe the significant indirect environmental impacts that will result from the project. 14 Cal Code Regs §15126.2(a). An indirect environmental impact is a change in the physical environment that is not immediately related to the project but that is caused indirectly by the project. 14 Cal Code Regs §15064(d)(2). Indirect effects are changes to the physical environment that occur later in time or farther removed in distance than direct effects. 14 Cal Code Regs §15358(a)(2). Both short-term and long-term effects should be included in the analysis. 14 Cal Code Regs §15126.2(a). The DEIR fails to adequately disclose and analyze impacts related to maintenance of the proposed Project. As Association members can testify, maintenance in and around the Project Site is an extremely poor and their appears to be no plan to improve it.

The DEIR states that: "A detailed operations and maintenance plan is found in Appendix M, which provides roles and responsibilities for each landowner, especially with regard to the restored lagoon area." (p. 2-52.) Appendix M is a the Topanga Lagoon Restoration Ecohydrology Report:

Fish Passage, Fish Habitat Suitability and Habitat Zone Elevations. There does not appear to be a detailed operations and maintenance plan in Appendix M as noted in the DEIR.

Appendix L is the Conceptual Habitat Restoration and Adaptive Management Plan. Section 5 briefly discusses a 5 year maintenance plan and Section 7.2 provides a cursory discussion on long-term management. However, the discussion largely indicates that long-term management will be the responsibility of the Project landowners and that such landowners will need to identify sources of long-term maintenance funding. There is inadequate discussion in the DEIR of the impacts associated with failure to maintain the Project Site which is a foreseeable result if there are not sufficient commitments to fund maintenance of the property and facilities at the Project Site.

Furthermore, the DEIR is internally inconsistent and misleading with respect to the maintenance required by the Project. When describing the proposed Project, the DEIR occasionally acknowledges that the "Operation of the Proposed Project would require periodic maintenance similar to existing maintenance in the Project area." (p. 3.8-26.) Yet at other times describes the maintenance requirements as significantly more than existing conditions, for example stating that: "Management and maintenance of the restored lagoon area and any expanded visitor services could require significantly more operations and maintenance efforts at least for the first five to 10 years post-implementation." (p. 2-52.) The DEIR does not clearly or consistently describe ongoing maintenance obligations, how those would be supported, or the impacts associated with the failure to maintain the Project Site.

Additionally, the DEIR fails to support assumptions that existing conditions will be improved due to enhanced maintenance. When describing the no build alternative, the DEIR often describes the Project Site as subject to deterioration and unauthorized use. For example, the DEIR references unauthorized fires set by the unhoused. (p. 3.18-21.) But, the DEIR fails to address how the proposed Project will marshal sufficient maintenance resources to prevent the existing maintenance and management related deterioration and resulting impacts the site faces in existing conditions from persisting.

The DEIR must be revised to accurately, consistently, and completely describe maintenance obligations and the potential impacts resulting from inadequate maintenance during the Project's operational life.

The Project does not universally increase current access to the coastal area.

The DEIR on one hand cites improved access to the coast and ocean to fulfil Coastal Act policies, yet on the other hand notes that the Project - in Alternatives (Alternatives 2, 3 and 4) - is forecast to result in fewer daily vehicle trips as compared to the existing commercial uses and further the Project provides less available parking to the public to facilitate access to the coast. Thus, the

Project does not universally increase current access to the coastal area. The DEIR should accurately reflect where the Project could reduce coastal access.

The DEIR Appendices are mislabeled and therefor misleading and detracting from the informational value of the DEIR.

There appear to be errors with the Appendices. For example, the DEIR purports to discuss the methodology for projecting emissions in Appendix N of the DEIR. (p. 3.7-37; p. 3.7-43.) The DEIR fails to include the referenced Appendix N which purports to provide the Air Quality, Greenhouse Gas Emissions, and Energy Data, Modeling, and Noise Calculations as there only appears to be a cover page for that Appendix. Did the DEIR intend to reference one of the documents labeled Appendix P (labeled GHG Calculations and Modeling, not the Appendix P labeled Topanga Lagoon Restoration Project Water and Sediment Quality Study Technical Report (ESA 2023) and Water Quality Pre-Construction Baseline Report (RCDSMM and Bay Foundation 2022))? The Appendices appear to be mislabeled and out of order causing the DEIR to be misleading and lack the requisite informational value to allow the public to review and comment on the document and for decisionmakers to make informed decisions.

The DEIR fails to adequately discuss and analyze project impacts on the City of Malibu.

The Association understands that the City of Malibu is submitting comments on the DEIR. The Association supports the City of Malibu's comments. The DEIR must be revised to fully address the City of Malibu's concerns raised in the City's comment letter. The DEIR should then be recirculated pursuant to CEQA Guidelines Section 15088.5 to allow the City of Malibu, and the interested public, the opportunity to meaningfully review and comment on the DEIR, including the adequacy of the revisions necessary to address the City's concerns.

The DEIR fails to adequately discuss and analyze how widening the lagoon may impact the shoreline properties west of the Topanga Lagoon, particularly given potentially significant impacts related to erosion, flooding, and downstream debris flows from wildfires.

Included with this letter is a letter dated April 12, 2024 prepared by ENGEO Incorporated, an engineering and earth sciences consulting firm with expertise in hydrologic, hydraulic, geologic, geotechnical, environmental, and coastal engineering. Walter F. Crampton, PE, GE, D.CE, has close to 50 years of experience in geotechnical, coastal, and hydraulic engineering as set forth in the attached document. The ENGEO letter sets for several additional issues with the DEIR and calls for further analysis to evaluate how widening the lagoon may impact the shoreline properties west of the Topanga Lagoon, particularly given the potentially significant impacts related to erosion, redirection of flood flows, and exposure to post-fire debris flows. The ENGO Incorporated letter, and the comments contained therein, is incorporated by this reference and included as a material part of this comment letter.

Additional Comments on Inadequacies of the DEIR in Select Impact Categories

In addition to the comments above, comments on inadequacies with various sections of the DEIR are included below.

Section 3.1 - Aesthetics

1. The Project site contains a natural bluff, dating pre-1933, which may have been added to as the PCH was constructed. The Project proposes to remove the bluff/berm top on the western bank of the lagoon upon which the existing helipad is located. The bluff/berm is the highest accessible whitewater view point along the beach, and the most westerly, accessible from the PCH and as a result provides high viewer exposure. The DEIR fails to provide views from the berm/dirt knoll and a comparisons to views from the alternatives where there is no vantage point on the beach overlooking the ocean. The DEIR fails to analyze the impact to aesthetic resources from removing this high viewer exposure vantage point. Furthermore, removal of this high ground vantage point of the ocean accessible from the PCH is inconsistent with Santa Monica Mountains Local Coastal Program Policies CO-125 through CO-127 which call for the preservation of vistas along identified Scenic Routes, such as the PCH, and view of the ocean. The DEIR needs to be revised to describe and study this potential impact.

2. The construction light and glare impacts are described as less than significant with mitigation incorporated. There is no analytical discussion of the potentially impact; rather simply a cursory statement that mitigation measure AES-1 would shield lighting from light-sensitive land uses. As noted above, the EIR must indicate whether the project's environmental impacts would be potentially significant if mitigation measures were not adopted and separately determine if mitigation measures described in the EIR would substantially reduce or avoid the identified significant impacts. *Lotus v. Department of Transportation* (Jan. 30, 2014) 223 Cal.App.4th 645. Thus, the DEIR should describe the impact. Light and glare would create a significant impact to the nearby homes, which are considered sensitive uses. The EIR fails to apprise decision makes of the environmental impact prior to mitigation.

3. Certain Build Alternative descriptions of the Project propose including parking spaces on the west edge of the Project area where no spaces currently exist. The impacts of these spaces on the adjacent residential uses is not analyzed during either the construction or operational phases of the Project. Such impacts should be studied and disclosed. With respect to the operational phases, there should be mitigation to prevent impacts such as impacts of vehicle headlights on adjacent properties. There is no discussion, for example, of the parking lot hours, how lot access will be restriction and enforced overnight, etc. These potential impacts must be described and analyzed.

3.6 - Geology

1. Geo 3.6-2 states that the Project would not result in substantial erosion and loss of topsoil, and that impacts in this category would be "less than significant." (p. 3.6-19). The EIR, however acknowledges that "the substantial grading proposed for the Project would expose bare soils that would be subject to erosion before the establishment of emergent vegetation. Substantial soil erosion could occur if exposed soils are subjected to heavy rain." The EIR should acknowledge that this impact is not less than significant and appropriate mitigation measures to prevent erosion impacts should be identified.

Furthermore, the EIR does not adequately discuss the impact of erosion of topsoil at the lagoon and beach area on the adjacent properties. As noted in the attached letter from ENGEO Incorporated, the Project proposes to shift the lagoon westward, and remove the existing helipad which acts as a sand retention groin. The DEIR fails to fully and adequately analyze this issue, including but not limited to discussing and analyzing required stabilization measures to prevent erosion impacts.

For example, in comment 4, ENGEO concludes that: "It is our professional opinion that it is therefore not appropriate to conclude that since the beach was stable prior to the Helipad being constructed, it will remain stable once the Helipad is removed." And, in comment 5, ENGEO concludes that: "It is our professional opinion that sand retention infrastructure should be considered for the project, and a sand monitoring and nourishment plan should be developed as part of the DEIR to ensure the public beach to the west of the lagoon is not lost due to the removal of the Helipad." Therefore, the DEIR must be revised to remove the inaccurate assumption that that since the beach was stable prior to the Helipad being constructed, it will remain stable once the Helipad is removed, and all analysis that relied on that assumption but be revised.

2. In Section 3.6.1 (Regulatory Setting) the EIR references California Coastal Act Coastal Resources Planning and Management Policies, specifically identifying as an applicable regulation Section 30253 therefor, which provides:

> *Section 30253 Minimization of adverse impacts. New development shall do all of the following: (a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard, (b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs*

The EIR, however, fails to adequately assess the Project's contribution to flood risks or wildfire debris flows, particularly in light of erosion concerns and due to the impacted topography of expanding the lagoon near the adjacent homes and removing the existing protective berm/dirt knoll and helipad which has been acting as a sand retention groin.

3. As noted above, the DEIR is fundamentally flawed in that it fails to provide a stable project description. The failure to identify and accurately describe the Project impacts each analytical section of the DEIR. For example, the morphological analysis relies on different grading plans. In comment 1 of the ENGEO comment letter, ENGEO concludes that: "It is our professional opinion that a preferred grading plan alternative should be identified in the DEIR and the morphological analysis updated accordingly." Therefore, the DEIR must be revised to select a preferred grading plan to reflect the proposed Project and the morphological analysis must be revised to reflect the preferred grading plan.

3.7 - Greenhouse Gas Emissions/Climate Change

1. The DEIR's description and of the Projects operational emissions is misleading.

Section 3.7-31 states that: "Only construction emissions will be quantified because the Proposed Project's operational emissions would be less than existing emissions." Elsewhere, the proposed operational GHG emissions are described as "comparable to or likely less than existing GHG emissions at the Project site." (p. 3.7-37.) There is a fundamental lack of accurate quantitative or qualitative assessment that leads to varying impact conclusion descriptions through the analysis.

Existing Site Emissions are themselves not quantified, nor are they qualitatively described and assessed accurately. The DEIR notes: "The Project site includes Topanga Creek and Topanga Lagoon, a narrow Pacific Coast Highway (PCH) bridge and visitor services such as parking, lifeguard and public restroom building, State Parks employee housing, restaurants, and other business leases. Everyday operational activities at these businesses result in the emission of GHG emissions associated with vehicle trips, landscaping equipment, on-site combustion of natural gas for heating and cooking, the generation of electricity for building energy and water conveyance, and from wastewater and solid waste decomposition. In order to provide a conservative assessment, existing emissions estimates were not modeled." (p. 3.7-29) Thus, there are not grounds for the EIR to state that operational emissions, of one of the project alternatives, would be less than the existing emissions.

Further, it is unclear how operational emissions could be reduced, a problem compounded by the failure of the EIR to select a proposed project in addition to several alternatives.

For example, the EIR claims on page 3.7-31 that project changes to the Topanga Ranch Motel would result in a decrease of Project operational emissions. The Topanga Ranch Motel, however, is primarily vacant and not operational for visitor accommodations and therefore should not be framed as an existing emissions contributor. So, compared to Alternatives 3 and 4 which would retain and restore 20 and 15 buildings respectively, the Project would have anywhere between 15 to 20 additional operational buildings contributing to Project operational emissions with uses proposed like hosting overnight visitor accommodations. The EIR is misleading in claiming that

this is a reduction in operational emissions compared to the baseline, and fails to accurately account for increased in operational emissions of the project build scenarios.

Additionally, the EIR claims that "all Build Alternatives would not provide new recreational facilities or substantial additional beach area that would result in additional visitors traveling to the area and would provide improved bus stops, pedestrian access, and bicycle access, which would reduce vehicle miles traveled." (p. 3.7-32.) It fails to account, however, for the parking provided on site and thus the increased capacity for site visitors relying on driving rather than availing themselves to bus and bike access. Further, there are new recreational facilities that may attract additional visitors, such as the proposed visitor services center and outdoor interpretive pavilion.

2. The DEIR fails to justify why the SCAQMD's significance threshold of 10,000 MTCO2e per year for industrial projects is the most relevant GHG significance threshold and is used as a benchmark for the Project which is not an industrial land use project.

3.8 - Hazards and Hazardous Materials

1. The DEIR fails to adequately assess impacts to emergency evacuations. With regards to construction phase impacts, the DEIR relies on Mitigation Measure TRA-1 to avoid a significant impact to emergency response plans. MM TRA-1 requires development of a construction and emergency traffic management plan to be developed in coordination with Caltrans, the City of Malibu, the County, State Parks, DBH, and emergency service responders, which would include fire departments, police departments, and ambulances with jurisdiction within the Project area. MM TRA-1 does not provide sufficient specific performance standards to support this as future mitigation. This traffic management plan must be analyzed prior to Project approval to ensure it fully mitigates the impact described.

2. The DEIR fails to adequately discuss or analyze impacts to the adopted Evacuation Plan for the City of Malibu, which identifies Topanga State Beach Parking at 18700 Pacific Coast Hwy Malibu CA 90265 - located within the project site - as a pre-identified "Safe Refuge Area." (Evacuation Plan p. 7.) Safe Refuge Areas are temporary staging areas in a mandatory evacuation. They may also be used to help move traffic off the road to speed up the movement of people out of the immediate danger area. Temporary closure of the site during construction would impair or physically interfere with the adopted Evacuation Plan. This impact is not adequately mitigated. Appendix J provides a Draft Construction Traffic and Emergency Management Plan which is required by Mitigation Measure TRA-1. The Draft Construction Traffic and Emergency Management Plan, however, does not address this issue and instead defers addressing with this conflict to future coordination between the County and City of Malibu at some point during the final design and prior to issuance of demolition, grading, or any construction permits issued for the Project, stating: "The Lead Agency/Project Sponsor and contractor will coordinate with the County and City of Malibu to identify an alternative refuge area in close proximity to the Project

during the period of construction which causes the DBH parking lot to be unavailable." Alternative refuge areas should be identified and be evaluated with the proposed project to assure that there is an adequate and feasible alternative and that mitigation is not improperly deferred.

3. The DEIR fails to analyze the operational impacts of relocating the helipad used for emergency services from the existing location - on the southwest wide of the lagoon, on Malibu side of the bridge, and directly accessible from the PCH from Malibu - to the proposed location - on the eastern side of the lagoon, on the other side of the bridge from Malibu, and not directly accessible form the PCH but accessible through an upgraded parking lot. This bridge could be rendered unusable in the event of an earthquake or similar natural disaster. These impacts need to be described and analyzed.

4. See comments on Section 3.16 below regarding the failure to analyze impacts with respect to baseline conditions involving closure of SR-27.

3.9 - Hydrology/Floodplain and Water Quality/ Stormwater Runoff

1. The DEIR fails to assess impacts of the Proposed Project on beach erosion, flooding, and debris flow conditions for the homes adjacent to the project site.

2. The DEIR cites existing poor water quality as due in part to deteriorating structures and feces/trash from increasing homeless activity and fecal contamination from dogs and gulls (p. 3.9-25.) The EIR states that the "Proposed Project's improvements to public access and improved visitor services, which includes more State Parks staff present, may help with achieving greater enforcement of the no-dog and no-camping rules, which could reduce dog and human sources." (p/ 3.9-29.) This is entirely speculative. There is no reference or commitment in the document that increased staff will be present to monitor and enforce these water quality protection measures. In fact, State Parks staff is likely to be located inside the proposed visitor center. See comments regarding the DEIR's failure to appropriately discuss and analyze maintenance obligations. In addition to this being a conclusory and speculative analysis, it is not backed up by an enforceable mitigation measure. Further analysis should be done with respect to water quality impacts and mitigation measures are needed to reduce these contamination sources that are not covered by Mitigation Measures HAZ 1 and 2.

3. The DEIR fails to analyze impacts resulting from changes in drainage patterns on the site to the surrounding area, including the adjacent homes, which would be closer to the expanded lagoon and no longer separated by a protective berm/dirt knoll. The DEIR cannot credibly conclude there are no potential impacts to HYD 3.9-3 without adequately studying this issue. Please see attached letter from ENGEO. In comment 2, ENGEO concludes that: "It is our professional opinion that flooding and erosional impacts of 10-year and 100-year return period fluvial storms should be evaluated assuming the thalweg has established in the location as shown in blue, or further

west." Therefore, the DEIR must be revised to describe and analyze the flooding and erosional impacts of 10-year and 100-year return period fluvial storms assuming the thalweg has established in the location as shown in blue, or further west.

3.10 - Land Use and Planning

The following Coastal Act policy incorporated into the Santa Monica Mountains LCP is applicable to the Proposed Project: "Protection against loss of life and property from coastal hazards." (p. 3.10.4) Impacts contributing to loss of life and property, with respect to the properties to the west of the Project boundary, should be adequately disclosed and analyzed. See comments above.

A mitigation measure is needed to ensure compliance with CO-17 so that no earthmoving can occur during rainy or potentially raining conditions.

3.12 - Noise

The Project would generate substantial increases in ambient noise levels in the vicinity of the Proposed Project - specifically the noise-sensitive residential uses to the southwest, of the Project Site, south of the Pacific Coast Highway and as near as 100 feet from the construction site - in excess of standards established in the local general plan or county noise ordinance. Construction noise associated with the Proposed Project that exceeds state and federal standards will interfere with human daily activities. This should be classified as a significant and unmitigable impact.

Table 3.12-5 includes a 5 dBA reduction of noise levels from acoustic shielding from intervening buildings between the Project site and off-site sensitive receivers analyzed. This reduction is inapplicable with respect to the noise-sensitive residential uses to the southwest, of the Project Site, south of the Pacific Coast Highway and as near as 100 feet from the construction site which are not shielded from the Project Site with any intervening buildings. Thus, Table 3.12-5 inappropriately presents reduced estimated construction noise levels for these sensitive receptors. This should be revised to remove the reduction with respect to these sensitive receptors.

Nonetheless, the improperly reduced estimated construction noise levels still exceed applicable standards and create a significant impact. The DEIR fails to show how mitigation measures NOISE-1 and NOISE-2 would reduce the impact to a less than significant level.

Furthermore, while mitigation measures NOISE-1 and NOISE-2 may reduce some noise, the impacts will still be significant and unavoidable, particularly in the event that construction occurs outside the allowed hours for construction activity. Noise from the construction on the PCH and extension of the sewer extension within PCH must happen during nighttime hours per Mitigation Measure TRA-1 (p. 3.16-14.)

The DEIR notes that: "In general, noise from a point source decreases approximately 6 dBA for each doubling of distance." (p. 3.12-19.) Thus, reducing the western expanded footprint of the lagoon and eliminating the western parking lot would reduce the need to grade adjacent to the residences and avoid the significant impact which cannot otherwise be mitigated. The noise analysis should be revised to reflect the flaws identified above and an alternative should be added to address the significant, unmitigable noise impacts of the proposed build alternatives project.

3.13 - Public Services

1. The EIR fails to analyze impacts associated with moving the helipad from the western side of the lagoon to the eastern side of the lagoon on the other side of the extended PCH bridge. The DEIR in a rather conclusory fashion asserts that: "The lifeguard and public restroom building, and helipad would be located adjacent to each other and closer to PCH to enhance emergency response times. Emergency access to the beach would also be enhanced via provision of year-round emergency and pedestrian access on both sides of the lagoon under the highway and the realigned access road. Staff parking and access at the beach level would be improved. Therefore, no expansion or construction of fire protection and emergency services would be needed. No significant impacts related to fire protection and emergency services would occur, and further, a net benefit would occur as a result of the proposed improvements to emergency access." This however fails to reflect that the helipad is now further away from the City of Malibu. The DEIR does not discuss or analyze impacts of this to Malibu-based first responders who, to access the helipad, would need to cross the bridge, adding distance to the helipad and potential obstructions if the bridge is impacted by traffic or natural disaster (*e.g.*, earthquake, fire, flood, landslide).Further the build alternatives show that the helipad is not directly accessible form the PCH but accessible through an upgraded parking lot.

2. The DEIR fails to discuss or analyze impacts to the adopted Evacuation Plan for the City of Malibu (adopted August 2020), which identifies Topanga State Beach Parking at 18700 Pacific Coast Hwy Malibu CA 90265 as a pre-identified "Safe Refuge Area." (Evacuation Plan p. 7.) Safe Refuge Areas are temporary staging areas in a mandatory evacuation. They may also be used to help move traffic off the road to speed up the movement of people out of the immediate danger area. Temporary closure of the site during construction would impair or physically interfere with the adopted Evacuation Plan. This impact is neither disclosed nor mitigated.

3. The DEIR asserts that the build alternatives would not involve new operational activities that would require additional fire and police protection services. This fails, however, to account for the new uses and facilities involved in certain build alternative iterations of the project. For example, under Alternatives 3 and 4, additional visitor services are provided and 15–20 structures associated with the historic Topanga Ranch Motel would be retained and restored. These structures would be used for the development of future visitor services that could include a mix of overnight accommodations and park facilities such as employee housing, a maintenance

facility, park offices, and storage. The additions of overnight accommodations uses may create an added public services demand that does not currently exist on the site. This issue should be studied and analyzed in the EIR.

3.14 - Parks and Recreation

The DEIR asserts that: "Reconstruction of the lifeguard and public restroom building closer to PCH would provide a clean and safe environment for recreational users." (p. 3.14-8.) However, there is no support that such facilities will be sufficiently maintained over the project life to avoid becoming deteriorated. The DEIR does not describe or analyze maintenance capabilities and commitment to maintaining the project park facilities. See comment above regaining DEIR failure to adequately disclose or analyze maintenance obligations and related impacts.

3.16 - Transportation and Circulation

1. See comment above regarding Section 3.8 - Hazards and Hazardous Materials pertaining to the conflict with the City of Malibu Mass Evacuation Plan and inadequate mitigation.

2. The DEIR assumes that the Project will not entice additional visitors to the project site and increase VMT. (p. 3.16-17.) This assumption fails to account for several features that could increase trips to the project area and increase VMT above baseline conditions, including but not limited to: the new uses and facilities involved in certain build alternative like Alternatives 3 and 4, where additional visitor services are provided and 15–20 structures associated with the historic Topanga Ranch Motel would be retained and restored and could be used for the development of future visitor services that could include a mix of overnight accommodations and park facilities such as employee housing which would increase trips to the site. Potential future connection to regional trail systems would provide new recreational opportunities that, in addition to being pedestrian accessible, may entice hikers to drive to the upgraded parking at the beach and then walk to the trailhead, which would entice people to travel to the area and increase VMT. The DEIR fails to explain how such enhanced and expanded facilities would not increase traffic volumes and result in increases to VMT. Absent such analysis, there are no grounds for the EIR to conclude the Project would result in a reduction to VMT.

3. The design of Project Build Alternatives, like 2 and 4, that places the helipad as accessible through the parking lot is not described or analyzed as a potential circulation traffic hazard. This should be studied and impacts should be described and mitigated. Alternatively, leaving the helipad on the western bank of the lagoon would avoid this potential impact.

4. The DEIR fails to accurately describe existing conditions of SR-27 (Topanga Canyon Boulevard). The DEIR notes that "TCB ends at Topanga Beach, providing access to both eastbound and westbound PCH… TCB within the Project area provides three travel lanes (one northbound and two southbound) with one right-turn lane for southbound turns heading west on PCH and two left-turn lanes for southbound turns heading east on PCH. According to the County Mobility

Element, TCB is designated as a major highway. It is also a designated Disaster Route." (p. 3.17-7). The DEIR does not reflect, however that as of the date of these comments SR-27 has been closed indefinitely from the PCH to Grand view Drive due to an unstable landslide. While the baseline for analysis of the environmental conditions is generally the date of publication of the Notice of Preparation, the conditions as of the date of the Notice of Preparation are not appropriate to accurately describe transportation and evacuation impacts due to the markedly changed conditions of the environmental conditions with respect to the closure of this major highway that serves as one of the limited access points and disaster routes in the area. Thus, the EIR should be updated to additionally analyze transportation and emergency evacuation impacts under the present and likely recurrent scenario of an extended SR-27 closure.

3.17 - Utilities and Service Systems

The DEIR fails to adequately disclose or analyze the potential impacts of utility disconnections as a result of the Project, in particular during the construction phase and to the adjacent residents. The DEIR merely notes that there would be "minimal service disruption." (p. 3.17-10.) The timing, duration, or extent of such service disruption is not described or analyzed. Further, the Mitigation Measure UTS-1 does not address these potential impacts.

3.18 - Wildfire

1. See comment above regarding Section 3.8 - Hazards and Hazardous Materials pertaining to the conflict with the City of Malibu Mass Evacuation Plan and inadequate mitigation.

2. See comment above regarding 3.16 - Transportation and Circulation pertaining to the failure of the DEIR fails to accurately describe existing conditions of SR-27.

3. The DEIR states that: "The Project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Impacts would be less than significant." (p. 3-18-23.) The DEIR, however, fails to adequately discuss or analyze impacts to the homes near the western boundary of the Project site which will be near the expanding and westward shifting lagoon and potentially subject to downstream flooding or debris flows, particularly if the lagoon mouth fans westward and in light of the inadequately described or analyzed stabilization measures on the western bank of the lagoon. See the attached ENGEO comments. In comment 3, ENGEO concludes that: "It is our professional opinion that inundation and erosional impacts of a debris flow occurring in the Topanga Creek watershed (and flowing to the coastline) should be evaluated assuming the thalweg has established in the location as shown in blue, or further west." Therefore, the DEIR must be revised to describe and analyze the inundation and erosional impacts of a debris flow occurring in the Topanga Creek watershed (and flowing to the coastline) assuming the thalweg has established in the location as shown in blue, or further west. The DEIR needs to fully discuss

and analyze these potential impacts. This is a particular concern give the well-known history of fire risk in the area including the Topanga fire of 1993.

ENGEO Incorporated Comment Letter

ENGEO
Expect Excellence

GEOTECHNICAL
ENVIRONMENTAL
WATER RESOURCES
CONSTRUCTION SERVICES
COASTAL/MARINE GEOTECHNICS

April 12, 2024

Project No.
25680.000.001

California Department of Parks and Recreation
1925 Las Virgenes Road
Calabasas, CA 91302
Attn: John Ota, Environmental Scientist

cc: Laurence Wiener (RWG Law)
Chris Griffiths (Topanga Resident)
Lloyd Ahern (Topanga Resident)

Subject: Topanga Lagoon Restoration
Pacific Coast Highway
Topanga, California

DEIR REVIEW COMMENTS

Dear Mr. Ota:

ENGEO Incorporated has performed a third-party review of the Topanga Lagoon Restoration Draft Environmental Impact Report (DEIR). ENGEO is an engineering and earth sciences consulting firm with expertise in hydrologic, hydraulic, geologic, geotechnical, environmental, and coastal engineering. It should be noted that ENGEO has no vested interest in the outcome of the proposed Topanga Lagoon Restoration project, and the comments contained in this letter are solely professional opinions based on our technical review of the DEIR.

Based on our review of the DEIR and appendices, we believe further analysis should be considered to evaluate how widening the lagoon may impact the shoreline properties west of the Topanga Lagoon, particularly potentially significant impacts related to erosion, redirection of flood flows, and exposure to post-fire debris flows. To that end, we have provided the comments below, which we believe should be addressed in the DEIR.

COMMENT 1

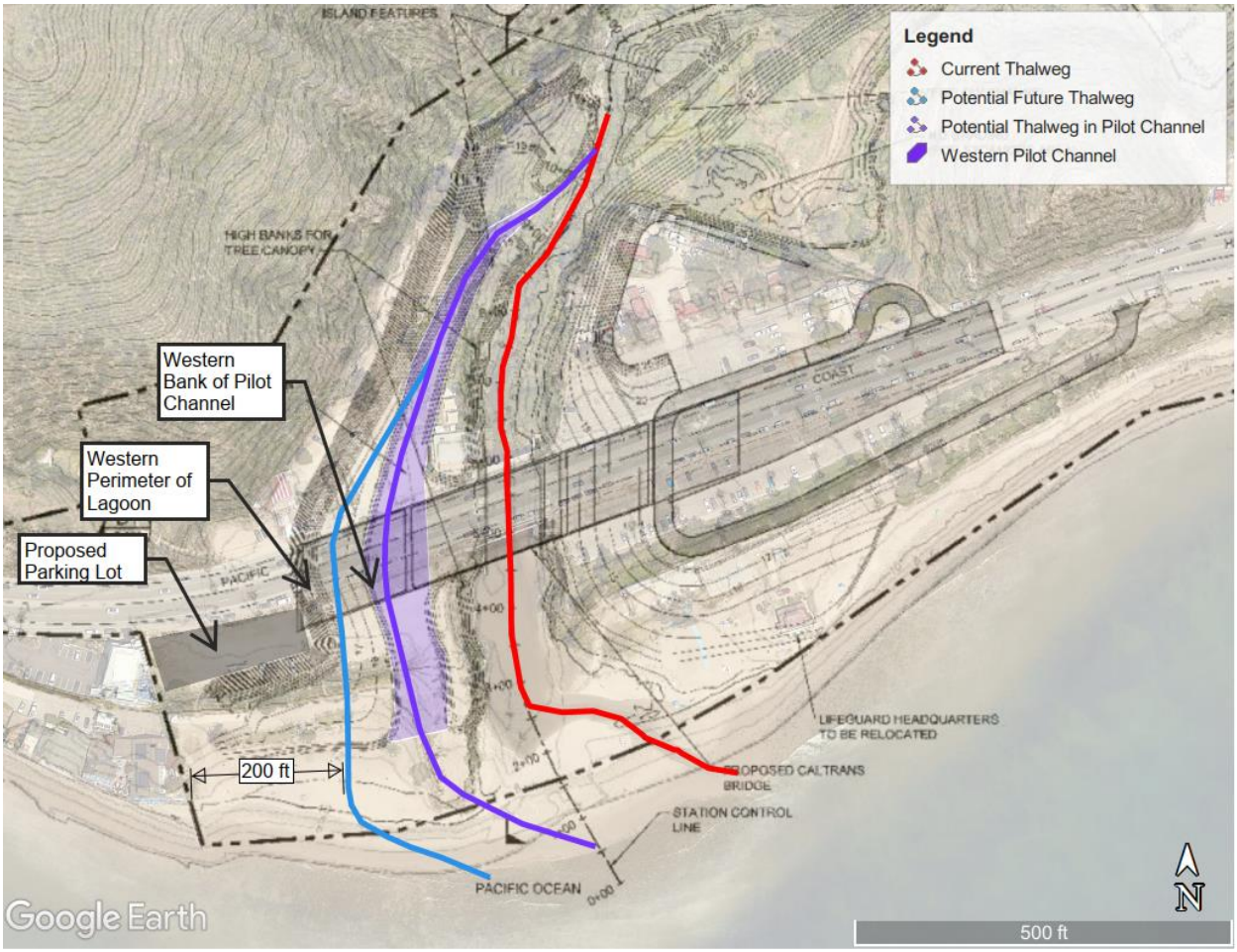
The grading plans for Alternatives 2, 3, and 4 used in the shoreline morphology analysis are from 2020 (Figure 2.1 of Appendix B), and do not match the grading plans dated February 2021 shown in the alternatives analysis (Figures 2.1 through 2.4 of Appendix E). Because of this, it is unclear which proposed grading plan alternatives are being considered for the project, and if the most up-to-date grading plan alternatives have been considered in the shoreline morphology analysis. The proposed lagoon bathymetry used in the morphological modeling (Figure 4.1 of Appendix B) appears to be based on outdated grading plan alternatives. **It is our professional opinion that a preferred grading plan alternative should be identified in the DEIR and the morphological analysis updated accordingly.**

COMMENT 2

Section 2.5.4 of the DEIR states that under all build alternatives, the lagoon mouth is anticipated to continue trending west rather than east because the lagoon and bridge would be widened predominantly to the west. Each of the DEIR grading plan alternatives includes a pilot channel to the west of the existing thalweg. The thalweg is the line of lowest elevation within the lagoon, often referred to as the flowline. As discussed in Section 6.2 of Appendix B, the purpose of the pilot channel is to encourage westward migration of the thalweg. We understand the location of the proposed western pilot channel is based on the location of the lagoon's historic thalweg alignment.

Exhibit 1 below shows the grading plan for Alternative 3 overlain on a 2019 Google Earth aerial image. The current thalweg location is shown in red, and the proposed western pilot channel is shown shaded in purple. Over time, the thalweg will likely shift to be within the western pilot channel, similar to its historic alignment. If the thalweg shifts to the location shown by the purple line, the highest flow velocities in the lagoon during storm events will be concentrated along the western bank of the pilot channel due it being an outer bend in the channel's alignment. If there are not proposed stabilization measures within the pilot channel, the thalweg may eventually shift further west to a hypothetical location shown in blue, or even further west than shown in blue (again, due to the highest flow velocities being concentrated along the outer bend).

EXHIBIT 1: Potential Migration of Thalweg



*Note we have sketched the furthest downstream reaches of the potential future thalwegs trending east due to the net easterly longshore transport direction observed along this stretch of coastline.

We note that bioengineered stabilization measures or living shoreline elements are proposed to be included as part of the project; however it is unclear what these measures will consist of and where they will be located. **Are stabilization measures proposed within the western pilot channel, or will the pilot channel be allowed to migrate?** If the thalweg eventually migrates to the position shown in blue in Exhibit 1, velocities would be highest along the western perimeter of the lagoon during storm events, which could exacerbate erosion of the proposed parking lot and public beach. In addition, the westward migration of the thalweg would place the mouth of the lagoon closer to the adjacent properties to the west, which could expose them to potentially significant impacts related to erosion and flooding. **It is our professional opinion that flooding and erosional impacts of 10-year and 100-year return period fluvial storms should be evaluated assuming the thalweg has established in the location as shown in blue, or further west.**

COMMENT 3

It is well known that the Santa Monica Mountains are prone to wildfires and subsequent sediment-laden floods, mud flows, and debris flows. The existing bridge is approximately 79 feet long (per Section 2 of Appendix O), and is proposed to be widened to 460 feet long per the DEIR. Increasing the length of the bridge would allow a debris flow to fan out more widely when it reaches the coastline. The potential westward migration of the thalweg (as discussed in Comment 2) would place the mouth of the lagoon closer to the adjacent properties to the west, which could expose them to potentially significant impacts related to post-fire mud/debris flows. **It is our professional opinion that inundation and erosional impacts of a debris flow occurring in the Topanga Creek watershed (and flowing to the coastline) should be evaluated assuming the thalweg has established in the location as shown in blue, or further west.**

COMMENT 4

Section 5.1 of Appendix B notes that, based on review of historical aerial imagery, Topanga Point has been stable before and after the Helipad was constructed (indicating the Helipad does not contribute to shoreline stability). However, it should be noted that, prior to the construction of the Helipad in the 1940s, the beach along this stretch of coastline was much wider than it is today (which provided natural stabilization by dissipating wave energy further from the shoreline). Over the last century, Southern California beaches have experienced a significant reduction in sand replenishment due to upland development, dam construction, dredging, and other human activities that have reduced the volume of sediment making its way to the coastline. Recent aerial images along this stretch of coastline show significant beach loss compared to the 1940s when the Helipad was constructed. **It is our professional opinion that it is therefore not appropriate to conclude that since the beach was stable prior to the Helipad being constructed, it will remain stable once the Helipad is removed.**

COMMENT 5

Section 6.1 of Appendix B says the morphological model results show that removing the Helipad would have little impact on adjacent beaches. While numerical models are beneficial tools to help evaluate potential impacts, a numerical model is only as good as its assumptions. The limitations and assumptions of the numerical modeling are noted in Appendix B, and the challenge of simulating sediment transport and long-term morphological changes on beaches with mixed sandy and rock materials is recognized (Section 3.6.9 of Appendix B). Because estimating sediment transport over long-time periods is particularly difficult, model results should be understood to have a high degree of uncertainty. Additionally, the morphological modeling appears to be based on outdated grading plan alternatives (see Comment 1).

Based on our review of historical aerial images and extensive experience working along the Southern California coastline, the Helipad appears to be acting as a sand-retaining groin, likely helping prevent sand on the westerly public beach from continuing to be transported east down the coast. Exhibit 2 outlines the Helipad on a 2019 Google Earth Aerial Image and the westerly public beach that is partially stabilized by the Helipad. The DEIR should evaluate the impacts to the project, public beach, and adjacent properties in a situation where there is significant sand loss west of the lagoon. **It is our professional opinion that sand retention infrastructure should be considered for the project, and a sand monitoring and nourishment plan should be developed as part of the DEIR to ensure the public beach to the west of the lagoon is not lost due to the removal of the Helipad.**

EXHIBIT 2: Aerial Image of Helipad



We appreciate the opportunity to provide our comments on the proposed project.

Sincerely,

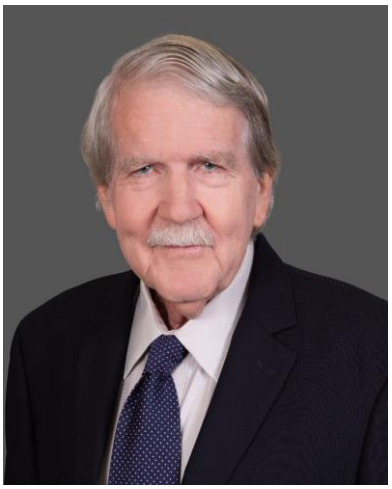
ENGEO Incorporated

REGISTERED PROFESSIONAL ENGINEER
WALTER F. CRAMPTON
No. 23792
CIVIL
STATE OF CALIFORNIA

Walter F. Crampton, PE, GE, D.CE

crh/wfc/jjt/ar

Attached: Walter Crampton CV



EDUCATION

Post Graduate Studies, Oceanography, Scripps Institution of Oceanography

MS Civil Engineering, San Diego State University, 1974

BS Civil Engineering, San Diego State University, 1971

EXPERIENCE

Years with ENGEO: 35
Years with Other Firms: 15

REGISTRATIONS & CERTIFICATIONS

Geotechnical Engineer, CA 245

Civil Engineer, CA 23792

Diplomate-Coastal Engineering, Academy of Coastal, Ocean, Port & Navigation Engineers

SPECIALIZATIONS

- Coastal Engineering
- Hydraulic Engineering
- Ports and Harbors
- Sea Level Rise Vulnerability Assessment
- Foundation Design
- Slope Stabilization

WALTER CRAMPTON, PE, GE, D.CE

Principal

Walt has close to 50 years of experience in geotechnical, coastal, and hydraulic engineering. He was President, Principal Engineer and co-founder of TerraCosta Consulting Group, Inc. and its predecessor firm. TerraCosta has merged with ENGEO, and Walt's coastal engineering expertise is now shared with, and augmented by, other ENGEO geotechnical professionals.

Walt's responsibilities encompass the initial field and design phases to final construction. Walt has managed numerous marine, offshore, maritime, and coastal projects ranging from geotechnical studies for piers, wharves, small marinas, and other harbor facilities, to major shoreline protection structures, including seawalls, stone revetments, bulkheads, and groins. Projects along the California coast have also addressed sea level rise vulnerability assessments and wave run-up studies.

Walt has considerable experience with geotechnical studies for foundation design for structures, structural pavement design, coastal bluff and slope stabilization, and earth retention structures. He has experience in soil improvement techniques and evaluations of the performance of existing structures and pavements, from a geotechnical standpoint. Walt works closely with regulatory agencies, including the California Coastal Commission, on projects with unique coastal engineering challenges.

SELECT PROJECT EXPERIENCE

Long Beach Lifeguard Headquarters Rehabilitation and Junior Lifeguard Facility Rebuild—Long Beach, CA
Principal in Charge. Walt was the responsible geotechnical engineer for rehabilitation of the existing Lifeguard Headquarters building. The rehabilitation of the existing Lifeguard Headquarters building includes construction of a new supporting foundation system which bringsthe facility up to contemporary building codes. In addition, the construction of a new seawall alongthe southerly margin of the building will protect the building from the effects of high surf and coastal erosion. Both the California Coastal Commission and the City of Long Beach had jurisdiction over improvements in the area, and these agencies require site-specific information addressing the issues of future mean sea level rise (MSLR). This MSLR assessment is a State of California requirement and the California Coastal Commission requires technically sound and defensible scenario projections of total maximum water level and consideration of the design alternatives and possible

adaptation measures. Walt also made an evaluation of the coastal processes in the site vicinity. Design criteria were provided for the proposed vertical seawall andaddressed its effectiveness in providing protection for the rehabilitated lifeguard facilities from periodic storm waves in the area.

Coast Boulevard Sea Cave Emergency Stabilization in La Jolla—San Diego, CA
Principal in Charge/Coastal Engineer/Geotechnical Engineer. Walt was the responsible geotechnical engineer and civil/coastal engineer for the design of the emergency stabilization of a sea cave underlying Coast Boulevard in the La Jolla area of the City. This sea cave is known as Koch's Crack (or Cook's Crack). This sea cave extended inland under the full width of the Coast Boulevard pavement. During a review of the pavement along Coast Boulevard, City of San Diego field crews noted that portions of the roadway in the area of the Koch's Crack sea cave were showing signs of extensive cracking. Walt and his colleagues were requested to perform are-assessment of the sea cave geometry and stability. Changes in the sea cave conditions werenoted between the 2002 and 2019 assessments of the sea cave and there was potential for near-future failure of the sea cave's roof rock and for piping of the overlying sandy soils. Walt recommended that the City stabilize the Koch's Crack sea cave. The City approved the emergency infilling of the Koch's Crack sea cave with erodible cement-sand slurry. This project has received multiple awards including ENR's 2020 Best of the Best Small Project and ASCE Region 9 Outstanding Geotechnical Engineering Project in the State of California for 2020.

Mission Beach Boardwalk and Seawall Extension—San Diego, CA
Geotechnical Engineer. Walt is the responsible geotechnical engineer for the planned extension of the Mission Beach Boardwalk and Seawall in the Pacific Beach area of San Diego. Field activities for this project included drilling on the sand beach. Based on the subsurface soils conditions, Walt developed geotechnical design parameters for the design of the sheet-pile wall and vehicle access corridor. Previous to this project, Walt had performed a third-party review of various documents to assist in the condition assessment of the existing Mission Beach Boardwalk and Seawall. The results of this study included prioritization of future repairs, including filling voids underlying the walkway and repairing leaks in the sheet pile seawall.

Dana Point Harbor Revitalization—Dana Point, CA
Principal in Charge. Walt evaluated the concrete bulkhead panels and the rock revetment along the entrance channel of Dana Point Harbor. He provided coastal and geotechnical engineering services for planned improvements at the harbor including new guide piles for new docks. The services included plan and report review, subsurface exploration, geophysical studies, geotechnical analyses and report preparation.

Ocean Boulevard Improvement Project—Pismo Beach, CA
Principal in Charge/Coastal Engineer/Geotechnical Engineer. Walt has provided coastal engineering services to the City of Pismo Beach over the past decade and is currently working on the Ocean Boulevard Improvement Project for the City. Winter storms in 2017 eroded the coastalbluff along Ocean Boulevard. The existing roadway and infrastructure are threatened by continued erosion. The storm drain structures and access stairways were also damaged by the storms. Design of a tied-back shotcrete seawall is currently underway. Environmental services, including evaluation of a cultural resource site, are proceeding.

Coastal Engineering and Geologic Input for Local Coastal Plan Update—Laguna Beach CA
Principal in Charge. Walt was the responsible geotechnical engineer for the coastal engineering input for the City of Laguna Beach Local Coastal Plan Update. Coastal bluff retreat is a

geomorphic process that has operated for thousands of years and continues today. Coastal retreat analysis methods included review of perceptible changes between modern-day photographs and historical documents and photographs were used to evaluate the geomorphic processes along the Laguna Beach coastline. The coastal bluffs are influenced by anthropogenic (human) activities, primarily from building improvements on the bluff-top areas. The report documented the geologic conditions and variations in shoreline erosion susceptibility along the coast of Laguna Beach.

Huntington Beach Cliffs Shoreline Stabilization—Huntington Beach, CA
Principal in Charge/Coastal Engineer. Walt evaluated various alternatives to stabilize the Huntington Beach Cliffs. The Huntington Beach Cliffs project site consists of approximately 4,200 feet of coastal bluffs extending northerly from Golden West Street. The bluffs are roughly 30 to 40 feet in height and are bounded by a bluff-top linear park and Pacific Coast Highway. Various alternatives to stabilize the coastal bluffs and provide safe beach access for the public were evaluated. The project site was adjacent to a former field of oilfield pump jacks and various debris had been placed on the bluff face to protect the infrastructure from bluff erosion. Services included the review of historical photographs, maps and records to reconstruct the development history along this reach of coastline. Subsurface exploration was performed to evaluate the geologic and geomorphic aspects of the bluffs and the adjacent shore platform.

Imperial Beach Resort Hotel—Imperial Beach, CA
Principal in Charge. Walt was the responsible geotechnical engineer for the Imperial Beach Resort Hotel project. The proposed hotel structure is planned as a U-shaped building with a central patio and pool area over a single below-ground parking level and auto travel ways. The north side of the project will consist of four stories above ground, and the south side will consist of three stories above ground, to be covered by abundant planting and open roof gardens. The study was designed to address the geotechnical engineering issues required by the project design team, and to meet City of Imperial Beach geologic, geotechnical, and seismic requirements. An evaluation of the coastal processes in the site vicinity was performed, along with an assessment of wave runup and its effect on the proposed beachfront hotel. Additionally, the impact of sea level rise on future inundation levels within this general segment of Imperial Beach was assessed.

PUBLICATIONS AND PRESENTED PAPERS

"Estimating Cliff Retreat in Southern California Considering Sea Level Using a Sand Balance Approach," 2014, *Marine Geology* 348:15-26, with A.P. Young, R.E. Flick, W.C. O'Reilly, D.B. Chadwick, and J.J. Helly.

"Spelunking on San Diego's Coastline," 2012, in *Waiting for Tsunami: Coastal Hazards of Northern San Diego County*: San Diego Association of Geologists Fieldtrip Guidebook, with G.A. Spaulding.

"A Case for the Clean Sand Layer within the Bay Point Formation in Solana Beach," 2012, in *Waiting for Tsunami: Coastal Hazards of Northern San Diego County*: San Diego Association of Geologists Field Trip Guidebook, with J. Knowlton, G.A. Spaulding and B.R. Smillie.

"A Framework for Sea Level Rise Vulnerability Assessment for Southwest U.S. Military Installations," 2011, *Proc. Oceans* 11, Mar. Tech. Soc., Inst. Electrical and Electronic Eng.,110426-001, with D.B. Chadwick, R.E. Flick, J. Helly, T. Nishikawa, P.F. Wang, W. O'Reilly, R. Guza, P. Bromirski, A. Young, B. Wild, and I. Canner.

"The Challenges of Permitting Coastal Projects in the 21st Century," 2011, in *ASCE Proceedingsof the 2011 Conference on Coastal Engineering Practice*, San Diego, California.

"The Point Project - Landslide Stabilization," 2007, in *Proceedings of First North American Landslide Conference, Landslides and Society: Integrated Science, Engineering, Management, and Mitigation*, Vail, Colorado.

"A Different Perspective on the Concept of Planned Retreat," 2002, in *California and the World Ocean '02* Proceedings of the Conference, Santa Barbara, California: American Society of Civil Engineers.

"Restoring the Beach: Science, Policy and Funding. Coastal Field Trip Itinerary and Guide," 2001, prepared for the California Shore & Beach Preservation Association 2001 Annual Conference in San Diego, California, with R.E. Flick.

"Sand Beaches vs. Seawalls – A Geomorphic Perspective," 2001, in *Coastal Processes and Engineering Geology of San Diego, California*, San Diego Association of Geologists Fieldtrip Guidebook.

"National Marine Fisheries Service Center – Effects of Tectonics and Faulting on Coastal Erosion," 2001, in *Coastal Processes and Engineering Geology of San Diego, California*, San Diego Association of Geologists Fieldtrip Guidebook, with B.R. Smillie

"Pump Station 35, Assessing Coastal Stability – A Geomorphic Perspective," 2001, in *Coastal Processes and Engineering Geology of San Diego, California*, San Diego Association of Geologists Fieldtrip Guidebook, with G.A. Spaulding.

"Face Lift" [article regarding geogrid-reinforced landslide stabilization], 1998, *Geotechnical Fabrics Report*, with Paulo DiPietro.

"A Landslide of Litigation," 1996, *Civil Engineering*, ASCE, Vol. 66, No. 10, October, pp. 61-63.

"Flood Problems and Solutions in the Southwestern Desert," presented at the 1987 Associationof State Floodplain Management Conference, Seattle, Washington, with J.C. Hill.

"Sunset Cliffs Stabilization Project - San Diego, California," presented at the 1984 InternationalErosion Control Association Conference, Denver Colorado.

"Sunset Cliffs Shoreline Stabilization Project - The Politics of Coastal Engineering in California,"presented at the 1983 Coastal Zone Conference, San Diego, California, with R.E. Cain.

"Sunset Cliffs Stabilization Project - San Diego, CA," presented at the 1980 Coastal ZoneConference, Hollywood, Florida, with L.J. Lee.

IND 81

From: Kelli Frye <reply-to+89bcca1b40d8@wixforms.com>
Sent: Friday, April 12, 2024 1:31 PM
To: akahler@rcdsmm.org
Subject: [Topanga Lagoon Resto] Top Lagoon Inquiry/Comment Form - new submission

Kelli Frye just submitted your form: Top Lagoon Inquiry/Comment Form
on Topanga Lagoon Resto

Message Details:
Name: Kelli Frye
Email: kelligfrye@gmail.com
Comments/Questions: Hello, I am a volunteer for the Sierra Club Santa Monica Mountains Task Force. We fight all development in the Santa Monica Mountains to protect the flora and fauna. I am 100% in favor of Alternative 2: Maximum Lagoon Habitat. Wetland preservation is crucial. Thank you, Kelli

Reply directly or go to your site's Inbox:

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If you think this submission is spam, report it as spam.

To edit your email settings, go to your Inbox on desktop.

Public Meeting Comments

PUB

Topanga Lagoon Restoration Project – DEIR Public Review Meeting 2/24/2024 Comments Transcript

A recording of the Public Review Meeting held on February 24, 2024 is available to watch here: https://www.youtube.com/watch?v=VuU9XUoeIrU

51:01
name my name's J Shields I'm here with friends atanga Point uh we are a coalition of Surfers and beachgoers and
51:09
uh just wanted to comment on a few things that we've been involved in the process um the beach morphology and
51:15
search studies were contracted uh for for the agencies and response to uh fp's
51:21
advocacy for expert analysis of the potential impacts the restor project Alternatives could have on the beach and
51:28
surfing we are pleased to that the agencies contracted uh with reputable
51:34
Consultants to do the work and moreover these Consultants me with us to understand our concerns sought out our
51:41
look and knowledge from the surfin Beach Community and Incorporated our input into their computer modeling of the wave
51:48
and Coastal morphology these final studies were released just last week and we are still
51:54
reviewing them but they appear to have have seriously examined the issues we raised and are clearly the product of
52:00
substantial analysis and the results are encouraging they conclude that their
52:06
project Alternatives would not have significant adverse impacts to the beach or the surf break we would like to thank
52:12
the rcd and the agency involved for including these studies in the deir which has not happened before and we
52:18
look forward to continue collaboration with them and with that I'm going to turn it over to Aaron who's also part of
52:24
our group my name is Aaron Clark I am part of the friends at depa Point um we
52:29

all entered this uh process somewhat suspiciously we we weren't sure we'd be heard we weren't sure we'd be taken
52:36
seriously I can ensure the Surfers in this room and people listening online we were indeed taken very seriously so the
52:43
two uh primary reports that Jay mentioned were the the surf morphology
52:48
and the beach protection so we wanted to make sure we understood what the impacts to the beach would be not just for
52:53
Surfers but for their families for people have never been on a surfboard more importantly and selfishly for our
52:59
user group we wanted to make sure there was no harm done to the break because it's a it's an historic um kind of
53:06
iconic uh right-and Point Break there's not many of them around you have to go up to rancon it's probably the second
53:12
best one to that in this this area at least north of Orange County and so with
53:19
that I just want to thank the staff um and this is nent times we're going to be putting comments which we read the
53:26
reports but integral group uh did a fantastic job Dave Rell right um and
53:34
muffett and nickel did as well and so uh we invite everyone to review the reports I think you're going to put a zoom of a
53:41
presentation that they gave to our group um last Tuesday which sealed it for me
53:47
but which basically and I'm a land use practitioner I work for a law firm that
53:53
that does projects up and down the coast of California and this is one of the best collaborations I've had with public
53:58
agencies I just want to thank them very
54:04
[Applause] much thank you for that any other comments on the draft
54:14
today so um uh are there plans for additional
54:20
pedestrian um tunnels under the highway or is that

54:25
going to be part of uh the enlarged extended bridge right now there I know
54:32
only one um tunnel under the highway will it be improved pedestrian
54:45
access anybody know I know that there's
54:51
one yes so uh just uh I can't provide a full response again if you have more
54:57
specific concerns you can submit a written comment but I can't say in our plans we do look at um not only
55:04
maintaining the existing pedestrian access but uh improving it uh both by
55:09
having uh another pedestrian access on the other side of the creek and just better signage I think those of you who
55:15
are familiar with the existing underpass there is a sign it's not superv visible and there isn't a great path uh
55:21
funneling the public uh to it so those kind of things are uh addressing the
55:26
project design oh and and you can see some of
55:32
the details on uh the images here uh when it proposes the uh trail system uh
55:39
you can see that there are are two uh parts of the trail system which do cross PCH and that wouldn't be an accurate
55:47
Crossing thank you John we'll try to provide clarifications where where we can today but um mostly we're here to
55:53
hear from you and your concerns so we can get that in the public record sure
55:59
yeah so it looked like about a 10 year long project I I'm a Tanga resident um I use
56:08
the beach a lot with my family and our friends I looked like a long project about 10 years obviously a lot of work
56:15
um is it phased in such a way that the resources that are there now can
56:22
still be used by people over that time or is it like a 10 along construction site I see some
56:28
not let's no over to

56:33
you hi Jamie um so the construction is actually five years where and during
56:39
that time basically like where parking would be and how you access the beach would change around to be avoiding areas
56:46
that are actively being constructed so there at all times there would be access to the beach there will be parking
56:52
available it's just going to move around so part of the job of that construction team managing that is to communicate
56:57
that advance to the public that last five years is a mitigation monitoring period there shouldn't be any real
57:04
limitations to accessing the beach you won't be able to walk in the little areas where plants are are planted you
57:09
know baby plants we don't squish them but those areas aren't currently they don't have trail system into those
57:15
zones so is that a real five years or like a best case scenario of five years
57:20
I I think that's a real five years yeah I think it's a real Five Years thank you
57:25
um so if a sewer option is selected that adds one additional year so that would be six in that
57:33
case hi uh I'm a Tanga resident and a heavy user of the beach I'm in the water
57:39
a lot when it's not so cold um I I really have a question that's not centered around human beings I wonder
57:46
about the size of a lagoon the largest Lagoon size whether or not you've done
57:51
any correlations with how that buffers against sea level rise in that particular stretch of the coastline uh
57:59
to me that would be a big game Cher for supporting the largest Lagoon size if it indeed provided sea level rise buffering
58:07
as well but I didn't pick that up from your presentation and thank you very much for all your collaborations by the way and
58:14

the land acknowledgement it's long
58:21
overdue we don't have anyone that wants to comment on that okay I'll just say that you can find in
58:28
the appendices there is the hydraulic report that totally looked at all of
58:34
that and did you have any results yeah and it's all in that report so I'm not
58:40
supposed to answer questions we're taking comments I'll be around after you
58:46
we don't want to stay here here and say everything will be fine really trust that's that's not what we're doing so
58:51
it's a detailed report it's important that we understand the technical part of it for sure and that that so your
58:58
comment about make sure you do that is is taken here uh today and any any more specifics on that uh uh technical report
59:05
if you can get through that and think about what what it's saying pre provide the that to us in writing when you get
59:13
back home okay sure um there was like a brief
59:19
comment I gave someone that what would be the advantage of
59:25
restoring the motel a Historic Landmark it's a dilapitated rundown structure
59:31
what would be would it be work used as a functional motel and second part of the question is
59:39
um about the current trail head I'm an avid hiker and currently the trail
59:44
extends back about a half a mile it's really nothing um a nice 3 to Four Mile hiking
59:50
Loop would be optimal thank you thank you let me get
59:57
that down hold on um I was just G to briefly um touch on the Matel question
1:00:02
so the motel although it is dilapidated um it is because it's one of the rare
1:00:07
final examples of a 1930s Motel it is it has been determined eligible for the
1:00:13

national register um so the the out of the two Alternatives three and three and
1:00:19
four um would fully restore that um we're not quite sure to for what if it
1:00:24
would be overnight use if it would be office or interpretive exhibit area if
1:00:30
it would you know how it would be used by the public um that is to be
1:00:35
determined in F in a future study um but if we do have to remove it as a as an
1:00:41
alternative to there would have to be a lot of mitigations um done for that documenting it um additional
1:00:48
interpretive opportunities that sort of thing can you just point about the trail
1:00:53
trail that's included oh um yes so the loop trail there is a
1:00:58
loop trail that's part of the the proposed design and um when you look at the panels in the back that that could
1:01:05
show it like a loop around the
1:01:12
earlier hi I'm from Malibu and in uh when our Lagoon was restored I don't
1:01:19
think they did an adequate uh study of the hydrology as far as how the bridge
1:01:26
supports ended up uh shuttling the water over to where it's trying to take the
1:01:32
Adamson House out now uh I'm hoping that the study includes uh research about
1:01:41
orienting the bridge the new bridge supports so that they will keep the break in the same
1:01:51
place um along those lines I have I have a question about why in all three
1:01:57
alternates that they have the bridge going from 79 feet to 460 and what that
1:02:04
if there's a study that talks about the steel head and the um you know the what
1:02:10
is it freshwater goby needing that size um along those same lines I really I've
1:02:17
stared at this for hours and I don't understand how if you put that much water on the beach side that you now
1:02:24
don't have issues with you know there's not a lifeguard that's going to be West

1:02:29
so how is that water going to be managed and um and it does seem to be taking up
1:02:35
a lot it'll be taking the BM down and basically occupying all the sand that
1:02:41
exists there now so I'm not quite sure how this plays out and along those lines
1:02:47
you would need a sand replenishment I guess permit from the coastal commission which I understand are really hard to
1:02:53
get so has that already been sought after and in place um you know I also
1:03:01
wondered too why has a cultural uh Center not been created already why has that not happened or why
1:03:08
have the trails that are behind um you know the toena motel not been created
1:03:14
already it just seems this project is massive and asking for PCH to be
1:03:21
disrupted and the beach to be disrupted but yet not really you know giving some things that should have been addressed a
1:03:28
long time ago that could be addressed in an area that you know really has no impact as far as you know people or
1:03:35
concessions that are going to be destroyed you know I guess the first thing that I read at the construction
1:03:40
site was that you're going to take down all six no I'm sorry five of the six um
1:03:46
you know restaurants and Oasis and the feedb so it there it's very ambitious
1:03:52
but I also feel like it's incredibly you know uh kind of taking some things out
1:04:00
that that people you know are are enjoying and especially just to take it like when I
1:04:06
read the impact report saying it has it'll have no impact it felt like there was this absence of awareness that there
1:04:14
is an entire Community to the north to the West there's an entire Community to the east of this existing project and so
1:04:22
I find that you know a bit dis the other thing about the surf when I watched the Surf video it showed that

1:04:29
they're going to be you know they they try to re say that they're going to put the breach of the um runoff to the West
1:04:38
which happens to be where there are a lot of homes that are already in a flood zone so if you're putting 460 feet of a
1:04:45
width of water and breaching it to the west to support the Surfers which I totally
1:04:52
support that Surfers I mean you know I don't start but my son does but you're putting that water now toward homes that
1:05:00
are actually in a flood zone and below for example some of them are under
1:05:06
PCH so how is that mitigated and how is that not even mentioned in an e um and along those same lines my
1:05:15
understanding of the video that I watched about the surf was that it the study was actually not done with the
1:05:22
specific sand um barge out there are they is that correct it was yeah so the
1:05:29
wave was really determined before they actually put that barge out there which
1:05:35
is what size or not barge I'm sorry the sand the box so the box was you did they
1:05:42
didn't take the box into consideration before they did the study about how the way was going to be correct I didn't need to it's it
1:05:50
because yeah if the project the report it's in the appendices and that'll give
1:05:55
you the whole explanation it's an Excell it's an excent comment need to respond to it I've
1:06:07
spoken hi um will Alfred I'm with I represent Tanga Association forina
1:06:13
Community I work on the trash warriors on the Boulevard and uh take part in the arson watch um I have a couple things
1:06:21
first of all I just like to say thank you for preserving our nature that we
1:06:26
have left here in Los Angeles there's not a lot of it left and I think this project is ambitious and definitely
1:06:32

warranted um I agree with the managed parking that you have up to panga Canyon Boulevard um
1:06:40
I appreciate that because as a trash Warrior that's a pretty rough beat we get the most garbage right there I do
1:06:46
have a concern uh with bringing the Lagoon up into the back uh that we make sure that there's a trash management
1:06:53
portion of this because people that park there do leave a lot of garbage I think managing it
1:06:58
with a parking lot is going to create a much better uh environmental spot though um I agree with keeping the motel I have
1:07:06
a concern with making it an overnight spot because people again leave trash
1:07:12
they walk into areas they shouldn't be in I like it better using a visitor center so I would have a concern if that
1:07:18
was a motel and then finally I agree and salute with keeping our Native American
1:07:23
her AG intact it's extremely important but I also agree with this um
1:07:30
young this lady over here that we need to keep some of those businesses intact I I speak specifically about the real
1:07:36
end it's it's a place that we gather it's a place where we have Heritage
1:07:41
whether it's graduation or bringing visitors it's a place that we enjoy the beach and we have a lot of memories and there's not a lot of privately own
1:07:48
places left in Los Angeles that we can call ours and that's one of them so I I
1:07:53
have concern if that's removed I would appreciate it if you could keep at least that restaurant
1:08:04
intact anybody else have a comment on the
1:08:12
presentation yeah I'm a server I've been serving at TOA Beach for 45 years um
1:08:19
I've served professionally around the world I've also intoo Canyon
1:08:27
um expansion does not coincide with

1:08:33
preservation This Is Our Land these are our beaches these are our
1:08:39
reefs those are our Kel beds we need to find
1:08:46
ways to preserve these things not just put up parking lots and
1:08:53
expand the bridge there's a lot that needs to be
1:09:00
discussed thank
1:09:06
you I'd also like to um I I have a concern with that that
1:09:12
square box and and that Phil you know it was kind of mentioned as Phil and on the
1:09:17
website it was like organic fill and then you know
1:09:24
I got concerns with that that's all I can say I want details I mean the other night it was like Hey we're not truing
1:09:30
it because it's not the budget well then what's a budget what's a budget if you already know what the budget is how do
1:09:36
you know what's not in the budget so what's a [Music]
1:09:42
budget that's a
1:09:47
question please please take a look at the Nearshore um append what's that in
1:09:53
the there an appendix that will help answer a lot of you know I'm not a student you know break it
1:10:00
down simplify it so what is it yeah so we are available after the meeting to to
1:10:05
talk I think it's this a public meeting absolutely it's a public meeting my I'm assuming I'm not the only guy that might
1:10:11
want to know do we know the budget do we does anyone know the bud
1:10:17
for actual implementation just for the whole a budget for the for the construction of
1:10:27
we don't have a preferred alternative it's hard to do a budget if
1:10:36
don't so the the the the fact of the matter is that California Environmental

1:10:41
Quality act doesn't consider project costs as part of an environmental impact that's I know you don't want to hear
1:10:47
that but that's it's not in the eir the project costs are not in the E they're not even considered as part of these
1:10:53
environment impact analysis it doesn't mean that your pro your question isn't a good one and needs to be answered and
1:10:59
we'll do so in the final with some breakdown of of costs for per per alternative so when this Pro there was a
1:11:07
on the website it did show that there was a restoration um irir from 2003 to 2010
1:11:16
2010 I think there's something but it showed a budget in that
1:11:22
V that's great and and I'm glad that that did but it is not in this one and
1:11:29
um it's not a SQL requirement but now that you're bringing it up in this public context it's going to be in the
1:11:34
final e there will be some assessment of what these costs really are and what what sort of a commitment this really is
1:11:41
and how the alternatives are different so it's it's an excellent thing to bring up and uh we just don't have the numbers
1:11:47
right now okay and and and I understand that but but if if if you guys respond saying
1:11:56
hey it's not in the budget and then go hey man like we don't want to contribute
1:12:01
to Global boring by Trucking to me that's like you know when we were talking about
1:12:08
that filter that 200,000 cubic yards of filter and then go like hey it's not in
1:12:14
the budget you know yo we don't want to Chuck it out because you know it's too much gas like yeah I don't like that
1:12:20
answer yeah so that's [Music]
1:12:29
that any other comments questions
1:12:38
okay thank you so much um I I could not find in the uh report perhaps it's in

1:12:44
there someplace an assessment of the settlement Supply that's needed to
1:12:52
maintain the beach I know you showed a picture of the beach today the high tide line was up against
1:12:59
lifeguard headquarters and one of things you want to accomplishes to um you know
1:13:04
protect that lifeguard headquarters understand that but if you go out there today you see the beach is now 50 feet in front of that from the last couple of
1:13:10
storms we've had because a lot of sediment washed down through the creek it was the pone Beach obviously you're
1:13:17
going to be disturbing that current balance because you're going to change the sediment flow in the creek by
1:13:23
changing the shape and size of the Lagoon and the size of the bridge and so on and you showed a number of pictures
1:13:29
from you know late 19th century showing the beach and the size of it and we all know that with the in the last several
1:13:36
years we've had decades we've had a number of droughts in drought conditions
1:13:42
now that's reduced the amount of sediment transport from the creek to the beach to sustain it obviously when you
1:13:48
once you start digging a lagoon behind the creek behind the the road behind the bridge you're going to do something more
1:13:54
something additional to the sement transport and discharge of that Creek
1:13:59
the discharge of the creek and the sement load in it is what maintains the beach and I think you need to do a thorough assessment of that before you
1:14:06
move forward with Excavating the Lagoon changing the bridge and uh modifying the
1:14:12
sediment transport to the beach this is obviously impact the beach and sustainability it will also impact the
1:14:19
goals of having a lagoon which can sustain uh the and the seal head trout
1:14:25

PUB

and so this sediment transport the stream discharge rate and the predictions of what that will be in the future need to be assessed and
1:14:31
considered in this report otherwise your report will be inconsistent with um I
1:14:37
think the needs for assessing this project thank
1:14:48
you um going back to the the settlement fill um I was just curious if there is
1:14:54
some sort of like environmental impact report on
1:15:02
that deposition of so there's a whole section in the eir
1:15:10
that talks all about the sediment movement and how it goes and what it goes and how it changes with each
1:15:15
alternative that's all in the eir which it's in there's a chapter that
1:15:21
summarizes everything in uh section three and then there's a a report that's
1:15:27
in the appendices that's the full sediment modeling Hydra hydrologic
1:15:33
modeling all of that is all in there as well so it's all there the problem is if I'm reading that I don't speak that
1:15:41
language is there a specialist that I can call and say please explain this in Layman germs I'm 60 years old I wouldn't
1:15:47
have a clue how to read these papers we I hope that that what we put
1:15:53
into the uh section three that's meant to be accessible language it's not meant
1:15:59
to be it's meant to take and interpret the the technical language and give you
1:16:04
a report so there's not a specialist that I can call and say sure we can give you the name of our our Consultants
1:16:10
they're listed on all of the things but you just mentioned that to go look at this one because what we've got is in
1:16:18
everything is in reported in the eir there is a lot of information there and
1:16:23
if you have questions after that please let us know say I'll just say uh section 311 31
1:16:31

is the Marine impact section so it specifically focuses on existing
1:16:37
condition regulatory environment and then impacts of any any of the siment uh
1:16:43
as well as um uh uh anything onshore that we're doing that might affect
1:16:48
Marine Resources so it's right in there in that section it references those appendices so you can sort of find that
1:16:55
seeing piece together and then um again uh folks in this room that are part of
1:17:01
of developing this are available after this meeting to talk and and through the that's what I was asking like it would
1:17:07
be a person that exp I think also hydrology section is the other section in that section three those two they're
1:17:14
summaries of the technical so if your person that likes the nuts and bols you can also go the technical for but most
1:17:20
most of us don't want to most of us want the summary more in late terms the E and it's it's my job to write that e so that
1:17:27
it's accessible to the public it is supposed to interpret the technical studies and appendices so we get your
1:17:32
point about about accessing these appendices the folks sitting along the wall here that all the part of our
1:17:38
presentation um are are available for approaching after this meeting to talk about how to get further information but
1:17:44
again this process right now uh that we're doing is a is a administrative record kind of thing and you're getting
1:17:50
you're getting your comments in there so that those responses will need to to be addressed including how do we interpret these technical
1:17:58
objects well I have a question and Comm I've lived on that beach since
1:18:04
1964 when all the houses were there so I know that beach in I know the Lagoon
1:18:11
intimately because there was a whole series of homes that was built around that Lagoon I worked there and I had

1:18:17
friends that lived there so this is not a new thing to many of us I think many
1:18:23
people in the room really are conversent with how that has transformed itself
1:18:30
over the years my biggest concern now is that the people that are living there we
1:18:37
are adjacent to where you're doing the construction haven't been considered at
1:18:42
all not once we live on to panga Beach Drive
1:18:48
there are seven houses I have the first three we have building there that had
1:18:55
the surf shop which is now leaving today's a day that they're they have their things I'm concerned that all of
1:19:02
this disruption will kill small business industry all up and down you're going to
1:19:09
have a bottleneck going into Malibu you're forgetting about Malibu Malibu is a tourist destination this is you don't
1:19:16
need a bottleneck to get there there's something like 11 million cars that go to be SI into every year
1:19:23
there's a whole series of things that have you to consider not just the environment you have to consider the
1:19:29
people as part of the environment the shop teams the small business owners all of that and that's not just the
1:19:36
adjacencies that's in Malibu and you can see all the sugared chops we have to uh
1:19:43
understand that people are a part of the environment don't discount the people
1:19:48
that you're going to be uh how shall I put it causing problems too with not
1:19:57
considering at all not considering Malibu I mean that's the reason people
1:20:02
come here is because the name Malibu uh they don't come for Tanga Beach I came for Tanga
1:20:09
Beach um I have six grandchildren that serve Tanga Beach I haven't done it in
1:20:15
20 years but the point is is so many of us know it intimately and I I love what

1:20:23
you're you're doing but there has to be uh a way of saying hey maybe the bridge
1:20:29
is not the option how much do that son of a gun cost how much do everything cost on this because I'm paying for it
1:20:36
my taxes are paying for this and hopefully some of yours but I know the residents on Tanga
1:20:45
Beach have not been considered we haven't been asked a question no one came to our homes I'd love to have
1:20:51
groins but into the ocean again that really created the painy beach when we
1:20:57
had all the groins that brought the sand in that stopped the sand from migrating you know South why aren we looking at
1:21:03
more groins why aren't we looking at protecting the beach why aren't we adding sand to the
1:21:09
beach uh why are we say oh it's going to be overflowing it's it's you know the
1:21:15
the sea rise will all those houses will be gone yeah if our houses are gone so is the
1:21:20
bch so think about so I think it would be good to consider just your your
1:21:26
immediate neighbors I mean I walk that beach three times a day with this dog I know that
1:21:34
beach intimately I know from surfing it all the way back to
1:21:40
74 and uh I do want to protect the fish I I'm a great environment I spend a ton
1:21:46
of money on the environment and contributions but this seems to be going
1:21:53
in a weird Direction it's not about a bridge it's not about widening that how
1:22:00
come I have never seen a problem with that the rainwater we don't get that much rain water twice a year I see what
1:22:07
happens we have a bridge you know which would be countless amount of money I don't
1:22:15
think it'll ever be approved but let's why don't we start doing the things that we can't do as
1:22:21

Chris was saying why don't we put the the uh the hiking trails in why don't we get rid of the the uh utility polls put
1:22:30
it underground why don't we get bus situation brought in why don't we improve the parking why don't we do all
1:22:37
those things we can do them now we're talking about all this for sometime in the future let's do the things that are
1:22:43
immediately available and uh you know I really wish you would talk to the people
1:22:49
that live there Ron lives next to Mar to me Chris lives up the beach Cammy lives
1:22:54
on that same street there you know talk to the people that are truly
1:23:05
affected I think Mike's a genius by the way over here okay but anyway um all
1:23:11
joking the side as a Malibu resident I'm really concerned about the traffic
1:23:17
problems that this is going to cause but the I realized he said they're going to
1:23:23
put some alternative routes around where the bridge can be constructed but just it's going to take time and the Waste
1:23:29
Water Project where we're going to have a year with a reduced Lane that's that's
1:23:35
crazy I mean I'm sorry I go to town every day I come back it's a it's a nightmare already there's just no way
1:23:41
you can possibly do that I'm
1:23:51
sorry thank you I have a question but I want to make a comment first if I can the question is
1:23:59
what can we do to accelerate the project and I know you can't meaning that all the the voices in
1:24:07
this room including Mr bers and Mr grantis and everybody else um they're
1:24:14
they matter and that's why we're here and we are talking to you if you
1:24:20
remember you know years ago so um I'm Dennis wasburn and I'm actually one of
1:24:26

the ancient members of the resource Conservation District that started the Malibu Lagoon restoration project but
1:24:34
mostly dealing with the Malibu Creek Watershed restoration and we got money
1:24:40
from the federal government to actually undertake that we're doing it with all
1:24:45
all of us in this room and all of your agencies now ultimately there's no
1:24:50
disagreement that something has to be be done and we do need to take a global
1:24:56
view and it's not just about saving this helmed species or the Tidewater goby
1:25:03
it's really saving us so um one of the things I think would be helpful was to
1:25:10
recognize that what this process does which is to tap into the resources of
1:25:16
all of us locals all of us governments involved people all of
1:25:22
citizens that live on the beach or to use it or hope to see it continue for the next 50 or 100 years even though we
1:25:30
won't see it you have to make those decisions so what do we do to accelerate
1:25:36
the process because this process is from what I can see on the screens and with
1:25:42
the displays it's actually doing a really great job of saying he we're pretty far along and now you're asking
1:25:49
what other obstacles are we going to face let's not face them at at the end of the process when we lose all the work
1:25:54
we've done let's do it now and doke it out make it happen how do we get the
1:26:01
resources I will just explain that I got involved with the wildlife Crossing at
1:26:06
the 101 freeway and we got $25 million pledged by Mrs annenburg to undertake
1:26:13
that that accelerated the process of getting on Wildlife Crossing that might
1:26:19
actually help save you know the wildlife and also our quality of life out here as
1:26:24
well that's the really critical part so um I'm not sure how we answer that question today because this is a deir

1:26:31
process that's the way it works and if anybody in the room doesn't understand
1:26:37
that that's a good followup for yourselves and how you get engaged
1:26:43
because the draft eir issues are really looking for obstacles more than
1:26:48
opportunities and many of the opportunities that have been ident ified can be enhanced so let's do that so my
1:26:57
question simply is how do we accelerate the process that we're going through now so that we can get everybody in the room
1:27:03
and elsewhere connected to the importance of not just a Pango Lagoon
1:27:09
which is critical we have the same problem in biona wetlands and bioner Creek wed and every Watershed on the
1:27:15
California we the Pacific coast of America so let's get busy we can actually do something that's is a great
1:27:22
for our community thank you
1:27:27
app just a quick reminder that anyone that's live streaming with us can also use that email to make comments just
1:27:33
like people are in the room hi everybody my name is El MRA and
1:27:39
the Los Angeles chapter manager for the Sur figher foundation and I just want to say a couple words that we are extremely
1:27:47
thankful to uh California state parks and RDC for the incredible job job that
1:27:52
they have been doing to actually listen to the voices uh it's the first time in
1:27:57
record that the voices of uh the people that used recreationally like the beach
1:28:03
of TOA and the Surfers had been listen and we were able to meet up before
1:28:10
several meetings with Rosie and have the morphology study done um The Sur break
1:28:16
study done which is incredible and added to the this study and I'm glad that
1:28:24
right now with the release of the ER like people have the opportunity to put

1:28:31
their comments in during this period so thank you so
1:28:40
much hi I'm Alisa land and I'm a resident Tanga and I'm part of the Tanga Town Council um I want to thank you for
1:28:47
your amazing and thoughtful work I guess I just wanted to make a plug uh regarding ing children and our youth
1:28:54
here in this region that this will be disruptive for all the families that want to use the beach and it's a
1:29:00
wonderful I think opportunity to really educate our children from elementary to high school about Coastal change about
1:29:07
climate rise about endangerment and i' really request if there was funding or
1:29:13
at least not just signage at the site but really an effort to put some educational material into the Palisades
1:29:19
to to panga and to Malibu so that our children are like okay these are the solutions we are making this is how we
1:29:25
are walking Our Lives forward in a time of climate change I think could be really empowering for them they will see
1:29:31
the traffic and the disruption we want them to feel like we can create solutions to the challenges we're facing
1:29:37
so as a parent as well please consider that
1:29:43
[Applause] thanks anybody else have any
1:29:49
comments yes this is a separate comment but as a
1:29:54
person that runs has small farm animals in my home and represents a lot of people in TOA in this region the feed
1:30:01
bin is a a really valuable resource for everybody with chickens or goats or small animals which is part of the Tanga
1:30:09
Heritage the Malibu Heritage I recognize sacrifices have to be made I guess I
1:30:15

just want to remember that that feed bin provides feed and resource and baby chickens and years of memories for for
1:30:23
many of our families and if there are places that might be spared that that is
1:30:28
a really unique resource for everybody with small animals in this region so to
1:30:34
consider
1:30:40
thanks is there any thought in in picking a plan rather and then like
1:30:46
focusing on that plan and talking about that plan and splitting the difference on that plan as opposed to like four
1:30:53
plans and doing reports but but like I don't know it seems kind of Broad and
1:31:07
vague I will I will provide a response to that and I appreciate wanting to know what the project is we have provided um
1:31:14
not all the IRS evaluate Alternatives at an equal level of detail but we have done so to the benefit of
1:31:23
uh planning and getting input on the nuances they're largely the same project
1:31:29
with some specific pieces that are different so appreciate that uh the
1:31:34
preferred alternative hasn't been uh selected yet we're looking for input and that selection will happen prior to the
1:31:41
final how will that selection happen who's going to pick it that will be
1:31:46
identified in the final e it's not going to be voted on by anybody the question
1:31:52
is how is the preferred alternative going to be decided on and that is part of the lead agency's process and they
1:31:58
will deliberate um on the input that we reive and uh put out a this is part of
1:32:04
this is why SQL exists to be transparent about how they made that decision about the preferred alternative so uh we we
1:32:12
will be able to see that prior to the certification here I Who's involved with the planning
1:32:18

department from Malibu because there is an aspect of malib that's affected so was someone
1:32:24
considered or someone involved that is on the planning department um I'm going to put that in
1:32:30
writing but I I'm not going to answer it because I think it's either uh either has happened or it hasn't happened there
1:32:36
there's been some there's been some interaction and um and some and some communication but I'm not going to be
1:32:42
able to tell you exactly what right now right okay but we put the question down and uh we will answer and just since
1:32:49
it's 11:40 I want to remind everyone that those if you filled anything out on that index card um if you could give it
1:32:55
to anyone you see seated along the wall you can give it to me either the two people you signed in with before you
1:33:01
leave and i' just like to follow up on this question about how I answer that
1:33:07
question briefly sure I um what we're trying to do if there's any kind of like clarification on the graphics you're
1:33:12
seeing or where can I find information in the E we are trying to answer that now just to help facilitate people
1:33:18
knowing where to get information we don't obviously we're not intending to answer all questions at all times but just we have had some
1:33:24
conversations with the city um they're aware of the document they'll be reviewing it and providing a comment letter as most entities would um when
1:33:34
the when a preferred alternative is ultimately selected it will ultimately need to go in front of the coastal commission for a coastal development
1:33:39
permit and coordination with the city would need to occur at that time because either the coastal development permit
1:33:45
process they was likely to be part of Consolidated permit process with the county that has yet to be determined
1:33:50

that there'll be an action in front the city council so there has been some some conversations with City staff but we're
1:33:56
looking forward to a comment letter from the city uh as the process moves Bo so um my followup question about
1:34:05
the um how is the decision how how is the decision made that question I think
1:34:11
you answered that there will be a process but who is the decision-making
1:34:17
body for selecting the Alternatives which organization actually makes the
1:34:22
selection based on whatever established criteria I assume I will find in the de
1:34:27
de the lead agency is the California Department of Parks and Recreation so they will make the decision based on
1:34:33
some publicly available criteria all the criteria in the E and then the finally are correct and then
1:34:40
it'll go to permitting after that okay so the department of parks
1:34:46
decides which of the alternatives are selected correct thank you it's not so
1:34:51
is there public meetings after that or is that like way down the line like CRA we figured it out good we're
1:34:58
good like the the the public process for squa is that we receive comments the
1:35:05
lead agency considers those comments and certifies the E and you'll be notified
1:35:10
of that certification meeting and you can attend and provide your comments at that
1:35:19
point I know just a quick question are the agencies
1:35:25
using generative AI to deal with speeding up the answers that we're
1:35:30
looking for and are we aware of the X prise for
1:35:38
removing the one of the major greenhouse gases carbon in
1:35:45
CO2 and if you're not aware if you go to the X prise if you go to the X PR
1:35:52
website and look up the X prise

1:35:58
for reducing or removing carbon this project could be a classic
1:36:06
case study in dealing with contributing to the assistance
1:36:12
of reducing the carbon load that in actually with ghd greenhouse gases are
1:36:19
causing a lot of the problems that we're facing whether it's climate change or global warming and all the other stuff but
1:36:26
generative AI does accelerate the process from my experience just to let you
1:36:33
know thank
1:36:38
you this is more of a question really but and maybe too complicating with all
1:36:43
the moving Parts as a parent with the teenager to teenagers I guess I'm just wondering a little bit about engaging
1:36:49
our youth is there any piece of this that they could be involved in serve in
1:36:55
get their hands dirty see I guess I'm thinking about how do we Empower our kids to feel like they can make
1:37:01
Solutions thoughtful solutions to the changes we're facing I know how busy you are making the project happen but I'm
1:37:07
wondering is there any way to do that or engage some of our local science teachers I would love to see that as a
1:37:13
parent because I think it's easy for our children to feel very despairing about the world we're living in and I think
1:37:18
giving them agency and solutions and that you can get involved I mean the beach cleanups are great I will be there
1:37:23
but I don't know I'm just asking is there anything more ways that we can get our kids hands into this so that they
1:37:28
can take some power and hope for the future I'd love to see that thank you
1:37:34
there's another me on Wednesday night that might be how will this meeting different from
1:37:41

the Wednesday meeting so just to reiterate that question how is this meeting going to be different from
1:37:49
Wednesdays um it will be the same aside from all of you um the comments
1:37:54
will change uh the questions might change of course but the presentation essentially is the same and it's
1:38:00
happening in TOA community center community center um I
1:38:05
had a hand back here I'll Circle back though sorry thanks so much for all the work
1:38:13
and and great discussion here I'm just wondering if it might make sense to explore an approach that um considers
1:38:19
like a more pedestrian friendly kind of situation like maybe we could keep some
1:38:24
of the restaurants and and homes and whatnot that people love but have it be accessed through more of a Park Trail or
1:38:31
something like that and perhaps this part of the PCH goes underground or you know just just perhaps reimagining it
1:38:37
from that perspective as well I don't know technically how much the Autos are a problem versus some other
1:38:44
aspects
1:38:50
than do we have a question up here in the front or a
1:38:59
comment I had offered yeah I had offered at the last meeting we could have a
1:39:05
meeting like this see above board gliders if you know where that is because my wife has a nonprofit
1:39:11
organization I offered that space the last time we were all together I believe
1:39:16
which was theang motel and I think it'd be a great spot because you can see the
1:39:21
entire Beach you could see how our concerns it's uh called Creative Visions
1:39:29
foundation and it's yeah it's 450 feet 4
1:39:39
brid the bridge is yeah we could look at it all but we're very much involved we

1:39:47
really know how much work you guys have to go through but we would like to be considered a little bit because that
1:39:53
this affects us more than anyone we live there we're on that beach several times
1:39:58
a day every day as I said earlier I have grandchildren that are surching there so
1:40:04
we're very much involved and we're not just casual
1:40:09
visitors and I really would like to put in there maybe the the looking at
1:40:15
putting in groins yet again that's how that beach was created you keep
1:40:20
forgetting how those beaches were created there was the addition of Gories all the way up and down to panga Beach
1:40:26
and broadby everywhere and they never made and they said
1:40:35
you I can't wait for Wednesday i'mna any other comments from the
1:40:41
audience this has been really productive we really appreciated everybody's input
1:40:47
um lots of good stuff and um understanding that answers are wanted we we actually did quite a bit of answering
1:40:53
today uh but uh recognizing that um that it's now on this project team uh to
1:41:00
provide those answers so that the California State Department of Park Rex and park creation that
1:41:06
was that's been a long morning right Parks and Recreation our Coastal commission
1:41:11
Coastal commission will be considering it for a SE Coastal development permit once the certification of the E process
1:41:17
is over did did I did I say that too fast there will be a pering process after the
1:41:23
certification of this draft IR the final sorry so when we get to the final uh
1:41:29
state parks will approve this project for moving forward but this project then needs permits needs permits from the
1:41:35

coastal commission it will likely need permits from the Army Corp of Engineers and all of those permits are listed in
1:41:41
the project description the last table of the project description you can see which permits are needed so there will be a process there of considerable
1:41:48
detail for one single alternative

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Topanga Lagoon Restoration Project – DEIR Public Review Meeting 2/28/2024 Comments Transcript

A recording of the Public Review Meeting held on February 28, 2024 is available to watch here: https://www.youtube.com/watch?v=Vpar9G2QO5w&t=3044s

1:02:13
okay um my name is Lloyd Ahern I'm the president of the Los Tunis homeowners
1:02:18
association which is the beach adjacent to Tanga Beach uh um where's Rosie hi
1:02:27
Rosie I saw you the other night on the zoom meeting with the Surfers and you
1:02:33
said something that was very interesting to me you said that the U Lagoon was going to breach to the West he said it
1:02:40
twice maybe three times now I was very confused at that because the BR the the
1:02:47
the burm does go to the east so if the burm were to go to the West it would go
1:02:54
since I'm the homeowners association president even though I live a thousand yards from this project I still am
1:03:01
affected by everybody calling scared to death if it breaches to the West it goes
1:03:07
to the homeowners that are very very close so where your line is right now
1:03:14
with the creek is the burn you're proposing to take the burm
1:03:20
down are you taking the palm tree down and are are you moving the the U the uh
1:03:28
mouth of the burm of the Lagoon out further to the west and if it in a flood
1:03:36
where where would the water go and if you figure that out and I'll just sit down after I'm done with this I'm
1:03:43
proposing that your hydrologist our hydrologist meet in the next two
1:03:49
weeks right down on the beach where you say that line of the water is going to be and we we can get that settled before
1:03:55
this e is over on the 12th okay Rosie you want to you want to think about that
1:04:01
one okay you think you can do it yeah I can do too so we we have we
1:04:10

are here tonight to receive comments but not necessarily to give responses we don't have responses tonight we're just
1:04:17
really going to get in uh comments on for the public record so folks are are around afterwards and we can talk back
1:04:24
forth a little more back and forth but for uh for right now um just receiving
1:04:29
receiving input we have a comment right here uh good evening uh my name is Chester Griffiths I'm a surgeon and
1:04:36
physician in the community for the last 34 years excuse my
1:04:41
voice but I am my wife and I are homeowners on Tanga Beach Drive and I'm
1:04:48
representing the five other homeowners on that street tonight um a couple of issues we've had
1:04:56
is to this day none of the impacted residents were individually contacted
1:05:02
relating to this project and to the relative related imminent dangers to
1:05:08
their Residential Properties none of the impact studies included in this included
1:05:14
the Residential Properties and the potential damages to the properties with the westward expansion of tangan Lagoon
1:05:22
not limited to flooding Foundation damage change to the already
1:05:28
existent beach erosion leading to more ocean wave damage and loss of function
1:05:34
to the properties nor were any studies performed on the impacts of any of the
1:05:39
other homes and L tunich Beach I must say that the interested
1:05:45
parties must take this into consideration with the rust word expansion and I would recommend
1:05:53
consideration of a protective bond for any damage or loss to the homeowners
1:05:58
related to this restoration project inovity as no one can predict the
1:06:03
ultimate future of the impact of such a project on these Residential
1:06:13

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Properties I'm sorry oh turn the camera
1:06:18
okay uh additionally calr and the coastal commission must conduct a study to address the erosion of beach which
1:06:25
was highlighted in the initial historic Shoreline changes as part of the
1:06:30
planning and in compliance with SP 272 which was passed on October 7th
1:06:37
2023 which addresses the eminent sea level rise with planning and
1:06:44
applications furthermore it's not to our knowledge that representatives of the city of Malibu have been engaged in this
1:06:51
process in the Tanga Lagoon restoration which is concerning as the LCP of the
1:06:56
clal commission grants jurisdiction to the city of malibo up to the Western border of the project and which then
1:07:03
includes the westward expansion the noise dir disruption from the construction PCH bridge and
1:07:10
evacuation of the landfill was never addressed to the adjacent residents we did discuss the wastewater
1:07:17
treatment and of course the final disposal of the extracted dirt what is
1:07:23
the coastal commissioner going to do or is it going to allow that extracted dirt to go be placed in the ocean or will
1:07:29
they remain it to be uh removed our request is that a formal meeting with
1:07:36
all homeowners of Tanga Beach Drive be done and that we have an action plan to
1:07:41
investigate the impact together on our properties we are in favor of the tabanga Lagoon restation project but of
1:07:50
course we have our concerns uh with our home and and our
1:07:56
livelihoods I would recommend that we engage the city of Malibu as uh in this planning process as well as they are um
1:08:06
um liable by the LCP and I hope that we find and Define
1:08:13

all future issues that we don't know of now so that we could all make this a very successful project together thank
1:08:22
you no I saw okay thanks for that and I that
1:08:27
sounded like that was written down and I tried my best but I think if you wrote it down and if you could hand it in we'd
1:08:33
really appreciate it so uh bear that in mind it's okay to read those things we're going to try to keep it to two or
1:08:38
three minutes if you can but read what you have tonight that's fine I'll do my best but submitting it is great as
1:08:44
well um I I a little surprised that we can't ask a question but um the the big
1:08:51
question I have and it's more you can be take it as a comment or a question has anybody had any familiarity with the
1:08:58
Malibu Lagoon project and what an unmitigated disaster
1:09:03
that was for Malibu Beach and how many experts just like yourselves were there and saying this is going to be great
1:09:10
this is this amazing natural habitat we really need to protect it and it has it
1:09:16
has destroyed the natural habitat it's actually almost destroyed the Adamson House which is a historical building it
1:09:22
has destroyed the wall it's required a jetty to be put in at the bottom of the Malibu wall and it was with all the good
1:09:31
intentions that everybody thought that this was going to be a great idea this is exactly the same thing and maybe even
1:09:37
more radical because you've got PCH that you're dealing with so the comment is
1:09:42
this is psycho this is I I get it I love this is crazy like what you guys are
1:09:48
going to do to this environment and and that beach and PCH and and just our
1:09:53
lives in general for 5 years is just it I cannot believe we're even considering it and I and I get the
1:10:00

good intention behind it but have a look at Malibu and see what that looks like to you
1:10:09
next hi there how you guys doing tonight so I have a couple of comments and two
1:10:15
questions that will probably be answered in some point in time oh my name's John luer I'm the vice president of the Santa
1:10:21
Susanna Mountain Park Association and we keep pretty much close uh tabs on everything that happens environmentally
1:10:27
around here uh the two comments I've got uh really like alternative to I think
1:10:33
you should maximize the Lagoon habitat in there I think it'd be healthy all the way around for everyone uh I think it's
1:10:39
a shame that the Malibu uh Motor Court has to go or the Tanga Motor Court has to go uh but unfortunately I've been in
1:10:47
those buildings and in order to repair them and restore them you would probably
1:10:52
have to replace every St stick of wood inside it and it would be prohibitive uh
1:10:58
prohibitively costly to fix it unfortunately uh two questions are uh is
1:11:03
funding in place for this and how much is this going to cost especially who's going to pay for that
1:11:09
bridge um and that's pretty much all I've got thank you very much and uh thanks for all your hard work I know you
1:11:15
guys have been working on this for decades thank [Applause]
1:11:22
you hi sorry hi uh my name is Matt long time
1:11:28
toang a resident um just a couple thoughts on this I I really love the idea that the Lagoon could come back and
1:11:34
that we could restore this habitat that's that's just incredible and
1:11:40
um so looking at these models my main concerns are maybe
1:11:47
overdevelopment over over gentrification and uh I'd rather that
1:11:53
this project stay a bit country if it's going to happen keep keep the natural

1:11:58
surrounding looking natural um I think that um there's a
1:12:04
couple key issues I think down here at the beach I mean we want more Beach does
1:12:10
this lifeguard Tower have to be this far out can we push this back and the and the and the
1:12:15
helipad like right on the beach here this is this stretch here to where this
1:12:21
bridge is is like one of the most beautiful parts of the the beach can't we more beachey this and get rid of
1:12:27
infrastructure I know you need a lifeguard Tower and you need a helipad somewhere but it seems like they're
1:12:32
really sticking out here in the ocean in the prime Zone and kind of blocking this
1:12:39
spot so there's issues I have there um I just feel and then I'm wondering about
1:12:45
things like lighting is is this going to be all blown out with lights and like
1:12:50
can we reduce lighting and things another issue you up here one of my favorite Parts about I live up in Tanga
1:12:56
so I'll come up you know off the coast and suddenly you're up into the canyon like right around the first corner I I
1:13:03
noticed they're extending a bunch of parking up here and infrastructure or probably just a parking lot but is that
1:13:09
going to be lit up is that going to be dark or are we going to keep it like it
1:13:15
feels now you get right around that first corner and it's like wow I'm W it's wide open I I think that part needs
1:13:23
to be considered I'd hate to have lights going up into there and also I
1:13:29
understand we need to bring more people but you know to be honest in some ways I don't think we want to make too much
1:13:36
parking and and keep it natural another big point is is I know there's this talk
1:13:42
about depositing all this soil out off the coast here now I just I know you
1:13:49

have studies and morphology things but this is concerning to to me to what that could do to the surf break we don't
1:13:57
really know I don't think I mean you have ideas um I would say there's
1:14:02
another picture somewhere uh they're going to just take it straight off the bottom of the
1:14:09
bulevard but maybe you would want to deposit that soil off the end of Chart House point because as if you follow
1:14:15
down the coast from chouse that's where the road erosion is
1:14:21
occurring and um a couple points on that erosion I believe the seaw wall that was built at
1:14:28
the old Ted's Rancho down at Coastline that seaw wall they bu they built a
1:14:34
vertical wall with a parking lot that has become a major backwash wall the
1:14:40
waves come up they wash out if you go there on a mediumsized swell or a significant swell you can watch the
1:14:47
waves going off that wall and heading for Catalina I'm Reckoning that that's just taking all the the sand with it and
1:14:55
along that Highway stretch it's just draining all the sand out and hence now we have Road erosion right below Chart
1:15:02
House there's another wall way up past Tanga at little Tuna Creek or tuna Creek
1:15:09
they put a bunch of rip wrap big boulders down there they've created another backwash wall the W surf comes
1:15:16
up washes out and it sends all the sand out to the out Outer Ling area who knows
1:15:22
if I think those are both impacting the erosion on the road around there and the
1:15:27
tapanga point so those are my main concerns I just feel like we don't want
1:15:32
to overdevelop this let's take this opportunity to bring back the country
1:15:38
and and and maybe just keep it light light footprint would be my [Music]
1:15:52
suggestion hello thanks for all the work um I guess
1:15:58

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I have three or four concerns I second um
1:16:03
the concern with Malu Creek um I don't know what measure what you guys opinions
1:16:09
of the success of that project are but if you think it was a success you're not
1:16:14
tapped in the same way that the people that use that space are because it's a failure um it's a failure ecologically
1:16:22
it's the recreational areas have been destroyed because they weren't planned properly he listed a few other things so
1:16:30
I know that this is I won't say this is the same project because it can't be um I'm concerned about access to the
1:16:38
beach during construction um I go to the beach four
1:16:44
times a week five times a week I would say right now the majority of people that go to the beach are Surfers in the
1:16:49
morning weekends full of everyone um I'm concerned with access to the
1:16:55
Beachside parking I'm not really clear how that works I'm concerned also with
1:17:01
having recreational areas Beachside because I that is like for a lot of us
1:17:07
I'm sure will love to go check out the creek once in a while but really it's tapanga State Beach for us not Stanga
1:17:13
State Creek um I think that's kind of it I just I
1:17:18
really hope that um I would also second I don't really care about the hotel
1:17:24
I'm just going to put it out there I don't care about and no I'm hopefully
1:17:29
there's no tribal people leaders here that will be pissed off but I don't care about their AR geological Damage Done by
1:17:35
moving the PCH um that's me it's where I'm
1:17:41
at um I think those buildings are old meth
1:17:46
houses
1:17:52

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okay hi my name's Keon Smith uh I'm a homeowner on Las tuna Beach and I've
1:17:58
been interested in toena ranch motel for years uh I know Pablo and so no it's all
1:18:05
good it's all good but I know Pablo who used to live behind and I'm sure people on the
1:18:11
project know him as well very vocal but I love alternative three and a comment
1:18:19
would be how can we preserve the music and art history of tapena Canyon and
1:18:25
Malibu can we turn the instead of making it overnight places like small
1:18:31
businesses having small Artisans come into these already existing
1:18:36
infrastructures that are going to be revamped can we have an Amphitheater where musicians can play and the little
1:18:43
space behind real in where it's flat can we turn that into like occasional like
1:18:49
drive-in movie theater which raises funds for the continuing projects and a
1:18:54
percentage of money that is generated from these small shops goes into the
1:19:02
beautification of the creek of the beaches and creating a community like
1:19:09
aspect around this I think that from the younger generation uh social media coverage of a
1:19:17
be for me a beautiful historical site a lagoon creating that Surfer Beach F
1:19:23
continuing that for the Surfers for the people visiting the park and then
1:19:29
visiting the shops and promoting local Artisans local musicians and maintaining
1:19:34
the heritage of the area so
1:19:41
yeah uh hi my name is Jay Shields I'm with friends of Tanga point we formed
1:19:47
actually because of what happened one of the reasons we formed is because of what happened at Malibu and in response to
1:19:52
that and one of the things that with the help of the agencies involved we got done was the surf study and the beach
1:19:58

morphology study and that's something that hadn't been done before and something that is included in this deer
1:20:05
has not happened before and we got that done and I want to say we appreciate that something Malibu didn't get and I
1:20:12
encourage everyone here if you're interested in the beach and interested in surfing that you watch the zoom call
1:20:21
that is on the tangal lagon Lagoon restoration site I think it's also on our website and watches about 45 minutes
1:20:28
or an hour and if you don't want to read the whole deir that's on that desk watch that
1:20:34
video and you know see for yourself all the work that's been done about this and that's enough for me I'm going to turn
1:20:40
it over to Carolyn day who's with us as well hi I'm Caroline day and I'm with
1:20:47
friends of Tanga point I'm also a tapanga resident I was married in this Community Club and on the beach um at
1:20:54
Tanga using the staircase to uh be walked down um my comment today is
1:21:02
twofold one with the friends of tapanga hat where I want to thank the planners
1:21:08
Who Um I want to assure the Surfers I know here that our concerns about how
1:21:15
this project was going to affect the surf the beach and the sand replenishments were taken seriously and they gathered input from
1:21:23
our community they inputed it in their data driven models and that is the zoom
1:21:29
call that Jay is referring to that's on the website it's a lot easier to digest than 3,900 pages of draft
1:21:37
de um I want to make a note that Tanga Beach is the closest Point Break to 12.5
1:21:43
million angelinos it's our state sport and that many generations of surfers
1:21:48
have been Gathering there since the 1930s when the lone family brought over the first surf boards from Hawaii we're
1:21:56
a community of Surfers that has gathered there for Generations marriages birth

1:22:02
and we've celebrated a lot of our loved ones on the beach we have a lot of markers and reminders on the beach of
1:22:08
the people we love the Jensen bench uh the Scotty tree and we would hope that
1:22:14
with the planners we can identify those and possibly preserve and um move them
1:22:19
for us to keep remembering our loved ones um with this project many Surfers fear
1:22:26
that they are losing a place of gathering unless you gather there as Kyle and I do many times a week and a
1:22:33
lot of other folks here you might not know that there's a community of folks that uses the top of the staircase to
1:22:40
have barbecues to celebrate each other's waves to celebrate a connection with the
1:22:45
ocean um we've also begun interacting with state beaches the fences used to be
1:22:51
8T tall so you had to watch the ocean through a frost fence they've now been lowered to 3 ft and Eevee a local Surfer
1:23:00
and Resident has been Landscaping the hillside we want to have places in your
1:23:07
project where as Kyle said we're not tapanga State Creek we're tapanga State
1:23:13
Beach we have communities that live there and we want to have places such as tables and benches and places to cook
1:23:20
food sit down and enjoy each other's company it would be sad if this was just a loss for the Beach Community and that
1:23:28
um these needs weren't weren tended to um what else please consider this
1:23:36
community my community of surfer was when you make plans for humans to enjoy the ocean and the shoreline together um
1:23:44
I have two more points one is parking near the waves preserves access by putting parking on toena Canyon
1:23:51
Boulevard your forcing folks to walk an eighth of a mile with surfboards that would reduce access for the older
1:23:57

Surfers older beachgoers or the moms with kids by putting the parking by to panga Canyon Boulevard you increase the
1:24:04
risk of people's lives Crossing PCH a really um hight trffic Boulevard I know
1:24:12
that there'll be a path that goes under the bridge but we know humans like to take shortcuts which would mean Crossing
1:24:17
at the light at the panga Canyon and I don't want us to wait until lives are lost before we address that point it
1:24:23
needs to be addressed now and please consider not allowing
1:24:29
fire pits should you have short-term or dayuse um usage of the space because
1:24:35
we're a high-risk fire area and knowing that there are fire pits of day users or
1:24:40
Campers at the bottom of the hill would be very stressful for us as the on shores blow those fires and winds up our
1:24:47
Canyon thank you so much
1:24:53
hi I'm a casual Observer for 30 years of the parking lot at Tanga Beach because I
1:24:59
watched my son who's now 24 surf there his whole life and my husband who's grown up there and I guess knows Lloyd
1:25:06
um what I wanted to say was as a mom seg going off of what Caroline said was I've
1:25:11
watched young boys young women young kids cross PCH with their surfboards
1:25:16
nearly get hit by cars secondly that parking lot is Never full even on
1:25:22
weekends so I'm not sure why we need more parking and
1:25:28
thirdly you're trying to save fish I came from Montana where that's all we
1:25:33
did was fish but you can't fish in water your fish can't survive if you're dumping septic into the the creek that
1:25:40
runs all the way down so how do you manage the fish when you can't manage
1:25:45
what's happening up here and we live up here so I don't understand why these
1:25:52

issues haven't been tackled before you tackle something that's very superficial
1:25:57
from what we can
1:26:06
see um my name is Chris wolf I'm from the Pacific Palisades and I've been surfing at Tanga for 44 years and I know
1:26:14
for a fact that expansion doesn't coincide with preservation um I also know that the
1:26:21
third cause of Extinction of a species is human destruction of a natural
1:26:26
habitat it seems like they're a little bit more worried about a lifeguard station getting thrashed than all these
1:26:33
beautiful homes on the point uh there's a lot to consider here I'm not against
1:26:39
you know doing good things for that beach park I've grown up and like Carolyn said we've had birthday parties
1:26:45
we've lost people I lost two dear friends at that beach um the traffic
1:26:50
that's going to happen with this construction pro project is absolutely
1:26:56
GNA be insane from Santa Barbara to Pasadena and Eastward mark my words
1:27:03
um in a three-year span there was 633 injury accidents and 17 of them were
1:27:12
fatalities if there's bunched up traffic and there's a bottleneck they're going to try to keep that place open when
1:27:18
they're building a bridge it's never going to happen I mean and God forbid if there's a fire um the the the situation with the
1:27:28
historical landmark there I did contact Ken Bernstein who's uh the principal
1:27:33
city planner and manager of the Ellie City Los Angeles office of historic
1:27:39
resources and uh I got received a message he's not too stoked either um
1:27:45
we're just going to have to see what happens here and I'm glad it's still just in the planning stages because it
1:27:50
seems like we've got a lot of plan planning to
1:28:01

do hi thank you um so this is the point
1:28:08
okay that I just I don't know if you can see this but it is the burm my name is Chris Griffith sorry okay here we go
1:28:15
that's the point and my perspective of it and I know most people when they come
1:28:20
to the beach the local and even I think the coastal commission basically says
1:28:26
you know we don't take away places where they can look and have a clear view of the ocean and what comes to mind is that
1:28:35
in the design now all the points the visitation points are across the street
1:28:42
very few of them are really where you're standing on a burm and you're looking at the waves or you're looking at the
1:28:48
beauty or you're looking at you know the environment that's there but the other thing about that point is where the
1:28:54
existing helicopter pad is and I do feel like some of this project kind of went
1:29:00
full steam ahead without really coming down and seeing what is happening on that beach dayto day and by that I mean
1:29:08
that really the helicopter pad that's existing is for the what you were just
1:29:14
talking about Chris all those emergency vehicles that are coming from malibo they're really not the Lifeguard matter
1:29:20
of fact the Lifeguard I've been there when the lifeguards um there was a gentleman who was in the water and the
1:29:28
emergency vehicles can get to the Lifeguard stand and even get to the other side across the existing Creek
1:29:36
right now easily where the helicopter blows sand all around you don't want it
1:29:41
near people you don't want it near cars it doesn't make sense what makes more sense is to put a lifeguard station next
1:29:47
to the existing one and a bathroom because now when we've got all these visitors coming there's not one bathroom
1:29:54

added and the other thing about the reality of Tanga Beach is as you found it has an F rating because there's not
1:30:01
only bird poop there's dog poop and there's human poop not saying I'm
1:30:07
against it but I'm just saying let's be realistic you know you need to put a bathroom there you need to address dogs
1:30:13
when I was just recently at George wolf bur it's the patero canyon it's the next Canyon over it's this beautiful route
1:30:20
that goes along and B basically shows you where you can bring your dogs you see the new raran I you know I'm not an
1:30:27
environmentalist but it's it was a gorgeous project and it was to save fish as well like and it's you know right in
1:30:33
the palisad it's at petero Canyon is that what it's called yeah it's 45 Acres now it's gorgeous people you know so
1:30:40
realistically people bring their dogs to this beach constantly and realistically
1:30:46
there are unhoused there are fire pits on the beach you know there's GFF
1:30:52
underneath the bridge so when I also see that you're not going to hire anyone else once this project gets finished
1:30:59
that's a huge mistake like you have to have and and these groups have to stay
1:31:05
together and be the place that we can call and say there's a problem not let they become independent Parts because
1:31:10
then we're going to be chasing you know who do we call the beach and you know um
1:31:15
or the Santa Monica you know I get nervous talking anyhow I'm going to let
1:31:21
Dennis talk but it just felt like this has not really had the opportunity to
1:31:28
see what really happens to preserve a place like this point and not take it away and put it across the street you
1:31:34
know no Surfer is going to stand above a building and try to see how the waves are and um you know I just think taking
1:31:41

the BM away is ridiculous honestly so nice
1:31:48
job uh good evening my name is Dennis Robert Smith um um one of the things that concerns me is that I which
1:31:55
personally I've dealt with is the bridge at tuna or at uh zum Zuma Creek out at
1:32:01
tranis so with calr in their Infinite Wisdom out there they started the bridge
1:32:07
as many of you may know and it was kind of moving along okay as per our
1:32:13
representative here said um but then it suddenly stopped and the reason it stopped is because the geologists and
1:32:19
the engineers didn't do their homework and they had to come back in and double drill the bridge so now you're at they
1:32:26
were at like 64 65 feet now you got 130 foot kons so now you stop the whole
1:32:33
process these are these are people that paid a lot of money to watch what's
1:32:38
going on when you drive by these projects there's a lot of people there that's supposed to be watching as a
1:32:43
contractor myself if I'd have done that kind of work you know you know what would happen first you never get paid
1:32:50
they sue you they charge you for for the delay and everything else the bridge try to keep right so right
1:32:59
but and but anyway so the bridge is a big thing uh one of the other things I I
1:33:05
was curious about on the biology is on the material or the plant material that's going to grow are you growing
1:33:11
that material now are you going to hand seed this are you going to hand plant if
1:33:17
you're going to grow it now you'll have different sizes of plant material to go in which would be great you'll have
1:33:22
mature in areas if that's what you're looking for are you going to hydr seed some of the areas so that just kind of
1:33:28

gets covered but it's got the Topanga brush you know there are codes believe it or not in the hydro seed you got to
1:33:34
have here and if you do that are you bringing the younger people in are you
1:33:39
bringing people in that can be taught the younger kids out of the inner city are you bringing them is this part of the CCC deal where those kids and
1:33:46
somebody else is being taught all this it there's a there's a chance here for all this to do a lot lot of good I know
1:33:52
it's going to be tough in fact it's going to be downright awful for a long time but I think as a community can get
1:33:59
through it the other thing I was thinking and I know that I'm taking too long but hang on so the other thing I
1:34:04
was thinking the sewer line I know that sucks that's the extra year but what I was thinking is if you do that line
1:34:11
you're you're going up the coastline you fix that road you get that water that's on the side of the road on the landside
1:34:18
you capture that water you get it away you turn the into another Lane so everybody in this room if you're coming
1:34:25
from town you can have a right turn lane you can have a complete five or 600 foot
1:34:30
right turn lane to come home right instead of everybody sitting in that one spot waiting just to so you can just get
1:34:37
by the wall to maybe make that right turn to get around to get home so there there's there's some stuff and as a guy
1:34:43
that does this kind of work I'm kind of thinking about that so thank
1:34:50
you
1:34:57
hi um so I'm a weekly Surfer at toena um coming all the way from Pasadena because
1:35:03
the waves are so great um and my concerns regarding Wastewater just like
1:35:08
the um gentleman said before me how we'll be able to capture rain and runoff
1:35:14

in a better way um I don't know if you guys have been out there where uh the water and the smell and the grow ESS of
1:35:22
the water runoff from I know the creek and everywhere else seems to congregate around that area and if we can address
1:35:29
that um as a priority as well um would be
1:35:42
great I'll keep it short um in the I didn't I didn't read all 3900 pages of
1:35:48
the report but um what's the expected lifetime of the Lagoon that is under under uh future
1:35:57
climate scenarios storms typical rainfall how long will it
1:36:03
take for that Lagoon to be filled in again after you remove the 10 and something thousand cubic yards of
1:36:11
sediment I think that's important to know because I would hate to see that you do all this work and then it gets
1:36:17
filled up a year later in one storm or two years later
1:36:25
later that's fine and since others have expressed interest or their opinion about different Alternatives I think uh
1:36:33
mine was alternative one which was do nothing I think um it isn't broken so I
1:36:39
don't see why it should be fixed at this
1:36:45
point any other comments
1:36:56
hi I'm Randy Johnson I live in the canyon um for the last 30 some years and
1:37:02
I used to be a surfer um so I know the beach well I'm wondering all these
1:37:08
comments and ideas and things that have are been raised today are we going to have
1:37:13
another um session like this and are these are these issues going to be
1:37:19
addressed there's a a bunch of things that I'd never thought about before like
1:37:24
what these guys are talking about on the point um and and uh my other question was what
1:37:31

what happens to the Wastewater now and maybe we need a session where we get
1:37:39
to ask questions and you get to answer yes thank you
1:37:50
amen I know it's I know it's it's it's frustrating not to have answers we want
1:37:55
to be accurate we don't want to be saying things that aren't true or or that don't come to Bear all of this is
1:38:00
in the public record so getting those comments in makes uh for this whole team
1:38:06
needs to respond like I said before to every single comment and it'll be in writing next to your comment that you've
1:38:13
uh given us today and you'll be able to see if you sign in here you'll be able to see in the final just how we
1:38:19
responded so appre appreciate that in the sequel process that's sort of how it works we are getting close to
1:38:26
timing um not sure but I can put it on the card it'll be soon um uh last last
1:38:33
Saturday's meeting is already online you can see
1:38:39
that thank you so much my name is Carrie benar I've lived in Tanga for 20 years
1:38:44
I'm a Santa Monica native I just want to acknowledge all the hard work that was put into this project all all these
1:38:51
years this didn't start two years ago 5 years 10 years ago this started 24 years ago and even longer and it's come into
1:39:00
people's um Consciousness and people have worked on this and studied it hasn't just been thrown out as let's do
1:39:07
this this is years and years of biological and um geological and
1:39:15
historical research and I wanted to acknowledge this team I think we're getting a lot of really strong comments
1:39:21
but I'm thinking 20 years ahead this Project's been going 24 years or more I'm thinking of our children our
1:39:27

grandchildren and also schumach people are not dead it's not a historical archaeological thing there's living
1:39:34
human beings and this is saving this cultural heritage so when people say h
1:39:40
who cares I don't feel that and I think that we do need to save these fish we
1:39:46
destroyed all this area why not bring it back it's half an acre when it was 30
1:39:51
Acres the Lagoon and I think that there's room for everyone I think that the Surfers really felt heard and they
1:39:58
had the whole private Zoom meeting with you all and I appreciate that conscious
1:40:04
conscientiousness um I think many of the Surfers are happy I think there's more to talk about of course but I just
1:40:12
wanted to acknowledge all the hard work and that I think everyone can really benefit from this especially the future
1:40:19
generations and I think it's our responsibility to take care of the environment and to take care of the
1:40:24
people living in the area thank you so much thank you thank you thank you one
1:40:32
more
1:40:37
question
1:40:44
okay so um we can talk about uh responses when we're done with the public meeting
1:40:51
one more comment we do have a have bit of a time constraint for the for the facility but um keep keep them coming
1:41:12
yep us yeah I I I I think it's
1:41:18
okay yeah I appreciate that I think we want to hear your comments we can start taking stuff down in the background if
1:41:23
if the facility is going to kick us out and we can ask them if they're going to do that but I think it's important Rosie to make sure we get folks input so we
1:41:30
don't I mean that being said this is a process you have till April 12th so we
1:41:36

really expect in write good comments in writing from you and if if we you know if you have the opportunity right now to
1:41:42
actually talk to folks you might want to take advantage of that too so just if you have some more comments on the you
1:41:48
know content of the AR yeah I feel like like um April 12th isn't enough time
1:41:54
there's tons of info by the time we you know like we don't do this full-time
1:41:59
like by the time we do our due diligence have conversations with friends try to
1:42:06
group up it's it's not enough time to to digest it all and make sense of it all
1:42:12
and you know kind of yeah straight
1:42:18
out uh Michael uh Tanga resident for a long time and Surfer my whole life and
1:42:24
I've been cleaning up the the beaches by myself for a long long time I I walk up
1:42:30
and down and grab the garbage and I don't know if it's been addressed I unfortunately couldn't read the hundreds
1:42:35
and hundreds of pages but um from what it sounds like uh you're bringing in a
1:42:40
lot more people to the beach and you're not really addressing the fact that they're going to be leaving a lot more garbage right now I think there are
1:42:47
maybe two or three trash receptacles on the on the beach and uh they're filled up pretty much all
1:42:53
the time so I'm I'm hoping that you know somebody's making plans to address that
1:43:00
and the fact that we've got two restrooms that sometimes function and
1:43:05
sometimes don't is also a really big concern of mine and I'm sure it is of anyone else that that frequents that
1:43:12
beach so
1:43:17
you thank you
1:43:26
I just want to say I'm Ken Taylor froma Town Council and I really want to
1:43:32

appreciate all of your comments we just want catch the recording too doesn't
1:43:38
matter what recording I want to appreciate all the comments and the fact
1:43:44
that the group managed to have a meeting for us right here in Tanga
1:43:51
there's been the one down below at anenberg earlier in this week and this is really how this community functions
1:43:59
is talking to one another and listening to one another and they've come here and
1:44:04
they've asked and they've presented and we will continue to engage with them on
1:44:10
every level we could possibly do but I really want to acknowledge all of the
1:44:16
expertise all the dedication of every one of you here and you know it's what
1:44:22
makes Pang us strong and great that we really respect one another and we come
1:44:30
together because it's so damn beautiful how do we just keep it let's not change
1:44:40
that have one more comment and then we one more comment and then we'll shut it down okay that's that's okay
1:44:48
one um I just like to say that it's really clear that there's conflict and
1:44:55
um there's people checking off boxes for things they need to get done and people's concerns aren't being met and
1:45:02
that doesn't give them a peace of mind um and additionally that we want to we
1:45:08
want to teach the Next Generation about the culture that was here but if we teach the Next Generation about
1:45:13
restoration being a human-made project and that humans are going to fix the problems they made in the past I think
1:45:19
there's um some concern in there around teaching the future generation about we are the problem fixers um and that's not
1:45:27
always the case and no I think there's not a lot of Peace of Mind here and um
1:45:32
avoidance of conflict is very common theme here tonight
1:45:39