INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Connect Coachella

Applicant:

City of Coachella
53990 Enterprise Way
Coachella, CA 92236

Lead Agency:

City of Coachella
53990 Enterprise Way
Coachella, CA 92236

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CITY OF COACHELLA
CEQA Environmental Checklist & Environmental Assessment

	INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Project Title:	Connect Coachella	
Case No.		
Assessor's Parcel No.	Multiple (see Exhibit 2)	
Lead Agency Name and Address:	City of Coachella – Planning Division 53990 Enterprise Way Coachella, CA 92236	
Project Locations:	Ave. 48 from Dillon Rd. to Grapefruit Blvd. Grapefruit Blvd. from Ave. 48 to Ave. 54. Ave. 54 from Van Buren to the Coachella Valley Stormwater Channel.	
Project Sponsor's Name and Address:	City of Coachella	53990 Enterprise Way Coachella, CA 92236
General Plan Designation(s):	Avenue 48 Extension Route: Suburban Retail District Grapefruit Boulevard North-South Route: Manufacturing Service, Urban Employment Center, Public Facilities Avenue 54 East-West Route: Suburban Neighborhood, Neighborhood Commercial, General Neighborhood, Urban Employment Center, Industrial District, Public Facilities, Tribal Land, Sphere of Influence	
Zoning:	Avenue 48 Extension Route: General Commercial Grapefruit Boulevard North-South Route: Industrial District, Urban Employment Heavy Industrial Avenue 54 East-West Route: Suburban Neighborhood, Neighborhood Center, General Neighborhood, Urban Employment, Heavy Industrial, Manufacturing Service, Tribal Land, Sphere of Influence	

Contact Person:	Gabriel Perez, Development Services Director City of Coachella 53990 Enterprise Way Coachella, CA 92236
Phone Number:	(760) 398-3502
Date Prepared	April, 2024

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

	Aesthetics		Agriculture and Forestry Resources		Air Quality
	Biological Resources		Cultural Resources		Energy
	Geology /Soils		Greenhouse Gas Emissions		Hazards & Hazardous Materials
	Hydrology / Water Quality		Land Use / Planning		Mineral Resources
	Noise		Population / Housing		Public Services
	Recreation		Transportation		Tribal Cultural Resources
	Utilities/Service Systems		Wildfire		Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency) On the basis of this initial evaluation:

	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
X	I find that although the proposed project could have a significant effect on the environment there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Gabriel Perez Digitally signed by Gabriel Perez DN: C=US, E=gperez@coachella.org, O=City of Coachella, OU=Planning Division - Development Services Dept, CN=Gabriel Perez Date: 2024.04.03 18:06:05-07'00'

April 3, 2024

Gabriel Perez
City of Coachella

Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross referenced).
5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a) Earlier Analysis Used. Identify and state where they are available for review.
    b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures, which were incorporated or refined from the earlier document and the extent to which they address site specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:
   a) The significance criteria or threshold, if any, used to evaluate each question; and
   b) The mitigation measure identified, if any, to reduce the impacts to less than significance.

INTRODUCTION

The Connect Coachella Project ("Project") is a proposal to construct two new alternative transportation pathways and a short alternative transportation extension totaling approximately 7 miles in the City of Coachella. The purpose of this Initial Study/Mitigated Negative Declaration is to assess potential impacts that may result from the construction and on-going use of two non-motorized alternative transportation routes in the City. As described in the 2015 General Plan Update, the City of Coachella prioritizes the development of a "balanced transportation system" that seamlessly integrates non-motorized routes with motorized routes during this time of growth. To this end, the entirety of the Project will run along roadways that have previously been designated as both major and primary arterials with enhanced bicycle facilities, which means that the Project will not require new roadway classifications or additional land resources to construct the bike paths. The Project will provide non-motorized connectivity between residential districts, retail and commercial districts, industrial districts, and open space, and will aid in fulfilling the City's commitment to offering residents safe alternative modes of transportation. Moreover, the Project will provide an important access point to the CV Link where Avenue 54 ends at the Coachella Valley Stormwater Channel. The CV Link is a multi-modal transportation pathway connecting eight cities, unincorporated county areas, and three tribal areas from Palm Springs to Coachella.

PROJECT DESCRIPTION

The following description is illustrated in the Vicinity Map on Exhibit 2. The "North-South" route will be a Class 1 bike path extending approximately 3.8 miles along the east side of Grapefruit Boulevard from Avenue 48 south to Avenue 54. This will incorporate an existing bike path which begins at Avenue 50 and ends at 9th Street. The "East-West" route of the Project will include 3.2 miles of new Class II bike lanes along both the north and south sides of Avenue 54 beginning at Van Buren Street, crossing Grapefruit Boulevard, and ending at the Coachella Valley Stormwater Channel where the Project will meet the future CV Link path. A shorter .08-mile Class I bike path extension is proposed on the south side of Avenue 48 starting from the southeast corner of the Dillon Road intersection and ending at the southeast corner of the Grapefruit Boulevard intersection.

The Project proposes numerous improvements to intersections and roadways throughout the routes. New crosswalks and ADA curb ramps will be installed at various intersections to provide safer and more visible non-motorized access between the bike paths, services, and residential districts. A new roundabout with median dividers is proposed for the Grapefruit Boulevard/Tyler Street intersection. New right-turn slip lanes and triangular median dividers are proposed for the Grapefruit Boulevard/Avenue 54 intersection. New road striping delineating the bike lanes will be applied throughout the routes as well as new multilane striping and directional arrows to help guide motorized traffic. A new railroad crossing for pedestrians and other non-motorized transport will be constructed where Avenue 54 crosses the Union Pacific Railroad. Additionally, new signs and posts will be installed along the routes.

Avenue 48 Class I Extension

The 0.08-mile Class 1 extension along the south side of Avenue 48 between Dillon Road and Grapefruit Boulevard will be between an 8.5 foot and 10 foot wide shared use path. It will begin at the southeast corner where Dillion Road meets Avenue 48 and will stop at the southwest corner of Avenue 48 and Grapefruit Boulevard. The bike path will be constructed of four-inch-thick asphalt concrete over six inches of crushed base. Four-inch shared-use centerline striping will be applied to the path and six-inch right edge line striping will be applied along both sides of the path. Within this portion of the Project, the four travel lanes on the south side of Avenue 48 will become three travel lanes, and the right-most lane will become the Class I shared-use bike path. The bike path will be separated from motorized traffic via a six-inch curb except where the path crosses a commercial retail driveway. New multilane dashed lines will be applied to Avenue 48. Two new crosswalks and two new ADA curb ramps will be installed at the Grapefruit Boulevard intersection. A north-south crosswalk will connect the northwest corner to the southwest corner. An east-west crosswalk will connect the southwest corner to the east side of Grapefruit Boulevard.

Grapefruit Boulevard North-South Route – Class I Bike Path
The North-South route will run along the east side of Grapefruit Boulevard for 3.74 miles. It will begin at the east corner of the intersection of Avenue 48 and Grapefruit Boulevard, where a new crosswalk and ADA ramp will be installed, and continue south to Avenue 54 where it will meet the East-West route at the northeast corner of Avenue 54 and Grapefruit Boulevard. The North-South route will be a ten-foot-wide Class I bike path with a two-foot shoulder on either side. The bike path will be constructed of four-inch-thick asphalt concrete over six inches of crushed base. Four-inch shared-use centerline striping will be applied to the bike path and six-inch right edge line striping will be applied along both sides of the bike path. The North-South route will be constructed within the existing right of way between Grapefruit Boulevard and the Union Pacific Railroad. There will be a buffer between the edge of the travel lane pavement and the shoulder of the bike path. The width of the buffer along the route varies between 10 feet and 24 feet. Existing vegetation along the street side of the route between the Dillon Road intersection and Cesar Chavez Street will be removed. Between Avenue 49 and Cesar Chavez, a vegetative bioswale will be installed.

The North-South route will cross under the Avenue 50 bridge and join the existing bike path which runs from Avenue 50/Leoco Lane south to 9th Street. Where the existing bike path ends at 9th Street, the new North-South route will resume, cross under the Avenue 52 bridge, pass the Tyler Street intersection uninterrupted and then meet the East-West route at the northeast corner of Avenue 54.

Proposed Improvements to Grapefruit Boulevard
New crosswalks and ADA curb ramps will be installed along the route. Where Avenue 49 meets Grapefruit Boulevard an east-west and a north-south crosswalk will be installed with new ADA curb ramps and a new sidewalk on the northwest corner. Where the crosswalk meets the Grapefruit Boulevard median, a new six-inch curb will be constructed. At the entrance to the Gateway Center shopping center between Avenue 49 and Cesar Chavez Street, an east-west crosswalk will be installed across Grapefruit Boulevard with two new ADA curb ramps. At Sunset Drive there will be an east-west crosswalk with an ADA curb ramp. Twelve-inch stop bar limits and directional arrows will be applied to Grapefruit Boulevard intersections. New multilane striping will be applied between 9th Street and Tyler Street.

Where Cesar Chavez Street and Park Lane meet Grapefruit Boulevard, two north-south crosswalks, one east-west crosswalk, and three new ADA curb ramps will be installed. On the east side of the intersection, a new 10-foot-wide concrete asphalt sidewalk will traverse across the vegetative bioswale and meet a new trailhead plaza on the North-South route.

Several improvements are slated for the Tyler Street intersection. A 40.53-foot radius roundabout with four medians will facilitate motorized traffic while three new east-west crosswalks and ADA curb ramps will connect two medians across Grapefruit Boulevard north of the roundabout. A new sidewalk along the west corner the intersection will tie into the existing Tyler Street sidewalk.

Avenue 54 East-West Route from Van Buren Street to Grapefruit Boulevard – Class II Bike Lane
The East-West bike lane route of the Project will begin at the intersection of Avenue 54 and Van Buren Street and travel eastward for approximately 3.18 miles to the Coachella Valley Stormwater Channel, where it will meet the future CV Link trail. The East-West route to from Van Buren Street to Grapefruit Boulevard will include five-foot-wide bike lanes and three-foot wide buffers within the existing travel lanes along the north and south sides of Avenue 54. The bike lanes will be demarcated with white six-inch bike lane striping, six-inch white stripes angled at 45 degrees every fifteen feet as well as six-inch right edge line striping. In addition, new bike lane intersection striping will help motorists identify locations where the Project crosses intersections.

Between Tyler Street and Grapefruit Boulevard, a new five-foot-wide sidewalk is proposed along the north side of the bike lane within the right of way. A five-foot-wide shoulder and a six-foot-wide buffer will separate the bike lane from the new sidewalk. A two-foot-wide shoulder will run along the north edge of the sidewalk.

The East-West route will approach the Grapefruit Boulevard intersection at which point the bike lane on the north side of Avenue will meet a bike lane intersection marking, which will be installed across the new slip lane, and end at the new triangular median. The Class II bike lane on the south side of Avenue 54 will continue eastward through the intersection and end at the southwest corner of the Polk Street intersection.

East-West Route Between Grapefruit Boulevard and the Coachella Valley Stormwater Channel – Class I and Class II
At the northeast corner of the Grapefruit Boulevard-Avenue 54 intersection, the North-South Class I route will meet a new sidewalk and turn east following the north side of Avenue 54.

From Grapefruit Boulevard to Polk Street the path will be 8 feet wide with a 2 foot shoulder on either side. It will be constructed of the same material as the North-South route and will include four-inch shared-use centerline striping and six-inch right edge line striping. Trees will be removed as needed. Along the south side of this route, the Class II bike lane continues in the eastbound travel lane. The five-foot-wide bike lane will be separated from the motorized traffic by a three-foot buffer.

At the Polk Street intersection, the bike lane on the south side ends at the southwest corner while the Class I bike path continues in the right of way along the north side of Avenue 54 to the Coachella Valley Stormwater Channel. At the northeast corner of Polk Street and Avenue 54, the bike path becomes ten feet wide with a two-foot shoulder on either side. The East-West route will stop at the end of Avenue 54 and join the future CV Link trail.

Proposed Improvements to Avenue 54
The Project proposes multiple road improvements along Avenue 54. New road surface overlay and double yellow centerline striping will be constructed along Avenue 54 from Van Buren Street to the Coachella Valley Stormwater Channel where Avenue 54 ends. Between Van Buren Street and Tyler Street the north side travel lane will be widened to 12 feet to match the south side travel lane. New directional arrows and twelve-inch stop bar limits will be added to intersectional road markings, and new posts and signs will be placed along the route. New multilane dashed

line striping will be painted between Tyler Street and Polk Street where there are more than two travel lanes.

Along Avenue 54, new crosswalks with ADA curb ramps will be constructed at various intersections. A north-south crosswalk with an ADA corner curb ramp will be installed at the Slate Drive intersection. An east-west crosswalk with two ADA curb ramps will be installed at the Cesar Chavez Street and Tyler Street intersections. At Enterprise Way, there will be two east-west crosswalks and four ADA curb ramps. The Polk Street intersection will have one east-west and one north-south crosswalk along with three ADA curb ramps.

Numerous upgrades to the Grapefruit Boulevard intersection are also proposed. Two slip lanes and two triangular landscaped medians will accommodate right-turning traffic. One slip lane and median will be placed at the northwest corner, and the other slip lane and median will be placed at the southeast corner. Four new crosswalks will be installed east-west across the slip lane and Grapefruit Boulevard and north-south across the slip lane and Avenue 54 along with six ADA curb ramps. Six-inch white bike lane striping, bike lane intersection striping, multi-lane white dashed lines, double yellow centerlines, new twelve-inch stop lines, and new railroad crossing paint will all be added to the intersection.

Just east of this intersection, where Avenue 54 crosses the Union Pacific Railroad, a new at-grade railroad crossing will be constructed and will include pedestrian gates, signal improvements, ADA curb ramps and concrete panels.

CURRENT CONDITIONS

The Project will offer alternative transportation connectivity between seven General Plan subareas of the city and two tribal areas: West Coachella Neighborhoods, North Employment District, Downtown, Downtown Expansion, Harrison Street Corridor, South Employment District, Airport District, the Twenty-Nine Palms Band of Mission Indians north of Avenue 48, and the Augustine Band of Cahuilla Indians south of Avenue 54.

Avenue 48 Class I Extension

This portion of the Project area is designated in the General Plan as Suburban Retail District and has General Commercial zoning. On the south side of Avenue 48 between Dillon Road and Grapefruit Boulevard where the bike path will occur, the route will pass by a fast-food restaurant and gas station/convenience store and the driveway entrance.

Grapefruit Boulevard North-South Route

Grapefruit Boulevard is a four-lane north-south traffic corridor. South of Tyler, Grapefruit Boulevard becomes a two-lane road with center turn lane.

The section between Avenue 48 and Avenue 50 is designated in the General Plan as Industrial District and zoned as Manufacturing Service. The land in the right of way where the route will be located is vacant, unpaved, previously disturbed and lined with oleander bushes. Along the east side of the railroad tracks, the land is mostly vacant. The west side of Grapefruit Boulevard is designated General Commercial, supporting a mix of businesses and two large vacant lots.

Where Park Lane meets Grapefruit Boulevard, the Downtown Center designation begins on the west side of Grapefruit Boulevard and continues to 9th Street. On the east side of the road where the route is located, land use and zoning are both Urban Employment. Industrial buildings occur along the east edge of the right of way between the Project route and the railroad tracks as well as along on the east side of the tracks.

From 9th Street to Avenue 52, the land use shifts to Public Facilities and the zoning designation becomes Manufacturing Service. The route area returns to vacant, unpaved, and previously disturbed land. Agriculture and industry are present east of the railroad tracks while retail and r uses are present along the west side of Grapefruit.

Between Avenue 52 and Avenue 54, the General Plan land use returns to Industrial District on the east side of Grapefruit Boulevard and is zoned for Heavy Industrial. The route area remains vacant, unpaved, and previously disturbed. Between Avenue 52 and Tyler Street, industrial uses occur east of the railroad tracks and suburban neighborhood is present west of Grapefruit Boulevard. South of Tyler Street to Avenue 54, the land east of the tracks is vacant and limited industrial use is present on west side closer to Avenue 54. Grapefruit Boulevard becomes a two-lane road in this area.

Avenue 54 East-West Route

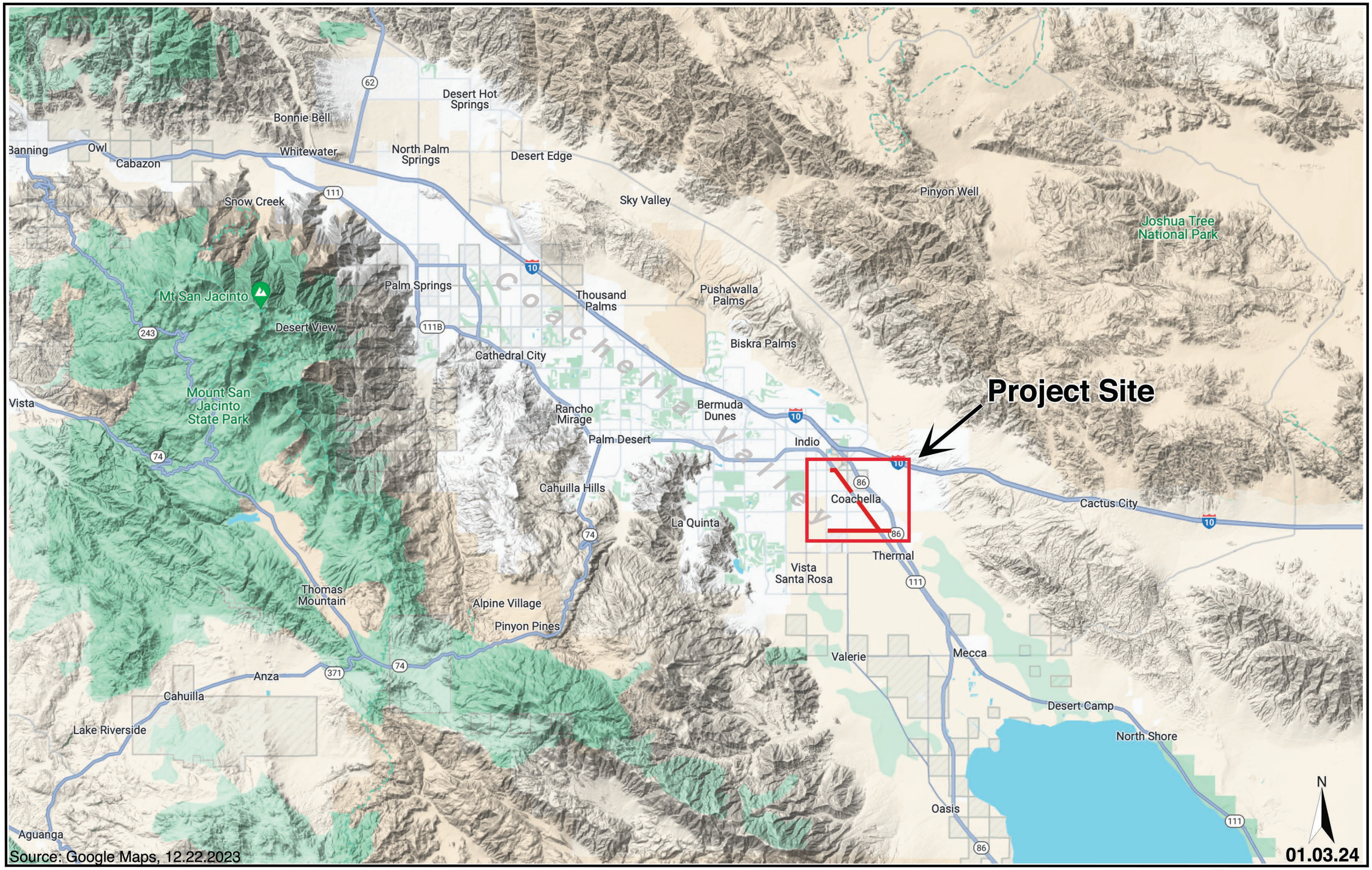
Avenue 54 is a presently a two-lane road in a mostly agricultural and industrial area of Coachella.

The portion of the East-West route between Van Buren Street and Harrison Street on the north side of Avenue 54 is mostly designated as Suburban Neighborhood with a small section designated as Neighborhood Center and zoned as Neighborhood Commercial. From the corner of Van Buren easterly to Frederick Street, there is a small date grove, two single-family residences surrounded by vacant land, and a residential development. East of Frederick Street to Harrison Street, the land is mostly vacant except for one small date grove.

On the south side of Avenue 54 from Van Buren to Harrison Street, the land belongs to the Augustine Band of Cahuilla Indians. Aside from the casino located at the southeast corner of Van Buren and Avenue 54, the land is vacant. On the south side of the Frederick Street intersection, a new driveway has been constructed possibly indicating future development on the reservation.

Continuing east from Harrison Street to Tyler Street, the north side three land use designations includes three land use designations: Neighborhood Center to Calle Balderas, which is zoned as Neighborhood Commercial; then General Neighborhood to Avenida Del Prado; and finally Urban Employment to Tyler Street. The Neighborhood Center section is currently vacant. The General Neighborhood section contains a residential housing development. East of the housing development over to Tyler Street in the Urban Employment section, the land is currently under agricultural crop production. The south side land use and zoning designations for this area are both Urban Employment. Along this portion of the Project, there is a mix of vacant land, rural single-family homes, animal agriculture and crop production.

From Tyler Street east to the Coachella Valley Stormwater Channel the land use designations for both sides of Avenue 54 include, from west to east, a short continuation of Urban Employment, then Industrial District, which is zoned for Heavy Industrial to Polk Street. On the north side of the road east of Polk Street, the zoning changes to Manufacturing Service. Industrial complexes line the north side of Avenue 54 From Tyler Street to Grapefruit Boulevard. Much of this is masked by fencing and landscaping. East of Grapefruit, there is a mix of vacant land and industrial use at the east end of the Project, adjacent to the Coachella Valley Stormwater Channel. Along the south side of the road from Tyler to Grapefruit, the land is used for agricultural crop production, and there is a date processing facility at the southeast corner of Grapefruit and Avenue 54. Eastward beyond Grapefruit Boulevard to Polk Street, the land is vacant. East of Polk Street, Avenue 54 becomes a narrow unstriped road which ends at the channel. A wastewater treatment plant occurs on the south side across from an agriculture chemical company on the north side of the road.



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Connect Coachella Project
Regional Location Map
Coachella, California

Exhibit
1

Sources: ESRI, 03.2024; Coachella Valley Association of Governments (CVAG), 10.2021.

03.05.24

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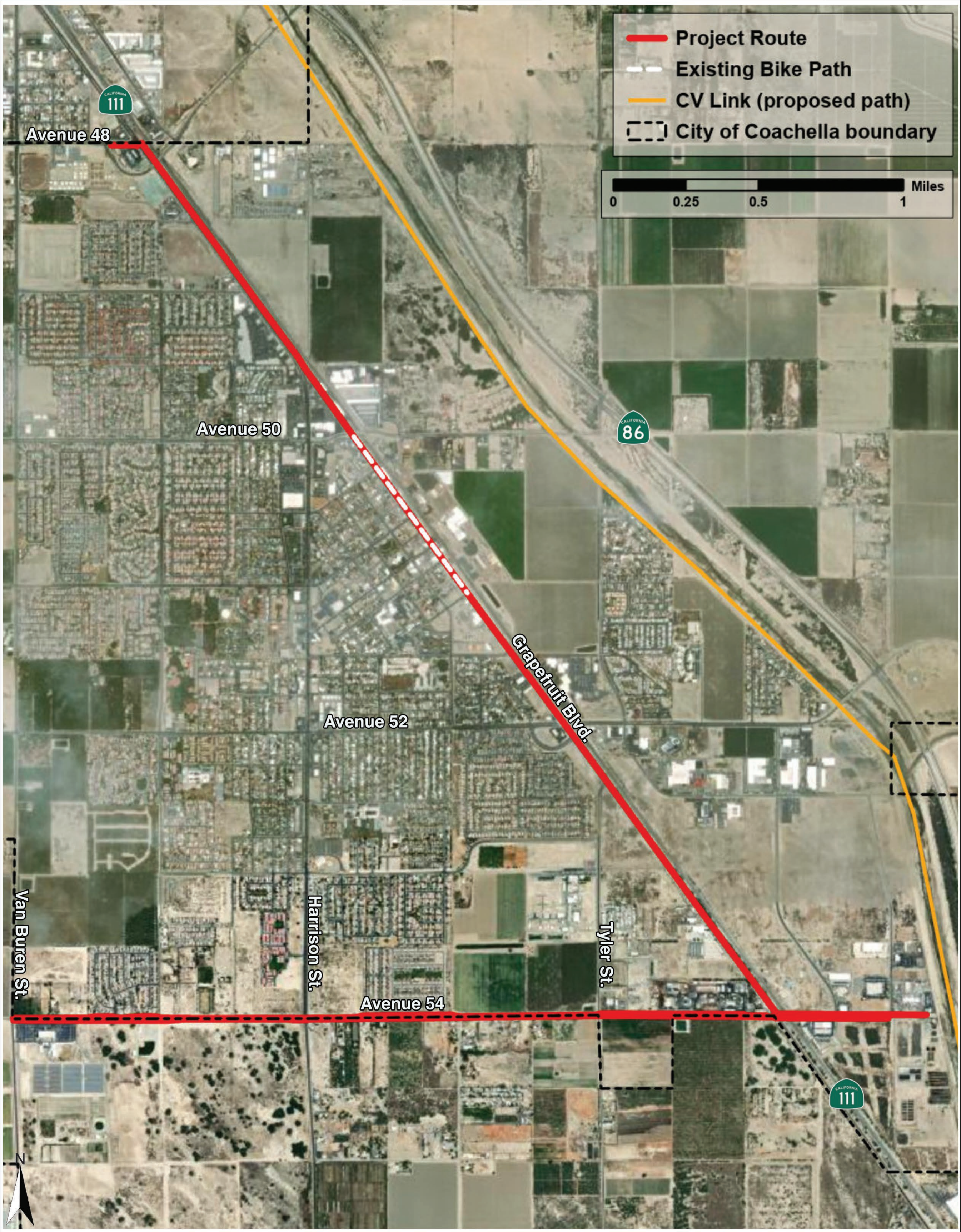
Connect Coachella Project
Vicinity Map
Coachella, California

Exhibit
2



Sources: ESRI, 03.2024; Coachella Valley Association of Governments (CVAG), 10.2021.

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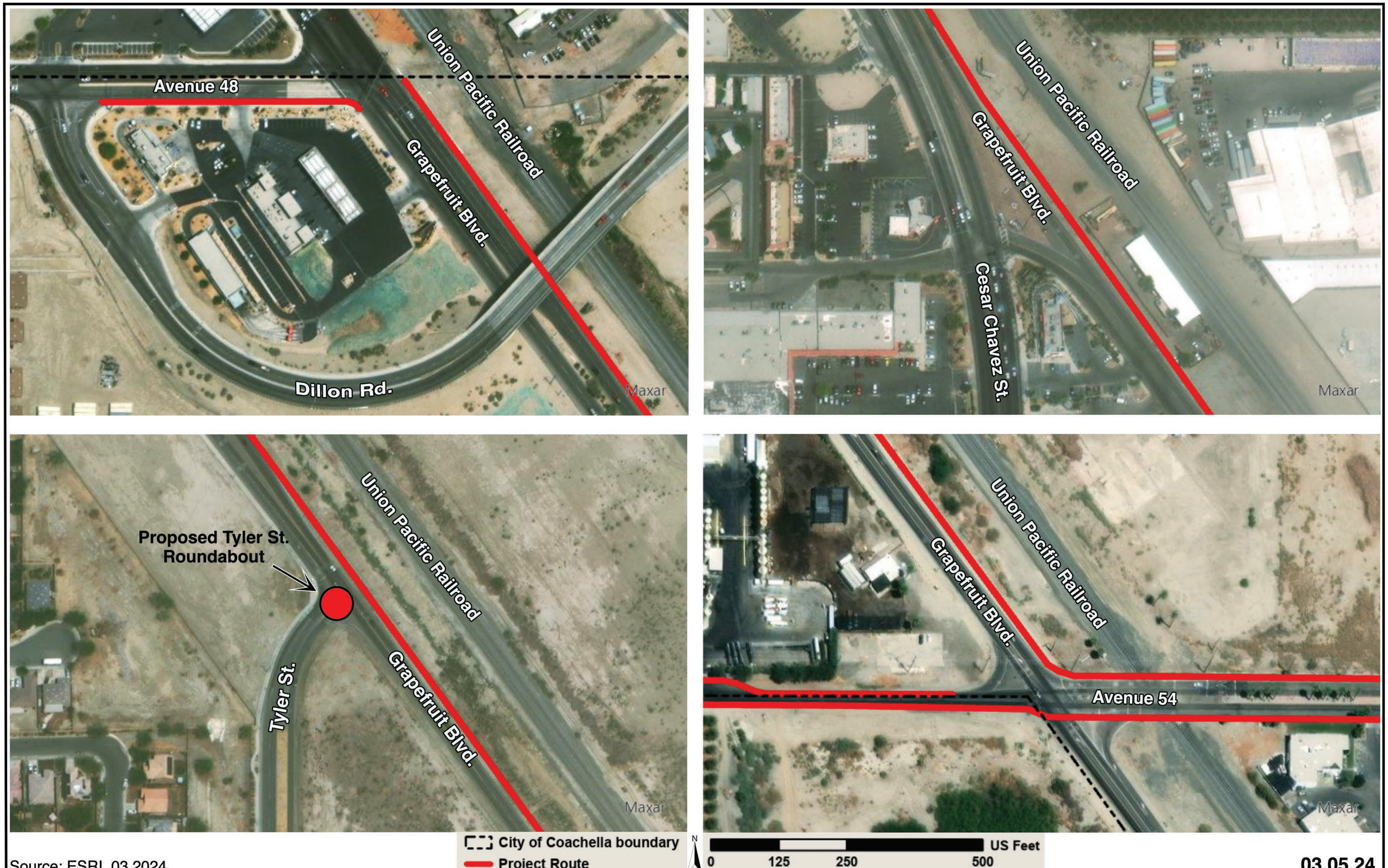
Connect Coachella Project
Project Location Map
Coachella, California

Exhibit

3



Source: ESRI, 03.2024.

03.05.24

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Connect Coachella Project
Project Locations
North-South Route - Grapefruit Blvd. - Class I Bike Path
Coachella, California

CITY OF COACHELLA
CALIFORNIA

Exhibit
4a

Sources: ESRI, 03.2024; CVAG, 10.2021.

03.07.24

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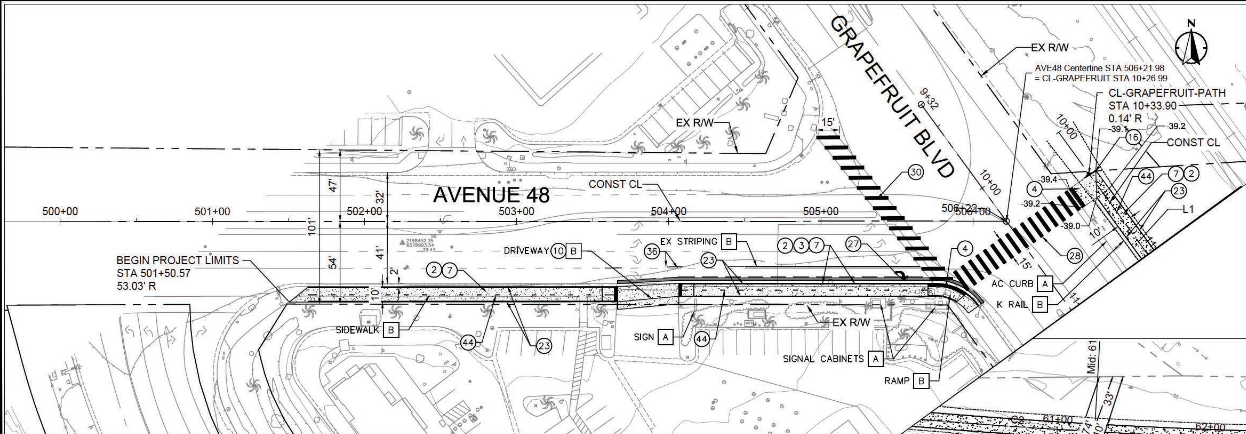
Connect Coachella Project
Project Locations
East-West Route - Avenue 54 - Class II Bike Lane
Coachella, California

Exhibit
4b

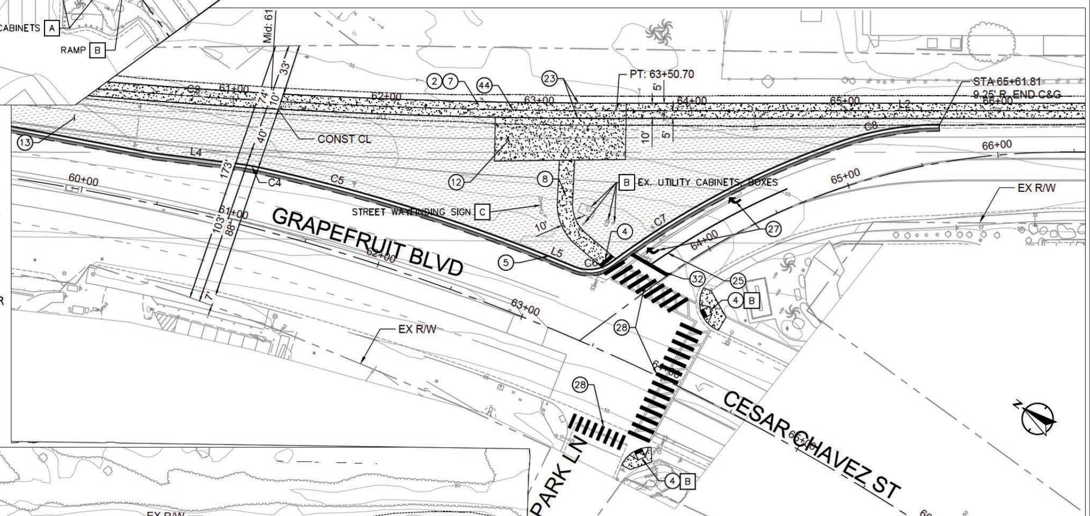


DISPOSITION NOTES

- A PROTECT IN PLACE (ITEM AS INDICATED)
- B REMOVE (ITEM AS INDICATED)
- C RELOCATE (ITEM AS INDICATED)
- D ADJUST TO GRADE (ITEM AS INDICATED)

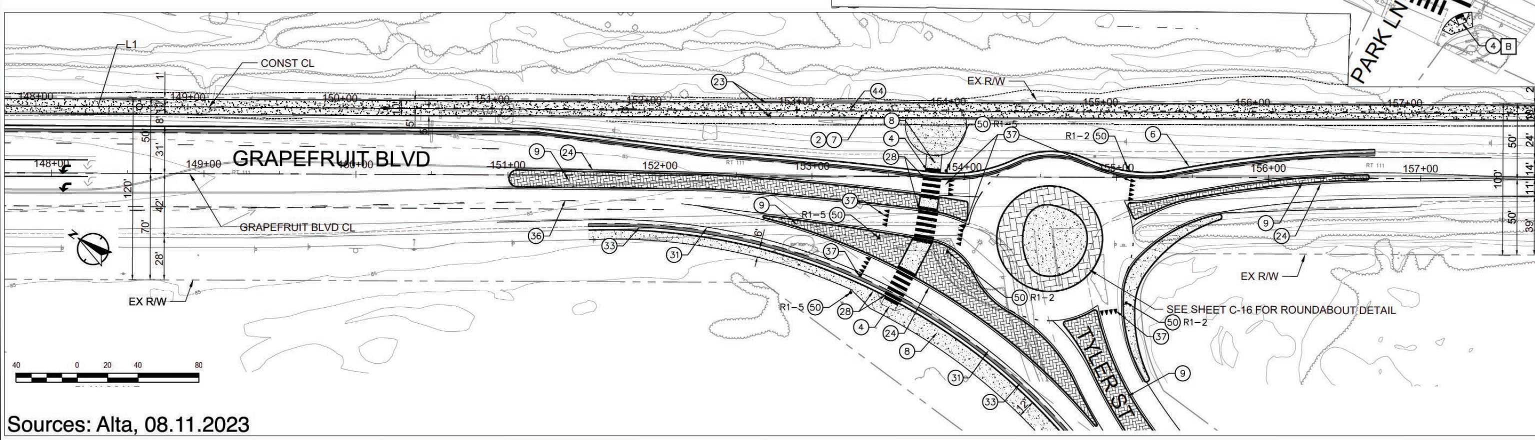
LEGEND

- EXISTING R/W
- GRIND AND OVERLAY
- ASPHALT CONCRETE
- PORTLAND CEMENT CONCRETE
- LANDSCAPING
- DAYLIGHT



CONSTRUCTION NOTES

- (2) UNCLASSIFIED EXCAVATION/ FILL (INCLUDING REMOVAL OF AC, AB, BASE, AND SUBBASE) AND COMPACTION, DEPTH PER TYPICAL SECTION
- (3) CONSTRUCT 4" ASPHALT CONCRETE SURFACE PAVEMENT OVER 6" CRUSHED MISC. BASE OVER PREPARED SUBGRADE
- (4) CONSTRUCT ADA CURB RAMP PER CALTRANS STD PLAN A88A & A88B
- (5) CONSTRUCT PCC CURB AND GUTTER - MATCH EXISTING
- (7) CONSTRUCT 4" PCC SHARED-USE PATH PER COACHELLA STD DWG NO S-25.1
- (8) CONSTRUCT 4" PCC SIDEWALK PER COACHELLA STD DWG NO 25.1
- (12) CONSTRUCT ADA COMPLIANT TRAILHEAD/PLAZA INCLUDING AMENITIES
- (13) CONSTRUCT VEGETATIVE BIOSWALE PER TYPICAL SECTION
- (14) CONSTRUCT DROUGHT TOLERANT LANDSCAPING W IRRIGATION
- (23) INSTALL 6" RIGHT EDGELINE STRIPING PER CALTRANS STD PLAN A20B, DETAIL 27B
- (25) INSTALL 8" CHANNELIZING LANE LINES PER CALTRANS STD PLAN A20D, DETAIL 38A
- (27) INSTALL TYPE IV (R) ARROW PAVEMENT MARKING PER CALTRANS STD PLAN A24A
- (28) INSTALL CONTINENTAL CROSSWALK, PER CALTRANS STD PLAN A24F
- (32) INSTALL 12" STOP BAR LIMIT LINE, PER CALTRANS STD PLAN RSP A24G
- (34) INSTALL TYPE VI (LANE DROP) ARROW PER CALTRANS STD PLAN A24A
- (44) INSTALL SHARED-USE PATH CENTERLINE STRIPING
- (30) **INSTALL LADDER STYLE CROSSWALK WITHIN LIMITS OF EXISTING TRAVERSE CROSSWALK**



Sources: Alta, 08.11.2023

03.07.24

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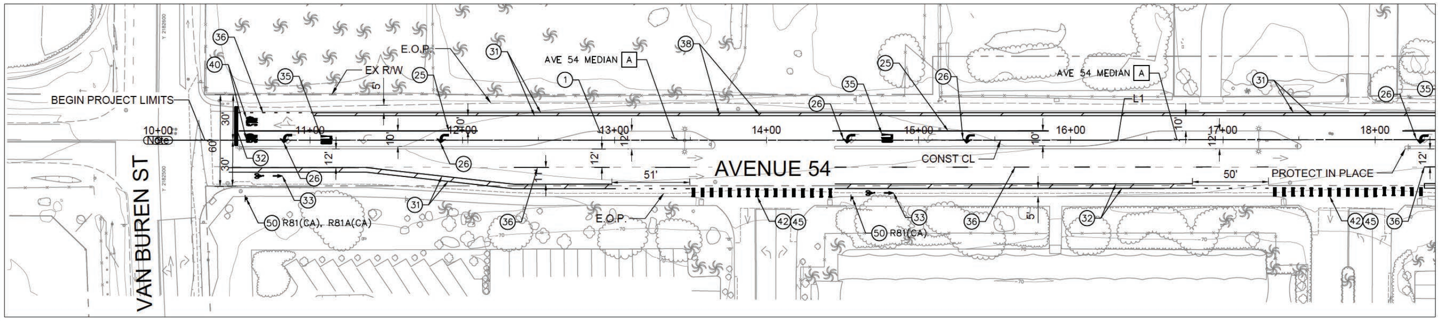
Connect Coachella Project
Site Plans
North-South Route - Grapefruit Blvd. - Class I Bike Path
Coachella, California

CITY OF COACHELLA CALIFORNIA INCORPORATED 1946

Exhibit
5a



LEGEND

- EXISTING R/W
- GRIND AND OVERLAY
- ASPHALT CONCRETE
- PORTLAND CEMENT CONCRETE
- LANDSCAPING
- DAYLIGHT

CONSTRUCTION NOTES

(2) UNCLASSIFIED EXCAVATION/ FILL (INCLUDING REMOVAL OF AC, AB, BASE, AND SUBBASE) AND COMPACTION, DEPTH PER TYPICAL SECTION

(3) CONSTRUCT 4" ASPHALT CONCRETE SURFACE PAVEMENT OVER 6" CRUSHED MISC. BASE OVER PREPARED SUBGRADE

(4) CONSTRUCT ADA CURB RAMP PER CALTRANS STD PLAN A88A & A88B

(5) CONSTRUCT PCC CURB AND GUTTER - MATCH EXISTING

(7) CONSTRUCT 4" PCC SHARED-USE PATH PER COACHELLA STD DWG NO S-25.1

(8) CONSTRUCT 4" PCC SIDEWALK PER COACHELLA STD DWG NO 25.1

(12) CONSTRUCT ADA COMPLIANT TRAILHEAD/PLAZA INCLUDING AMENITIES

(13) CONSTRUCT VEGETATIVE BIOSWALE PER TYPICAL SECTION

(14) CONSTRUCT DROUGHT TOLERANT LANDSCAPING W IRRIGATION

(23) INSTALL 6" RIGHT EDGELINE STRIPING PER CALTRANS STD PLAN A20B, DETAIL 27B

(25) INSTALL 8" CHANNELIZING LANE LINES PER CALTRANS STD PLAN A20D, DETAIL 38A

(27) INSTALL TYPE IV (R) ARROW PAVEMENT MARKING PER CALTRANS STD PLAN A24A

(28) INSTALL CONTINENTAL CROSSWALK, PER CALTRANS STD PLAN A24F

(32) INSTALL 12" STOP BAR LIMIT LINE, PER CALTRANS STD PLAN RSP A24G

(34) INSTALL TYPE VI (LANE DROP) ARROW PER CALTRANS STD PLAN A24A

(44) INSTALL SHARED-USE PATH CENTERLINE STRIPING

(30) INSTALL LADDER STYLE CROSSWALK WITHIN LIMITS OF EXISTING TRAVERSE CROSSWALK

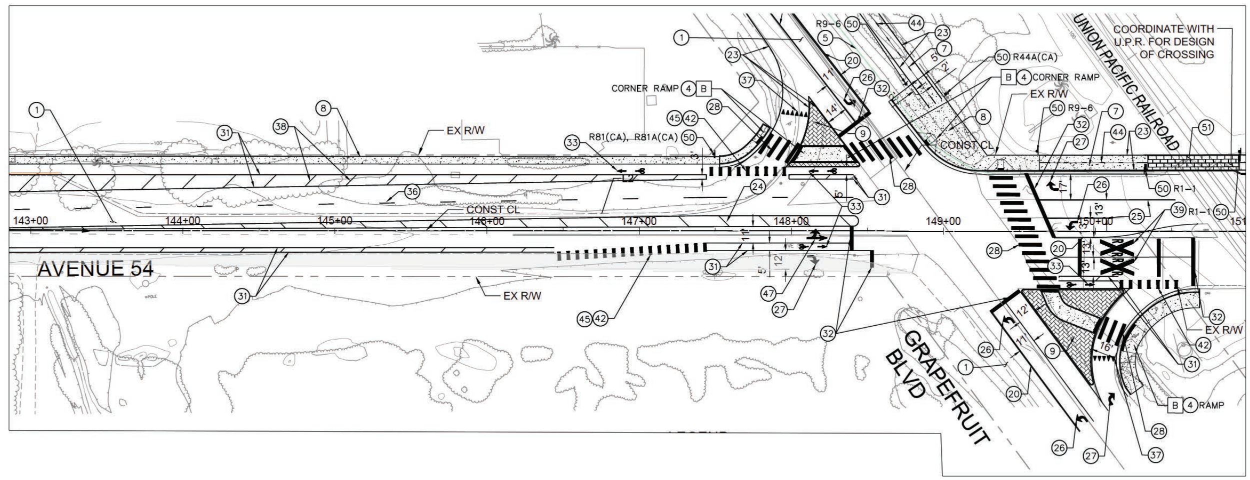
DISPOSITION NOTES

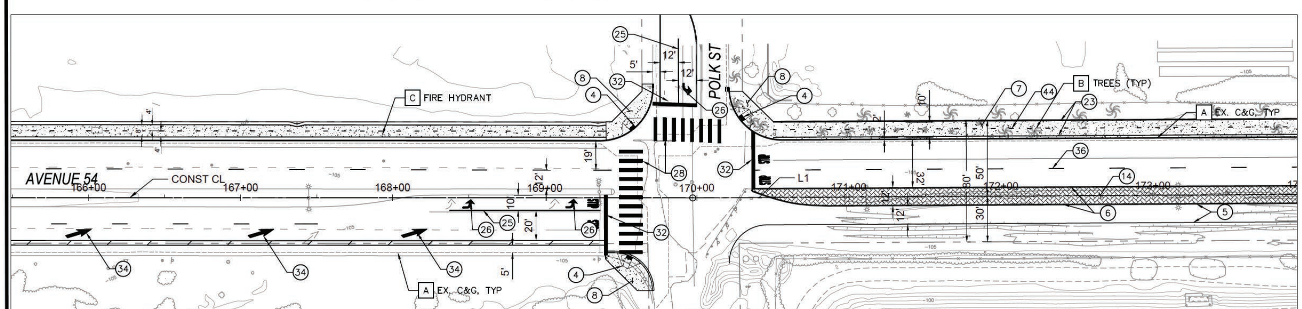
A PROTECT IN PLACE (ITEM AS INDICATED)

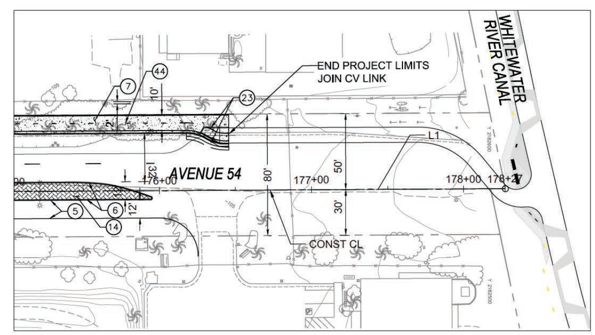
B REMOVE (ITEM AS INDICATED)

C RELOCATE (ITEM AS INDICATED)

D ADJUST TO GRADE (ITEM AS INDICATED)







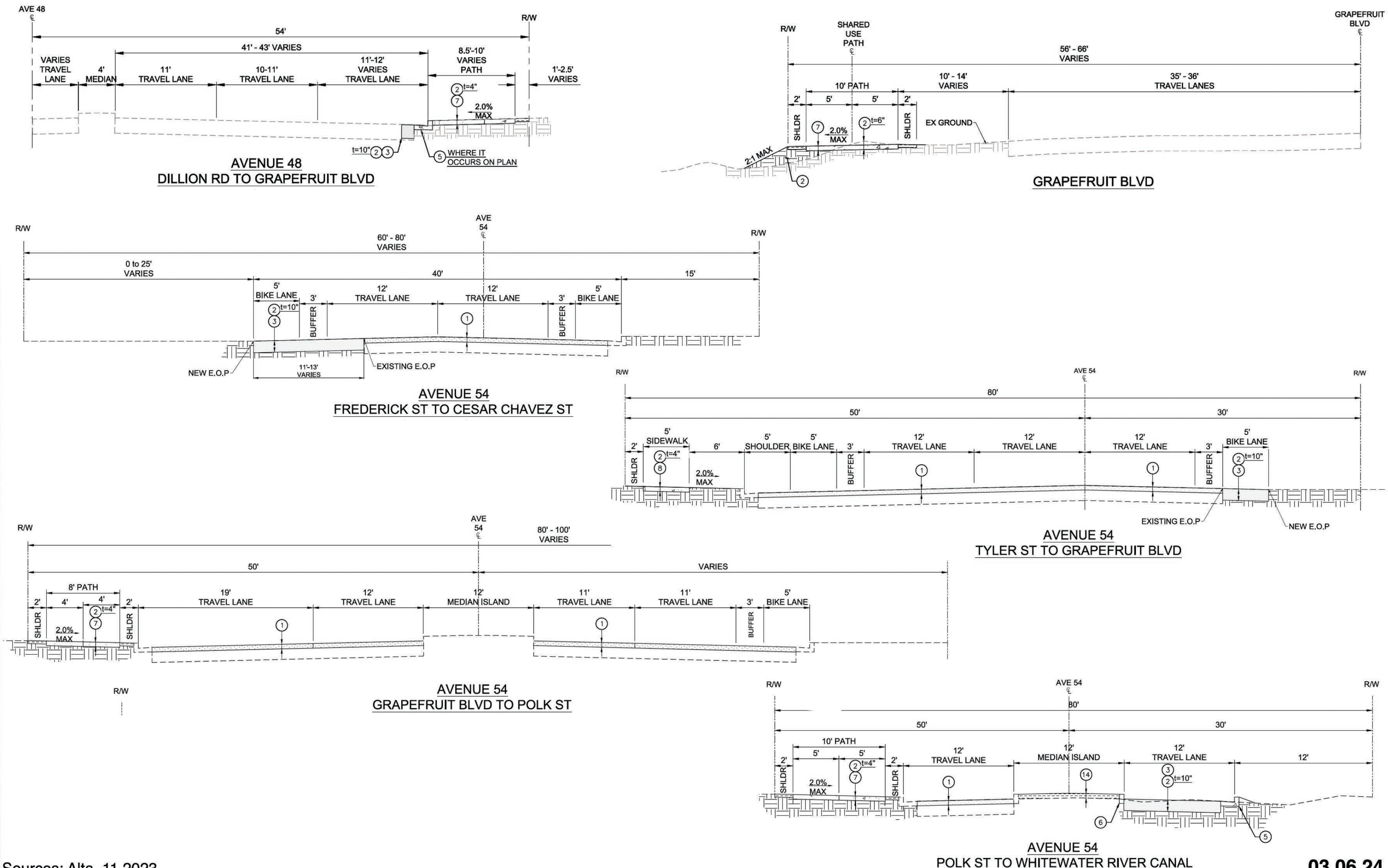
Sources: Alta, 08.11.2023 & 01.12.2024 (Van Buren St.).

03.07.24

TERRA NOVA®
PLANNING & RESEARCH, INC.

Connect Coachella Project
Site Plans
East-West Route - Avenue 54 - Class II Bike Lane
Coachella, California

Exhibit
5b



Sources: Alta, 11.2023

03.06.24

TERRA NOVA®
PLANNING & RESEARCH, INC.

Connect Coachella Project
Typical Street Sections
Coachella, California

Exhibit
6

I. AESTHETICS **Except as provided in Public Resources Code Section 21099, would the project:**	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Have a substantial adverse effect on a scenic vista?				X
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			X	
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?				X
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?				X

Setting

The City of Coachella is a desert city located in central Riverside County at the eastern edge of the Coachella Valley. The city sits sixty-eight feet below sea level in a geographic region known as the Salton Basin. Nearby landforms include the San Jacinto and Santa Rosa Mountains to the east, the San Gorgonio Pass to the northeast, the Little San Bernardino Mountains and Joshua Tree National Park to the west, and the Salton Sea to the south. Major transportation corridors such as the 10 freeway, State Highway 86S and Highway 111 connect Coachella to nearby cities and communities in the desert region of Riverside County, the Union Pacific Railroad runs north-south adjacent to the North-South Project route along Grapefruit Boulevard. The city is a nexus of residential neighborhoods, commercial and retail services, industrial sectors, productive agricultural lands surrounded by vistas of California's low desert transition to high mountain peaks.

The route would occur in the rights-of-way along three primary roadways in Coachella. These roadways pass by a mix of residential communities, retail centers, urban industrial districts, agricultural land, vacant land, and tribal land, open space. The proposed bike lane Project includes improvements to existing roadways and pedestrian crossings such as restriping, a new roundabout, new slip lanes with medians, new crosswalks, new ADA curb ramps, and a new pedestrian crossing over the railroad tracks at the intersection of Grapefruit Blvd and Avenue 54. These improvements will enhance and facilitate traffic flow and provide a safer travel experience for non-motorized vehicles and pedestrians.

Discussion of Impacts

a-d) Less Than Significant Impact.

Scenic Vistas
The proposed bike lane and accompanying circulation improvements would not interfere with surrounding viewshed as they are primarily low-lying, flat improvements to the existing roadway system. They would offer additional opportunities for residents to experience the surrounding landscape by encouraging non-motorized transportation.

Scenic Highway Resources
Avenue 48, Grapefruit Blvd., and Avenue 54 are not designated as Scenic Highways or Routes, however, there are prominent forms of vegetation along Grapefruit Blvd. and Avenue 54 east of Grapefruit that may be considered to be aesthetic resources. Along Grapefruit Blvd., the Project will keep in place to the greatest extent possible the existing vegetation. From Dillon Road south to Avenue 49, the bike lane will be constructed along the east side of an existing row of oleanders. From Avenue 49 south to Cesar Chavez Street where the vegetation will be removed, drought-tolerant landscaping will be installed, and a vegetated swale will be added to the east side of the intersection. Along the East-West portion of the route, most of the bike lane on Avenue 54 from Van Buren Street to Grapefruit Blvd will occur on the shoulder of the existing roadbed and no aesthetic resources will be impacted. East of Grapefruit Blvd the bike lane on the south side of Avenue 54 continues along the existing road until Polk Street where the south side bike lane ends. On the north side of Avenue 54, the bike lane will be the continuation of the North-South route and turn east where it remains in the right of way and not on the existing roadbed. Between Grapefruit Blvd and the eastern end of the East-West route, there will be impacts to existing vegetation in the right of way, but none of this vegetation includes significant trees. From Grapefruit Blvd to Polk Street, a number of planted oleander bushes and five young Mexican fan palms will be removed to construct the bike lane. East of Polk Street to the end of the route, about 25 planted Mexican fans palms currently in the right of way and in the path of the proposed bike lane will need to be removed. Others that are nearby, but not in bike lane path would remain, so this will not result in a complete removal of mature Mexican fan palms at the far east end of the Project route.

While there will be impacts to a certain number of existing trees and bushes, there will not be a complete removal of existing vegetation, and the existing trees are not significant to the visual resources of the City. Along the North-South route where possible, new landscaping will be added where the oleanders will be removed. Since the route is not officially designated as a Scenic Highway, the removal of the trees and bushes within the right of way will not impact any official scenic status. The route does not currently contain any decorative rock outcroppings or historic buildings. Overall, the impacts to aesthetic resources will be less than significant.

Regulations Governing Scenic Quality

The Project would be constructed in an urban area and the proposed improvements to existing roadway infrastructure align with the City's General Plan Mobility Element Goals and Policies. Specifically, Mobility Policy 1.1 requires "that the planning, design and construction of all new transportation project consider the needs of all modes of travel to create safe, livable and inviting environments for pedestrians, bicyclists, motorists and public transit users of all ages and abilities."[1] The proposed Project directly implements this Policy by allow safe travel for pedestrians and bikes, rather than motor vehicles.

Where existing vegetation will be removed to construct the bike lane, the Project proposes to revegetate with drought-tolerant landscaping. to existing roadway intersections with landscaping in the by installing landscaped medians The Project would not conflict with zoning or other regulations regarding scenic quality.

Light and Glare

The Project does not propose to install lights along the route. There would be no impact.

Mitigation Measures: None required.

Monitoring: None required.

Sources:

Mobility Element Goals and Policies, City of Coachella General Plan 2035, updated April 2015.

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1 Mobility Goals and Policies, City of Coachella General Plan 2035, updated April 2015.

II. AGRICULTURE RESOURCES				
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				
Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				X

Setting

Agriculture lies at the heart of Coachella's historic identity and will remain as one of the major economic drivers of its economy far into the future. Today, most of the land designated as Rural and Agricultural Rancho is found in the city's eastern sphere of influence and not in the Project area. The Project's North-South route between Avenue 48 and 52 passes by two parcels east of the Pacific Union Railroad that are used for crop production. These parcels are designated as Industrial District and Urban Employment Center and do not lie within the Project's route.

The Project's East-West route between Harrison Street and Grapefruit Boulevard passes by multiple parcels on the north and south sides of Avenue 54 that are currently used for agriculture. The California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) identifies four of these parcels as being "Prime Farmland." All the current agricultural land along the East-West route is designated by Coachella as Urban Employment Center and Industrial District. No forestry designations exist in the city.

Discussion of Impacts

a-e) No Impact.

Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland)
As stated above, the East-West Project route on Avenue 54 passes by four parcels that are considered to be "Prime Farmland." Between Harrison Street and Grapefruit Blvd., one parcel occurs north of the route and three parcels occur south of the route. There are no Unique Farmlands or any Farmlands of Statewide Importance. The Project route is generally restricted to the shoulders within the existing roadbed and would not interfere with adjacent farmlands. The proposed restriping would not interfere with the adjacent farmlands. The Project would not impact the adjacent Prime Farmlands.

Existing Zoning for Agricultural Use and Williamson Act Contracts
There are no parcels along within the Project area that are under a Williamson Act contract, therefore there would be no impacts to any Williamson Act contracts. Existing agricultural land is designated as either Urban Employment Center or Industrial District. Because there is currently no agricultural zoning along the Project route, the Project would have no impact on existing zoning for agricultural use.

Forest Land and Timberland Production Zones
There are no forestry lands or timberland production zones within or near the Project route, therefore the Project would not convert, result in a loss, or impact any forest lands or timberland production zones. Again, as the Project route lies within the right of way and within existing roads, the Project would not require a conversion of agricultural land or forest land to non-agricultural use or non-forest use. There would be no impacts to agricultural resources.

Mitigation Measures: None required.

Monitoring: None required.

Sources:

City of Coachella General Plan 2035, updated April 2015.
California Department of Conservation, Farmland Mapping & Monitoring Program, 2022.

III. AIR QUALITY Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. **Would the project:**	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Conflict with or obstruct implementation of the applicable air quality plan?				X
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard			X	
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?			X	

Setting

The state of California is divided into fifteen air basins, each defined by local topography, climate, and regional air quality issues. The City of Coachella and the Project are in the Coachella Valley Planning Area, which is an air quality management district (AQMD) subregion within the topographic boundary of the Salton Sea Air Basin (SSAB). The SSAB encompasses all Imperial County and the central portion of Riverside County where the Coachella Valley lies. The South Coast Air Quality Management District (SCAQMD), whose jurisdictional boundary is different from the SSAB, is the regulatory agency that controls and monitors emissions from stationary sources within most of Riverside County, portions of San Bernardino County and Los Angeles County, and all of Orange County. The SCAQMD monitors emissions via 37 permanent monitoring stations, conducts inspections, and drafts air quality management plans to guide governments and businesses in reducing emissions. The Coachella Valley Planning Area, which includes the City of Coachella, is subject to the 2022 SCAQMD Air Quality Management Plan. Three local monitoring stations in Palm Springs, Indio, and Mecca provide daily and annual emissions data throughout the Coachella Valley.

Ambient air quality standards (AAQS) establish emissions thresholds that are designed to protect human health and environmental factors. An ambient air quality standard specifies the maximum amount of a pollutant that can be present in the air during a specific period and not cause harmful effects on the most sensitive members of the community and natural resources.

If that pollutant's concentration in the air is at or below the threshold, then the area is said to be in attainment, while non-attainment areas experience pollution levels above the AAQS thresholds.

According to the Environmental Protection Agency, the Coachella Valley Planning Area is classified as a nonattainment zone for ozone (O_3) and particulate matter (PM_{10}). Ozone pollution in the Coachella Valley Planning Area can be traced primarily to the flow of photochemical smog contaminants from the South Coast Air Basin to the west. High levels of PM_{10} pollution result from the arid environment, the ubiquitous presence of sand and dust combined with agricultural activity which is concentrated in the southeastern end of the Coachella Valley where the City of Coachella resides. Due to the nonattainment status, The Coachella Valley Planning Area is subject to the 2003 Coachella Valley PM_{10} State Implementation Plan (CV PM_{10} SIP) in order to bring the Planning Area into compliance with the NAAQS PM_{10} threshold.

Ambient air quality standards for the SCAQMD are subject to federal guidelines known as National Ambient Air Quality Standards (NAAQS), as well as state guidelines referred to as California Ambient Air Quality Standards (CAAQS). Each set of AAQS focuses on certain criteria pollutants which together include the following list of pollutants.

Oxides of Nitrogen and Nitrogen Dioxide (NO_2) is a yellow-brown colored gas that forms when nitric oxide, emitted primarily from burning of petroleum gas, combines with atmospheric oxygen. NO2. This causes lung damage and breathing difficulties.

Reactive Organic Gases (ROG)/Volatile Organic Compounds (VOCs) are primary pollutants that form secondary pollutants, or photochemical smog, when they react with ultraviolet sunlight in the atmosphere.

Particulate Matter (PM_{10} and $PM_{2.5}$) refers to suspended air particles with a width of 10 microns down to 2.5 microns. These very small particles may occur as liquid or solid, and when they are inhaled, they cause damage to the respiratory system and aggravate respiratory illnesses.

Sulfur Dioxide (SO_2) is a colorless and pungent gas emitted from coal and oil power plants, refineries, and diesel engines. It can irritate eyes, nose, and airways and cause shortness of breath.

Carbon Monoxide (CO) is a colorless and odorless gas emitted from the incomplete combustion of all fossil fuels including oil, coal, and natural gas. It interrupts the delivery of oxygen to the brain and can cause dizziness, headaches, and nausea.

Lead (Pb) is emitted from metals processing facilities, combustion of leaded fuel, manufacturing of lead-acid batteries. Lead can damage the nervous system, kidneys, and interfere with developmental and reproductive systems.

Ozone (O_3) is a secondary pollutant that forms in the atmosphere when nitrogen oxides and other reactive gases react with ultraviolet sunlight. Ozone can damage the respiratory system and aggravate existing respiratory illnesses and it also damages vegetation.

Table 1 below presents the maximum daily emissions thresholds for a project's construction and operational per the SCAQMD CEQA Handbook.

Table 1
South Coast AQMD Air Quality Significance Thresholds

Criteria Pollutant	Construction	Operation
Oxides of Nitrogen (NO_x)	100 lbs/day	55 lbs/day
Reactive/Volatile Organic Compounds (ROG/VOC)	75 lbs/day	55 lbs/day
Particulate Matter (PM_{10})	150 lbs/day	150 lbs/day
Fine Particulate Matter ($PM_{2.5}$)	55 lbs/day	55 lbs/day
Oxides of Sulfur (SO_x)	150 lbs/day	150 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Lead (Pb)	3 lbs/day	3 lbs/day
Source: South Coast AQMD CEQA Handbook (1993), updated March 2023		

The Project will result in air quality impacts during the 14-month construction phase, and very minimal air quality impacts from off-gassing during the operational phase. The California Emissions Estimator Model (CalEEMod) Version 2022.1 was used to forecast criteria pollutant emissions impacts that would be generated by the Project. (See Appendix A) Calculations were based on total materials removed of 965,493 square feet, total cement concrete paved area of 253,961 square feet, total asphalt concrete paved area of 1,045,256 square feet, and a total landscaped area of 60,620 square feet.

Discussion of Impacts

a) **No Impact.** The California Environmental Quality Act finds that a Project's impact on air quality would be significant if a project is not consistent with the applicable Air Quality Management Plan (AQMP) or if a project obstructs the implementation of the AQMP policies. The Connect Coachella Project is located in the Coachella Valley Planning Area, which lies within the Salton Sea Air Basin and is under the jurisdiction of the South Coast AQMD and the SCAQMD 2022 AQMP, which as well as the 2003 Coachella Valley PM_{10} SIP. The 2022 AQMP defines regional air quality standards and develops strategies to conform to the standards based on regional employment and population growth forecasts and land use plans. Demographic data is supplied by the Southern California Association of Governments' (SCAG) 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (2020 RTP/SCS). The 2020 RTP/SCS was adopted by SCAG in compliance with the Sustainable Community and Climate Protection Act (SB 375). As of January 2023, the City of Coachella has a population of 42,462,[2] and the 2020 RTP/SCS estimates that the City's population will grow to 129,300 and support 23,500 jobs by 2045. According to CEQA, a project that is consistent with employment and population forecasts projected by the 2020 RTP/SCS conform to the air quality standards and strategies outlined by the 2022 AQMP and therefore would not pose significant impact on the applicable AQMP.

2 Table E-5, City and County Population and Housing Estimates, California Department of Finance, May 2023.

Furthermore, if a project is consistent with the land use plan that was used in the analysis of the growth forecast, the project is then assumed to conform with the growth forecast and with the applicable AQMP. This Project proposes two multi-use, non-motorized vehicle routes to be constructed along two arterial roadways along with additional improvements that will enhance pedestrian traffic and motorized traffic. The North-South route would be constructed within the right of way along the eastern edge Grapefruit Blvd between Avenue 48 and Avenue 54. The East-West route would be constructed on the existing street within the north and south shoulders of Avenue 54 between Van Buren Street and Grapefruit Blvd. East of Grapefruit Blvd, the East-West route would shift to the right of way up on the curb and continue to the Coachella Valley Stormwater Channel. The path along the south shoulder of Avenue 54 would stop at Polk Street. The proposed multi-use non-motorized vehicle pathways would be fully consistent with the City's General Plan 2035, Mobility Goals and Policies. Grapefruit Blvd is designated as a Major Arterial with Bicycle Facility while Avenue 54 is designated as a Primary Arterial with Bicycle Facility. Mobility Goals 1 through 7 and the associated policies outline plans to expand and improve multi-modal transportation opportunities throughout the City.[3] Because the Project conforms to the City's General Plan Land Use which was incorporated into the SCAQMD 2022 AQMP growth projections, the Project is therefore consistent with the applicable air quality plan and will not impact the air quality plan.

In summary, the Project is consistent with demographic forecasts prepared by the 2020-2045 RTP/SCS as well as with the land use plan that was used in the analysis of the growth forecast. Air quality control measures, such as dust suppression, as required by SCAQMD will be applied during construction. Therefore, compliance with the local, regional, and state guidelines and standards ensure that the Project would not conflict with or obstruct the implementation of the applicable air quality plan. There will be no impact on the implementation of the applicable air quality plan.

b) **Less Than Significant Impact.** Per CEQA, if a Project results a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard, then the Project is said to have a significant impact. The Coachella Valley Planning Area is in non-attainment for ozone (O_3) and particulate matter (PM_{10}). Should the Project's construction and/or operational emissions exceed the SCAQMD thresholds for O_3, PM_{10}, and ozone precursor pollutants including carbon monoxide (CO), nitrogen oxides (NO_x), sulfur oxides (SO_x), and volatile/reactive organic compounds (VOCs and ROGs), then the Project would pose a cumulatively considerable and significant impact.

<u>Construction Impacts</u>
The California Emissions Estimator Model (CalEEMod) Version 2022.1 was used to generate the Project's construction emissions, which are summarized below in Table 2 and compared against SCAQMD thresholds. Emissions will result from the construction phase, however, the construction phase is temporary, lasting fourteen months, after which the emissions would decrease to a minimal amount of off-gassing as shown in Table 3. Construction emissions would fall well below the SCAQMD thresholds. PM_{10} and $PM_{2.5}$ emissions are derived from the CalEEMod "mitigated" emissions data, which means that

3 Mobility, City of Coachella General Plan 2035, adopted April 22, 2015.

these emissions numbers include the standard SCAQMD fugitive dust control requirements which all projects are required to implement per the SCAQMD Rule 403. The particulate matter emissions in this analysis assume that exposed surfaces would be watered two times per day to prevent dust plumes from forming, which is a standard air quality requirement that all projects must implement and not an additional CEQA mitigation measure. The Project would apply all necessary standards and requirements during the construction phase per the SCAQMD Rule Book and would not result in a considerable net increase of non-attainment criteria pollutants, therefore, the construction phase would have a less than significant impact on air quality.

Table 2
Maximum Daily Construction-Related Emissions Summary
(pounds per day)

	CO	**NOx**	**SOx**	**ROG**	**PM_{10}**	**$PM_{2.5}$**
Construction Emissions	17.835	15.125	0.0288	1.77	3.952*	2.108*
SCAQMD Thresholds	550	100	150	75	150	55
Exceeds?	No	No	No	No	No	No
Source: CalEEMod Version 2022.1 *Assumes standard dust control mitigation measure per SCAQMD Rule 403.						

Operational Impacts
As the Project involves only road improvements and new bike lanes, which would not result in additional vehicle miles traveled, moving or stationary emission there would be only minimal emissions from off-gassing of reactive organic compounds (ROG)during the operational phase. Table 3 below summarizes the analysis of criteria pollutants for the operational phase. The Project would not result in a cumulatively considerable net increase of non-attainment criteria pollutant and therefore will have a less than significant impact on air quality.

Table 3
Maximum Daily Construction-Related Emissions Summary
(pounds per day)

	CO	NOx	SOx	ROG	PM_{10}	$PM_{2.5}$
Operational Emissions	0.00	0.00	0.00	0.04	0.00	0.00
SCAQMD Thresholds	550	100	150	75	150	55
Exceeds?	No	No	No	No	No	No
Source: CalEEMod Version 2022.1						

Cumulative Impacts

If a project indirectly ushers in additional criteria pollution emissions by encouraging an increase in the number of vehicles traveling along a new roadway, for example, and thus causing a cumulative net increase in emissions, then the project may cause a significant impact. The Connect Coachella Project would provide additional safe and accessible non-motorized shared use lanes which would encourage a net decrease in motorized vehicle trips throughout the City. Hence, the Project may potentially reduce existing air quality impacts stemming from motorized vehicular traffic in the City and would not result in cumulative impact.

The CalEEMod Detailed Report dated February 28, 2028, is available in Appendix A of this Initial Study.

c) **Less Than Significant Impact.** A Project will have a significant impact if it exposes sensitive receptors to substantial pollutant concentrations. Sensitive receptors are defined as members of the population who are potentially more sensitive to air pollutants due to age and health condition. Sensitive receptors include schools, playgrounds, childcare centers, retirement homes, hospitals and residences. During the construction phase, odors may potentially be emitted during road resurfacing and other road improvements as well as during the construction of the bike path along the North-South route. The construction phase involves a limited time span of 14 months, and potential emissions would immediately disperse from the Project area.

The nearest sensitive receptors are two single-family residential developments located on the north side of Avenue 54 between Van Buren Street and Shady Lane with the closest distance being 15 meters.

SCAQMD provides a Localized Significance Thresholds (LST) analysis to determine whether a project will pose significant air quality impacts on nearby sensitive receptors. This type of analysis by a local government is voluntary and targets projects that are less than five acres in size. The combined length of the two Project routes is seven miles, however, the estimated radius of the daily disturbance during construction is one acre or less at any given construction location. The SCAQMD Mass Rate LST Look-up Table for source Receptor Area 30 (Coachella Valley) was used for analysis for one-acre area of disturbance within 25 meters from the Project boundary.

Table 3 provides a summary of emissions estimates derived from CalEEMod compared against SCAQMD LST data. The PM_{10} and $PM_{2.5.}$ construction emissions include the SCAQMD standard mitigation measure for fugitive dust control as defined in Rule 403 Table 2. Rule 403 stipulates that all projects will "apply water in sufficient quantities to prevent the generation of visible dust plumes."[4] CalEEMod assumes that exposed surfaces will be watered two times per day. With this required dust control mitigation, the Project will not exceed Localized Significance Thresholds and therefore will have a less than significant impact on sensitive receptors.

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4 SCAQMD Rule 403 Dust Control Information, Table 1 Best Available Control Measures, amended June 2005.

Table 4 Maximum Daily Construction-Related LST Summary (pounds per day)				
	CO	NOx	PM_{10}	$PM_{2.5}$
Construction	17.835	15.125	3.952*	2.108*
SCAQMD LST	878	132	4	3
Exceeds?	No	No	No	No
Sources: CalEEMod Version 2022.1; Localized Significance Threshold Mass Rate Look-up Table, SCAQMD, http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/appendix-c-mass-rate-lst-look-up-tables.pdf?sfvrsn=2 (Accessed February 2024). *Assumes standard dust control mitigation measures per SCAQMD Rule 403.				

d) Less Than Significant Impact. When a project results in emissions that lead to odors adversely affecting a substantial number of people, the project would have a significant impact on local air quality. Connect Coachella Project proposes seven miles of linear non-motorized vehicle lanes with additional multiple road improvements. 3.8 miles will consist of a new cement concrete shared use bike path in the unpaved right of way alongside the eastern shoulder of Grapefruit Blvd from Avenue 48 south to Avenue 54. 3.2 miles will consist of resurfacing and restriping Avenue 54 from Van Buren Street. A new traffic circle will be installed where Tyler Street meets Grapefruit Blvd. New ADA curb ramps will be added to multiple street corner intersections. Avenue 54 will be resurfaced from Van Buren Street to Grapefruit Blvd. Odors may be emitted during construction as new asphalt concrete is applied to the Avenue 54 road surface. The duration of this construction would be temporary, and any odors emitted would quickly dissipate and not linger. Once construction is complete, no odors are expected to be emitted from the Project route. The impact of odors adversely affecting nearby receptors would be less than significant.

Mitigation Measures: None required.

Monitoring: None required.

Sources:

City of Coachella General Plan 2035, April 2015.
South Coast Air Quality Management District, Significance Thresholds, SCAQMD CEQA Handbook (1993), updated March 2023.
South Coast Air Quality Management District Rule Book
California Emissions Estimator Model (CalEEMod) Version 2022.1.

IV. BIOLOGICAL RESOURCES **Would the project:**	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Have a substantial adverse 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 the California Department of Fish and Game or U.S. Fish and Wildlife Service?		X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?				X
c) Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?		X		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

Setting

The Coachella Valley lies within the Colorado Desert, a warmer and drier ecological subregion of the larger Sonoran Desert ecoregion. The Colorado Desert subregion boundaries include the

Colorado River to the east, the Mojave Desert ecoregion to the north, and the Little San Bernardino, San Jacinto, and Santa Rosa Mountain ranges to the west. The majority of the Colorado Desert sits between -275 feet and 3,000 feet in elevation, while the highest elevations are found at the top of Mt. San Jacinto (10,835 feet) and Mt. San Gorgonio (11,499 feet). The City of Coachella is situated in the lower elevation range of the Valley at approximately -68 feet. Average daytime temperatures in the Project area range from 107 degrees Fahrenheit in the summer down to 71 degrees in January and average annual rainfall is less than one inch.

<u>Coachella Valley Multiple Species Habitat Conservation Plan and Covered Species</u>
The City of Coachella is located within the boundaries of the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP), a regional plan that allows for economic development in a manner that also preserves twenty-seven different natural communities and protects twenty-seven endangered native species across 1.2 million acres of Riverside County.
The CVMSHCP establishes specific conservation areas where habitat, ecological processes, and/or wildlife corridors are protected from development activity. The city and the Project routes are located within a fee area, and not located within any of the CVMSHCP conservation areas. East Indio Hills Conservation Area is the nearest conservation area located 2.30 miles from the northern edge of the Project.

<u>Project Route Conditions</u>
The Project's North-South route will be constructed in an unpaved right of way between Grapefruit Blvd. and the Union Pacific Railroad. The route area has been heavily altered to accommodate agricultural and industrial uses. Much of the soil has been previously disturbed and/or compacted. Between Avenue 48 and Park Lane, a row of oleander bushes lines the east edge of Grapefruit Blvd., which will be removed to construct the bike path. From Park Lane south to Avenue 50, the Project route contains disturbed barren soil and passes two large industrial buildings immediately to the east. Starting at Avenue 50, the existing bike lane begins and extends to 9th Street. South of 9th Street down to Avenue 54, the Project route returns to disturbed soil that is mostly barren except for a few individual salt bushes (*Atriplex lentiformis*) and alkali heliotrope bushes (*Heliotropium curassavicum var. oculatum*) that will be removed. Notably, just south of where Hill Street meets Grapefruit Blvd., there is a cluster of three mature and skirted California fan palms (*Washingtonia filifera*) in the right of way immediately east of the proposed bike path. The Project does not propose to remove these palms; however, the Project construction will occur adjacent to the palms. Additionally, five young California fan palms occur in the right of way where the bike path is proposed on the north side of Avenue 54 east of Grapefruit Blvd. Further east on Avenue 54 extending to the end of the Project's East-West route a row of 22± Mexican fan palms occurs. These palms on Avenue 54 are proposed to be removed to construct the new bike path. Fan palms are known to provide habitat for Western yellow bats and nesting birds. The Avenue 48 extension and the East-West route along the north and south sides of Avenue 54 will be constructed on the existing pavement.

<u>Project Site Topography and Soils</u>
Beginning at Avenue 48, the Project area sits at an elevation of -42 feet and then gradually descends to -106 feet at the Coachella Sanitary District office on Avenue 54 adjacent to the Coachella Valley Stormwater Channel.

The following discussion of impacts are based on the "Biological Resources Assessment and Coachella Valley Multiple Species Habitat Conservation Plan Compliance Report" prepared by WSP USA Environmental & Infrastructure, Inc. and is available in Appendix B. The Biological

Resources Assessment includes database searches, on-site investigation, review of previous surveys, and information from local, regional and state sources.

Discussion of Impacts

a) Less Than Significant with Mitigation. If a project results in a substantial adverse 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 the California Department of Fish and Game or U.S. Fish and Wildlife Service, then the project's impact is significant. As previously described, the Connect Coachella Project will be constructed both directly on the existing asphalt road surface of Avenue 48 and Avenue 54 as well as within the in the highly disturbed unpaved right of way along the east side of Grapefruit Blvd. Although much of the Project route has been greatly altered from its natural state, and much of the unpaved portion of Grapefruit Blvd. has been disturbed, the Project route still contains vegetation that could potentially attract several special status species.

Project Route Vegetation
The literature review revealed that 19 special status plant species could potentially occur on the Project site, and these species are described in the Biological Resources Assessment. The on-site investigation identified 23 plant species along the route, none of which are included in the group of 19 special status species. The natural vegetation communities on the Project site have either been completely replaced by asphalt and concrete pavement, cleared and replaced with fill dirt, or significantly altered by non-native landscaping. No native plant communities occur on the route or in the area adjacent to the route in the rights-of-way.

Eleven of the 23 species identified on the Project site are non-native and include species such as athel (*Tamarix aphylla*), oleander (*Nerium oleander*), Bermuda grass (*Cynodon dactylon*), and common purslane (*Portulaca oleracea*). A typical mix of native but non-sensitive species was identified including jimsonweed (*Datura wrightii*), big saltbush (*Atriplex lentiformis*), alkali heliotrope (*Heliotropium curassavicum var. oculatum*).

Project Route Wildlife
The biological field survey took place during the month of August 2023, a time of intense summer heat and outside of nesting season, thus, the number of vertebrate species identified was limited to two bird species: Eurasian collared dove (*Streptopelia decaocto*) and turkey vulture (*Cathartes aura*). Both are abundant throughout the Coachella Valley and only the turkey vulture is native to North America.

Per the literature review, 29 special status wildlife species occur in the region, but 25 have no potential to occur on the Project site due to the lack of viable habitat and resources to sustain them. Three special status wildlife species have a low probability of foraging over the Project site: Prairie falcon (*Falco mexicanus*), Vermilion flycatcher (*Pyrocephalus rubinus*), Loggerhead shrike (*Lanius ludovicianus*). These three species are not covered by the CVMSHCP, and they are not listed as threatened or endangered by either the state or federal agencies. However, the California Department of Fish and Wildlife has designated the Vermilion flycatcher and the Loggerhead shrike as Species of Special Concern, and the Prairie falcon as a "Watchlist" species.

Western yellow bat (*Lasiurus xanthinus*) is the fourth special status species that could potentially occur on the Project route. The Western yellow bat (*Lasiurus xanthinus*) is a state CDFW Species of Special Concern and is covered by the CVMSHCP. Western yellow bats prefer to roost and nest in the skirts of California and Mexican fan palms, both of which occur along the Project route in various locations. As noted above, a cluster of three California fan palms possessing their palm skirts, a condition favorable to roosting and nesting bats and birds, sits immediately adjacent to the Project path on Grapefruit Blvd. just south of the Hill Street intersection. The presence of the 22± mature Mexican fan palms at the eastern end of Avenue 54 could also potentially attract Western yellow bat. The presence of human activity and development reduce the probability of occurrence along the Project route.

The burrowing owl is not categorized as threatened or endangered by the USFWS or CDFW. However, it is designated as a Bird of Conservation Concern (BCC) by the USFWS and a Species of Special Concern (SSC) by the CDFW, and it is protected under the MBTA as well as the California Fish and Game Code. Burrowing owls could potentially occur on the Project route due to their attraction to open dry areas, agricultural areas, railroad rights-of-way, margins of highways, culverts, and earthen berms. No burrowing owls, or signs of burrowing owls were observed during the field survey. The survey also looked for and found no signs of burrowing owls where accessible within a five-hundred-foot buffer area along the route. It is possible, however, that burrowing owl could relocate on or adjacent to the Project route prior to construction. As the species roosts and nests underground, burrowing owls are particularly sensitive to ground disturbance, therefore the Project presents a potentially significant impact to the species, which would require mitigation, as described below in BIO-1.

Per the US Fish and Wildlife Service Information for Planning and Consultation (USFWS IPAC) report for the Project, five sensitive wildlife species and one sensitive plant species are identified as being potentially affected by the Project: Monarch butterfly, Desert tortoise, Coachella Valley fringe-toed lizard, Least Bell's vireo, Southwestern willow flycatcher, and Coachella Valley milk-vetch. For the Monarch butterfly, no milkweeds plants are present on the Project, a necessary food plant for Monarch caterpillars. For the other four wildlife and one plant species, the habitat to support them is not sufficient. The Biological Resources Assessment asserts that these six species are not expected to occur along the Project route due to the lack of supporting habitat present. The site survey found no threatened or endangered species nor signs thereof on the Project site.

All native bird species are protected by the federal Migratory Bird Treaty Act and the California State Fish and Game Code even if they are not covered by the CVMSHCP. Because the Project site contains palms and other mature trees along Avenue 54 The Migratory Bird Treaty Act (MBTA) of 1918 requires cooperation between the United States, Canada, Mexico, Japan and Russia in protecting bird species that migrate through the shared territories. The MBTA prohibits the taking of migratory birds which includes killing, capturing, selling, trading, and transport. "Under the MBTA, it is illegal to destroy a nest that has eggs or chicks in it, or if there are young birds still dependent on the nest for survival.[5] Similarly, California Fish and Game Code section 3503 stipulates that, "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." Section 3503.5 states, "It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."[6] The presence of mature California and Mexican fan palms as well as rows of oleander and the presence of native salt bush and alkali heliotrope along Grapefruit Blvd and Avenue 54 could potentially attract native sensitive nesting birds. As such, a Nesting Bird Survey, is prescribed as a mitigation measure to reduce impacts of the removal of these bushes and trees to less than significant levels. The Nesting Bird Survey is described below as Bio-2.

In summary, at the time of the on-site investigation, the Project site did not contain any federal or state endangered or threatened species, nor were any species covered by the CVMSHCP identified. However, this does not completely preclude three sensitive avian species from foraging on or over the Project site, nor one sensitive mammal species from potentially roosting in any of the palms occurring on the site. Also burrowing owls, another special status species, are not precluded from potentially moving onto any port of the Project route site prior to construction. Furthermore, since the field survey took place at the end of the 2023 nesting season, the biologist was unable to detect nesting birds that may have occurred along the Project route. To avoid potential impacts to both burrowing owls and nesting birds, a pre-construction Burrowing Owl Survey (BIO-1) and a pre-construction Nesting Bird Survey (BIO-2) are both required prior to any vegetation removal and grading activities on the Project site. The implementation of the prescribed mitigation measures would reduce the Project's impacts to less than significant levels, given the low probability that sensitive and/or special status species would occur along the Project route.

b-c) **No Impact.** The Project does not come into contact with riparian habitat, or any other sensitive habitat as identified by regional policies and plans. There are no wetlands along the Project route, therefore no direct removal, filling, or hydrological interruption of any kind will occur.

d) **Less Than Significant Impact.** The Project route, although greatly altered from a natural state, does host a number of native salt bushes, alkali heliotrope bushes, and non-native oleander bushes where species of songbirds could potentially nest. Avoidance of impacts to native birds during nesting season, February 1 through August 31, is a requirement for development projects. The Project route is subject to the Migratory Bird Treaty Act (MBTA) and the California Fish and Game Code sections 3503 and 3503.5. Section 3503 stipulates that, "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."[7] As a result, construction of the Project could significantly impact birds

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5 Bird Nests, US Fish and Wildlife Service, accessed February 22, 2024, https://www.fws.gov/story/bird-nests#:~:text=This%20law%20says%3A%20"No%20person,has%20eggs%20or%20chicks%20in

6 California Code, Fish and Game Code 3503 and 3503.5, last updated January 1, 2023.

7 California Code, Fish and Game Code 3053, last updated January 1, 2023.

covered by State and federal law. Mitigation measure BIO-2 below requires that…. The implementation of the mitigation measure will ensure that the impacts to potential migrating and nesting species of birds will be less than significant.

e-f) **No Impact.** The Project route is located within the boundary of the City of Coachella in areas that have been designated for various uses and have been either developed or disturbed since the mid 1980s. Sixteen of the forty-eight special status species are protected by the CVMSHCP. Only one of these sixteen, Western yellow bat, could occur on the Project route, although it is considered unlikely to occur here. The Project does not conflict any local ordinances or policies protecting biological resources. The Project does not conflict with the provisions of the CVMSHCP. Even so, mitigation fees paid to CVMSHCP would fully mitigate any impacts related to the project.

Mitigation Measures:

BIO-1 Should they be identified on the project site burrowing owls must be either avoided or relocated prior to any ground disturbance or plant removal. To ensure that no burrowing owls have moved to the Project route since the biological survey was conducted in August 2023, two take avoidance surveys of the Project route must be conducted: the first survey should take place 14-30 days prior to initiating ground disturbance activities, in conformance with CDFW's protocol for burrowing owl. Because burrowing owls are known to return to sites, a follow up survey is required within 24 hours of initiating ground disturbance. Should burrowing owls be detected, CDFW shall be contacted as soon as possible to determine the next course of action. CDFW must grant permission to relocate burrowing owls.

BIO-2 Bird nesting season occurs between February 1 and September 15, and between March 15 and August 31 for migrating bird species. To avoid impacts to resident and migratory nesting birds, all vegetation clearing, ground disturbance, and construction activity should be scheduled between September 16 and January 31 if possible. If construction occurs during the nesting season, a certified avian biologist must conduct a pre-construction nesting bird survey (NBS) immediately prior to scheduled construction activity. If active nests be identified, the biologist will demarcate a no-work buffer zone(s) around the active nest(s) and check the nest site(s) weekly until the young birds fledge and the nest(s) become inactive. The buffer zone size would be based on the nesting species, its sensitivity to disturbance, nesting stage and the expected intensity and duration of disturbance. No ground or vegetation disturbance shall occur within the nest site buffer zone(s) until the qualified biologist determines that the young have successfully fledged, and the nest is inactive. Per CDFW recommendations, a buffer of 500 feet shall be set for listed species and birds of prey, and a buffer of 100 to 300 feet shall be set for unlisted songbirds.

Monitoring:

BIO-1 The City shall complete a preconstruction nesting bird survey for MBTA, CDFW covered birds and burrowing owl prior to any ground disturbing activities and keep results on file at City Hall.
Responsible Parties: Project Biologist, Planning Department, City Engineer

Sources:
Draft Connect Coachella Project Grapefruit Boulevard and Avenue 54 Bike Path Development Biological Resources Assessment & Coachella Valley Multiple Species Habitat Conservation Plan Compliance Report, prepared by WSP USA Environment & Infrastructure, Inc., October 1, 2023.

California Code, Fish and Game Code 3053, last updated January 1, 2023.

US Fish and Wildlife Service

V. CULTURAL RESOURCES Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?		X		
c) Disturb any human remains, including those interred outside of formal cemeteries?			X	

Setting

The City of Coachella is situated in the Coachella Valley, the traditional home of the Cahuilla people. Native American life in the Coachella Valley was greatly influenced by the high and low stands of ancient Lake Cahuilla. The Project site would have been within the lake during that time.

The Cahuilla were a Takic-speaking people of hunters and gatherers. They are now generally divided by anthropologists into three groups based on geographic setting: The Pass Cahuilla of the San Gorgonio Pass-Palm Springs area, the Mountain Cahuilla of the San Jacinto and Santa Rosa Mountains and the Cahuilla Valley, and the Desert Cahuilla of the eastern Coachella Valley.

The Cahuilla population was largely decimated as a result of diseases spread through early European contact. Today, Native Americans of Pass or Desert Cahuilla heritage are mostly affiliated with one or more of the tribes in and near the Coachella Valley, including the Torres Martinez, Augustine, Cabazon, Agua Caliente, and Morongo.

Non-Native American settlement of the Coachella Valley began in the 1870s with the establishment of nearby railroad stations. Settlement in Coachella was tied to the railroad, where a settlement was established around the railroad siding. The City incorporated in 1946, and was only the 12th city in Riverside County.

Historical and Archaeological Resources

According to PRC §5020.1(j), "'historical resource' includes, but is not limited to, any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California." More specifically, CEQA guidelines state that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the Lead Agency (Title 14 CCR §15064.5(a)(1)-(3)).

Regarding the proper criteria of historical significance, CEQA guidelines mandate that "a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources" (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(2) Is associated with the lives of persons important in our past.
(3) Embodies the distinctive characteristics of a type, period, region, or method construction, or represents the work of an important creative individual, or possesses high artistic values.
(4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

A local register of historical resources, as defined by PRC §5020.1(k), "means a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution."

A historical/archaeological resources study was conducted for the Project in November of 2023, and is provided in Appendix C. The following discussion is primarily based on the findings of the study prepared by CRM TECH.

Discussion of Impacts

a) **No Impact.** The Project area is located along existing rights-of-way, in the core of the City. The research conducted for the historic resources study included an extensive search of historic records, as well as a field survey which consisted of walking and driving the route of the proposed Project. The archaeologist was accompanied by a representative of the Torres Martinez Desert Cahuilla. The records search identified over 140 surveys previously completed within one mile of the Project area. These surveys identified two linear historic features: the alignment of the Southern Pacific Railroad, running through all of Riverside County, and a one-half mile segment of Avenue 48 within the Project area. The railroad in the vicinity of the Project area has been evaluated in the past under the criteria of the National Register of Historic Places, and has been found ineligible for listing. The segment of Avenue 48 within the Project Area was previously evaluated under the criteria for the California Register of Historical Resources, and found to be ineligible for listing. In both cases, the features have been significantly altered and do not retain historic integrity. Other than these features, no other historic resource was identified either in the records search or during the field surveys. Similarly, although other roadways, including those that are part of the Project alignment, have existed for a period of over 50 years, all have been maintained and improved over time, and have no historic significance. The archaeologist therefore concluded that the proposed Project would have no impact on historic resources.

b) **Less Than Significant Impact with Mitigation.** As described above, the archaeological resource study consisted of both investigation into historic records and a field survey.

There are 51 prehistoric sites and 32 isolates identified within one mile of the Project area, including ceramic, groundstone and flaked stone. A historic era Native American cemetery. None of these resource, however, occur on or adjacent to the Project alignments. The field survey found no prehistoric resources within the Project area, and concluded that the high level of disturbance along the Project roadways, where the trail will be located, has eliminated the potential for surficial deposits. The archaeologist did consider, however, that the potential for buried resources exists, although it is limited by the shallow excavation needed for the proposed bike lanes. Nonetheless, as is the City's practice, and in consultation with the Agua Caliente Band of Cahuilla Indians under the requirements of AB 52 (see Tribal Cultural Resources below), in order to assure that no impacts to archaeological resources occur during Project construction, Mitigation Measure CUL-1 requires that archaeological and Tribal monitors be present during excavation activities associated with the Project, to assure that no impacts to buried archaeological resources occur. With implementation of this mitigation measure, impacts will be reduced to less than significant levels.

c) **No Impact**. The Project consists of the improvement of City right-of-way, primarily existing dirt shoulders. There is no known cemetery on or adjacent to the Project area. In addition, California law requires that if remains are encountered during earth moving activities, the coroner must be contacted and work must stop in the area of the find. The coroner is responsible for determining whether the remains are modern or of cultural significance, and if the latter, must contact the NAHC, who is responsible for identifying the Most Likely Descendant (MLD). The NAHC will then contact the appropriate local tribe, and coordinate the proper disposition of the remains. These requirements of law, supplemented by the presence of a qualified archaeologist during all earth moving activities associated with the Project, will assure that impacts associated with human remains are reduced to less than significant levels.

Mitigation Measures:

CUL-1 Qualified archaeological and ACBCI Tribal monitors shall be present during grubbing and excavation activities at the Project site. The monitors shall have the authority to redirect or stop activities if a resource is uncovered. The monitors shall efficiently identify and remove a resource if found, and shall direct the restarting of construction activities. The monitors will also have the authority to cease monitoring, should they determine that activities associated with the Project's construction no longer have potential to uncover a resource.

Monitoring:

CUL-A The monitors shall provide the City a report of findings within 30 days of the conclusion of monitoring activities. Should a resource be identified, it shall be professionally curated in a manner and to a location approved by the Agua Caliente Band of Cahuilla Indians.
Responsible Party: Project archaeologist, Tribal monitor, Public Works Department.

Sources: City of Coachella General Plan 2015; City of Coachella General Plan Update Final Environmental Impact Report (CGPU EIR, SCH No. 2009021007), October 2014. "Historical/Archaeological Resources Survey Report," prepared by CRM Tech, November, 2024.

VI. ENERGY Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?				X
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				X

Setting

The California electric grid provides electricity from sources including fossil fuels (natural gas, oil, and coal) biomass, hydropower, wind power, geothermal, and solar radiation. Natural gas is the state's largest single energy source, providing approximately 37.9 percent of the total electric power mix in 2021. In addition to electricity generation, natural gas is used in California for space heating, water heating, cooking, industrial processes, and as a transportation fuel.

Fossil fuels are non-renewable resources which release greenhouse gases when burned for electricity generation, industrial, transportation, and other uses. The California Air Resources Board 2022 Scoping Plan, which aims to achieve carbon neutrality by 2045, includes the goal of reducing fossil fuel demand by 86 percent in 2045 from 2022 rates.

The Project area is served by Imperial Irrigation District (IID), and natural gas Is provided by the Southern California Gas Company (SoCalGas).

Discussion of Impacts

a-b) **No Impact.** The Project consists of the construction of bike lanes to facilitate non-motorized transportation through the City, and connecting to the future CV Link. The Project will generate a need for fossil fuel during construction activities associated with both the use of construction equipment and commute trips for workers on the Project. The use of fossil fuel will be limited and will stop when construction is complete. There will be no operational use of energy, as the lanes will not be lit, and will not require natural gas. Overall, the Project will have a net beneficial impact on energy use, insofar as it will allow residents who may currently be traveling by car to either walk or bike in a safe environment in an area where neither pedestrian or bicycle facilities currently exists.

As it relates to state and local plans, the Project will implement the City's General Plan Mobility Element Mobility Policy 1.1, which requires "that the planning, design and construction of all new transportation project consider the needs of all modes of travel to create safe, livable and inviting environments for pedestrians, bicyclists, motorists and public transit users of all ages and abilities." In addition, the Project implements State goals for the reduction of energy use as it relates to reductions in greenhouse gas emissions (See Greenhouse Gas Emissions below).

Overall, the proposed Project will neither result in a wasteful use of energy, or conflict with plans or programs. No impact will occur.

Mitigation Measures: None required.

Monitoring: None required.

Sources: City of Coachella General Plan 2015; City of Coachella General Plan Update Final Environmental Impact Report (CGPU EIR, SCH No. 2009021007), October 2014.

VII. GEOLOGY AND SOILS **Would the project:**	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X
ii) Strong seismic ground shaking?			X	
iii) Seismic related ground failure, including liquefaction?			X	
iv) Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				X
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?				X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		

Setting

Geological Setting
The City is located at the boundary of the Colorado Desert Province, a low elevation basin, and the Peninsular Ranges Province, a series of mountains and valleys. These physiographic provinces have created the Coachella Valley floor and the foothills of the Santa Rosa Mountains, as well as the Indio Hills. The primary drainage in the region, the Coachella Valley Stormwater Channel, traverses the City parallel and east of the Grapefruit Blvd. portion of the Project.

The Alquist-Priolo Earthquake Fault Zoning Act regulates the construction of structures intended for human occupancy on earthquake fault zones. The San Andreas Fault zone occurs east of State Route 86, and runs in a northwest to southeast direction through the City. While the San Andreas Fault is associated with the most frequent and severe seismic activity, other faults in the region include the San Jacinto Fault and the Whittier Fault, both of which occur to the southwest of the City.

The City occurs in an area with a high groundwater table, and as a result the General Plan identified the majority of the City as having a high potential for liquefaction.

Soils
According to the City's General Plan, the primary soil type in the City consist of Lake and Distal Deposits (Ql/Qa), which are fine grained sands and silts, and can include clay layers.

Paleontological Resources
Paleontological resources refer to the fossil remains of ancient plants and wildlife. The Coachella Valley was once occupied by Ancient Lake Cahuilla, from which plant and animal fossils remain in the area. Various areas in and around the City have differing paleontological sensitives based in part on the age of their underlying soil unit. The General Plan identifies areas of high sensitivity for paleontological resources east of State Route 86. The area west of the highway is classified as being of undetermined sensitivity, but generally occurs within the historic lakebed of Ancient Lake Cahuilla.

According to guidelines proposed by the San Bernardino County Museum, paleontological resources can be considered to be of significant scientific interest if they meet one or more of the following criteria:

1. The fossils provide information on the evolutionary relationships and developmental trends exhibited among organisms, living or extinct;
2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or the interactions between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life; and/or
5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

Discussion of Impacts

a.i) **No Impact.** The portion of the Project which occurs on Grapefruit Boulevard will run parallel to the southern extension of the San Andreas Fault, at a distance of approximately 3 miles. The eastern end of the Project occurring on Avenue 54 occurs about 2 miles west of the Fault. Therefore, neither segment of the Project occurs within an Alquist Priolo Fault Zone, and no fault rupture will occur within the Project area.

a.ii, iii) **Less Than Significant Impact.** As stated above, the Project occurs 2 to 3 miles west of the nearest earthquake fault. The Project, as with the rest of the City, will be subject to significant groundshaking during an earthquake. In addition, the City is located in an area of high groundwater. High groundwater combines with sandy soils during an earthquake and results in liquefaction, a condition which causes soil to lose cohesion, and can cause damage to structures and endanger people. The proposed Project, however, will result in asphalt and concrete paving on the ground surface, and will not include any substantial structures. There is the potential for cracks to occur in the bike lanes during a significant earthquake, however, the Project will be constructed to meet or exceed current Building Code standards, which include specific provisions to reduce the impacts of groundshaking. Furthermore, because the Project is a bike lane and pedestrian path that does not include structures, the risk of either injury or death will be negligible. The nature of the Project as a bike lane and associated improvements, and the lack of structures within the Project will assure that impacts associated with groundshaking and liquefaction will be less than significant.

a.iv) **No Impact.** The Project is located along Grapefruit Blvd. and Avenue 54, in the center of the City. The area is on the Valley floor, and relatively flat. The nearest slopes or foothills are located to the east, a distance of 2 to 3 miles. There is no risk of landslide on the Project site, and no impact will occur.

b) **Less Than Significant Impact.** The Project will be constructed along existing roadways, either on the currently unpaved shoulder or existing pavement. Project construction will consist of grading and shallow excavation to establish a compacted base to receive either concrete or asphalt bike lanes. During the grading/excavation period, the Project has the potential to result in soil erosion from either wind or water. In the case of wind erosion, the Project, like all construction projects in the City, will be required to implement SCAPQMD Rule 403, which requires standard measures, such as watering of a site, to control dust and wind erosion. The site will also expose soils to water erosion if a rain event occurs during construction. The Project will be required to implement measures prescribed in the site specific WQMP and SWPPP, both required by the City in its implementation of its NPDES program to protect surface waters from pollution. The best management practices (BMPs) implemented through these programs include the placement of sandbags or hay bales to control runoff, and a number of other measures that will be designed specifically for the Project. These standard requirements implemented by the City will assure that impacts associated with erosion remain less than significant.

c, d) **No Impact.** As described above, the majority of the urbanized area of the City occurs on Lake and Distal Deposits, which are composed of fine sands and silts. Although some clay lenses occur at greater depths at various locations in the City, the Project will only disturb the surface of the shoulders of existing roadways, and will consist of concrete or asphalt pathways and related improvements. The construction of the Project will not be impacted by either unstable or expansive soils.

e) **No Impact.** The Project consists of bike lane improvements along existing roadways. No restrooms will be constructed, and no septic or sewer connection will be required. No impact will occur.

f) **Less Than Significant Impact with Mitigation.** The Project site occurs within the historic lakebed of Ancient Lake Cahuilla. This area has resulted in the identification of fossilized remains, primarily mollusks and bivalves, which lived in the lake during its multiple stands. In order to determine the potential impacts of the Project on fossil remains, a paleontological study was prepared (Appendix D). The study included both records searches and literature reviews, and a field investigation.

The records searches found no previous paleontological localities within the Project area. The closest locality previously reported occurred 1.5 miles northwest of the Project area, where bivalves and gastropods were collected. The research also identified that the surface soils in the Project area consist of younger Quaternary soils which do not contain fossilized remains. The field survey did not identify any paleontological resources on the surface along the Project routes, due in part to the highly disturbed nature of the roadways and their shoulders. However, should the Project require excavation to a depth of more than 3 to 5 feet, it is likely that older soils capable of containing fossils could occur. The Project consists of the construction of bike lanes on existing pavement and roadway shoulders. It is possible, however, that excavation in specific areas may be required to extend more than 3 feet in depth, to address undergrounding of utilities or similar issues. Therefore, if Project excavations require depths of more than 3 feet, the Project could impact paleontological resources, which would represent a significant impact. As a result, Mitigation Measure GEO-1 is provided below, which requires the monitoring by a qualified paleontologist of excavations of more than 3 feet anywhere along the Project route. With implementation of this mitigation measure, impacts to paleontological resources would be reduced to less than significant levels.

Mitigation Measures:

GEO-1 Prior to the initiation of construction, the Project plans shall be reviewed to determine the depth of excavations required. If excavations are projected to occur at depths greater than 3 feet, ground disturbances should be monitored periodically by a qualified paleontological monitor to ensure the timely identification of potentially fossil-bearing sediments. Monitoring should be restricted to undisturbed Lake Cahuilla beds and any older, undisturbed subsurface alluvium that may be present below the surface. If potentially fossil-bearing sediments are exposed, continuous monitoring will become necessary. The monitor should be prepared to quickly salvage fossils, if they are unearthed, to avoid construction delays, but must have the power to temporarily halt or divert construction equipment to allow for removal of abundant or large specimens. Samples of sediments should be collected and processed to recover small fossil remains. Recovered specimens should be identified and curated at a repository with permanent retrievable storage that would allow for further research in the future.

Monitoring:

GEO-A A report of findings, including an itemized inventory of recovered specimens and a discussion of their significance when appropriate, should be prepared upon completion of the research procedures outlined above. The approval of the report and the inventory by the City of Coachella would signify completion of the mitigation program.
Responsible Parties: City Project Manager, Project Paleontologist

Sources: City of Coachella General Plan 2015; City of Coachella General Plan Update Final Environmental Impact Report (CGPU EIR, SCH No. 2009021007), October 2014. "Paleontological Resources Assessment Report," prepared by CRM Tech, November 2023.

VIII. GREENHOUSE GAS EMISSIONS Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				X

Setting

The lower troposphere of the Earth's atmosphere contains a mix of gases that sustain life. Greenhouse gases (GHGs) comprise a small percentage, 0.04%, of the tropospheric gases and trap just enough heat to maintain a relatively constant and livable air temperature. Even small alterations in this composition are well documented via ancient and current climate measurements.

Human activities including the burning of fossil fuels, clearing native vegetation, altering landscapes to accommodate hardscapes and built environments both emit additional GHGs and reduce the Earth's ability to cycle and sequester carbon resulting in exponential net increase in atmospheric GHG levels. While no one development project can have a globally significant impact on greenhouse gas increases, the cumulative impacts of regional development can result in locally significant environmental changes, which in turn contribute to wider climatic changes. Hence, the state and local jurisdictions have adopted policies and thresholds that cap GHG emissions and mandate mitigations when needed to ensure new land uses minimize their impacts.

The 2016 Senate Bill 32 (SB 32) requires California to reduce overall greenhouse gas emissions by 40% below 1990 levels by the year 2030. This bill furthers the mandates of the prior 2006 Assembly Bill 32 which require the state the reduce GHG emissions to 1990 levels by 2020. Going beyond SB 32 is the 2022 Scoping Plan proposed by the California Air Resources Board (CARB) which sets forth a plan to achieve statewide 100% carbon neutrality by 2045.

The City of Coachella is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD), the local agency that determines pollution emissions standards from stationary sources. The California Air Resources Board (CARB) determines emissions standards for mobile sources for the entire state. In 2015 the City of Coachella adopted a Climate Action Plan (CAP) to ensure that its General Plan and future development would comply with the original 2006 AB 32 goals, CARB's 2022 Scoping Plan, and SCAQMD's GHG emissions thresholds.

The major greenhouse gases present in the atmosphere and increased by human activities are as follows:

Carbon Dioxide (CO_2): Next to water vapor, which cycles quickly in and out of the atmosphere, carbon dioxide is the most abundant GHG and remains in the atmosphere well over 300 years.

Human activities emit CO_2 when burning fossil fuels and burning and removing forests and other vegetation. Looking back 800,000 years prior to the Industrial Revolution, the level of CO_2 in the atmosphere never climbed above 300 parts per million. Today we measure CO_2 at 419.81 parts per million. Because CO_2 is the most prevalent and longest lasting GHG, measurements of CO_2 equivalents (CO2E) are often used as the basis of GHG comparative analyses.

Methane (CH_4): Methane is the third most abundant GHG in the atmosphere. It is released during the extraction, refining, and burning of fossil fuels, and the burning and clearing of native vegetation. Livestock, decay of organic waste, and landfills also emit methane. Methane remains in the atmosphere for approximately 10-12 years, but pound for pound, methane traps 28 times more heat than carbon dioxide.

Nitrous Oxide (N_20): Like carbon dioxide and methane, nitrous oxide naturally occurs in the atmosphere. It is also released by agricultural activities and agricultural chemicals, fossil fuel combustion, wastewater treatment and industrial processes. It remains in the atmosphere for approximately 120 years and pound for pound, it is 265 times more effective at trapping heat than carbon dioxide.

Fluorinated Greenhouse Gases: Chlorofluorocarbons (CFCs), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulfur Hexafluoride (SF_6) Together these gases are referred to as fluorinated GHGs. F-GHGs are solely emitted as by-products of industrial processes such as aluminum and semi-conductor manufacturing and used as refrigerants and aerosol propellants. Depending on the gas, they can remain in the atmosphere for a very short time span of a few weeks or thousands of years. Compared to carbon dioxide, the global warming potential (GWP) of fluorinated GHGs is thousands to tens of thousands of times higher.

<u>Greenhouse Gas Thresholds</u>
When evaluating potential GHG emissions from proposed projects, SCAQMD applies a tiered approach. If a project does not conform to at least one of the tiers described below, the project would be considered significant.

Tier 1: Consider whether the project qualifies for any applicable exemption under CEQA. If the project qualifies for an exemption, then the project is not significant, and no other action is required.
Tier 2: Consider whether the project complies with a local greenhouse gas reduction plan that is at minimum consistent with AB 32.
Tier 3: Consider whether the project is below an absolute threshold of either 10,000 $MTCO_2e$/year for industrial projects or 3,000 $MTCO_2e$/year for residential projects.
Tier 4: Consider whether the project is below a set performance threshold. This threshold is yet to be set and is not recommended for analysis at this time.
Tier 5: Consider whether off-site mitigation would reduce the project's GHG emission impacts to less than the proposed screening level.

Discussion of Impacts

a) **Less Than Significant Impact.** The Project proposes 3.8 miles of new Class I bike lanes along the east side of Grapefruit Blvd. from Avenue 48 south to Avenue 54, which will incorporate an existing bike path from Avenue 50 to 9th Street. The Project also proposes

3.2 miles of new Class II bike lanes along the north and south sides of Avenue 54 beginning at Van Buren Street, crossing Grapefruit Blvd. and ending at the Coachella Valley Stormwater Channel where the Project will meet the future CV Link path. A shorter .08-mile Class I bike path extension is proposed on the south side of Avenue 48 starting from the southeast corner of the Dillon Road intersection and ending at the southeast corner of the Grapefruit Boulevard intersection. Throughout the Project route, restriping will be applied, new ADA curb ramps will be installed at various intersections, new crosswalks will be painted, a new traffic circle will also be constructed on Grapefruit Blvd. at the Tyler Street intersection. Avenue 54 will be resurfaced from Van Buren Street to Grapefruit Blvd.

Greenhouse gas emissions were analyzed using the California Emissions Estimator Model (CalEEMod) Version 2022.1. Calculations were based on total materials removed of 965,493 square feet, total cement concrete paved area of 253,961 square feet, total asphalt concrete paved area of 1,045,256 square feet, and a total landscaped area of 60,620 square feet. A detailed CalEEMod report, dated February 28, 2024, is available in Appendix A of this Initial Study.

<u>Construction and Operation Emissions:</u>
Construction is expected to extend 14 months from June 2025 to August 2026 and would result in temporary GHG emissions due to operation of construction equipment and worker commutes to the Project site. Since SCAQMD does not provide construction thresholds for projects, the total amount of CO_2e emissions from the Project for the years 2025 and 2026 were amortized over 30 years and added to the operational emissions. Table 5 summarizes the construction and operation emissions and shows that the Project would not exceed the 3,000 MT/YR CO2e standard set by SCAQMD Tier 3 threshold. Therefore, the Project would have a less than significant impact.

Table 5
Projected GHG Emission Summary
(Metric Tons per Year)

Construction	**CO_2e (MT/YR)**
14 Months	252.25
Operation	**CO_2e (MT/YR)**
Area	0.00
Energy	0.00
Mobile	0.00
Waste	0.00
Water	0.7615
Construction: 30-year amortized*	8.408
Total Operational	9.169
SCAQMD Annual Threshold	3,000
Exceeds?	No

*Buildout construction emissions were amortized over 30 years then added to buildout operational GHG emissions.

b) **No Impact.** A project is considered to have a significant impact if it conflicts with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. As described above, the City of Coachella adopted a Climate Action Plan (CAP) in 2015 to ensure that its General Plan and future growth would comply with state and regional GHG reduction targets. According to the City's 2015 CAP, the total direct and indirect 2010 GHG emissions emitted by the City was 382,787 metric tons of carbon dioxide equivalent ($MTCO_2e$). Of the seven community sectors evaluated for this figure, the Transportation sector, which included gas and diesel fueled vehicles, accounted for 54% of the City's total emissions, or 206,909 $MTCO_2e$. If the City continued with business as usual, or BAU, and implemented no GHG reduction strategies, by 2035 the total Coachella emissions would reach 1,543,672 $MTCO_2e$. The 2015 CAP proposes emissions reductions of 49% below 2010 emissions, which would potentially yield a lesser emissions total of 756,679 $MTCO_2e$ by 2035. The City's greatest reduction potential relies on various strategies to reduce Land Use and Transportation emissions. Numerous strategies are outlined in the General Plan's goal and policies. Specifically, Connect Coachella helps to fulfill Mobility Element policies (M 1.1, M 1.2, M 1.5, M2.2, M3.1, M 3.3) aimed at increasing pedestrian and bicycle access in order to decrease the number of motorized vehicle trips. The 2015 CAP estimates that the combination of these Mobility policies would "reduce emissions by 23,448 MTCO2e annually."[8] Because Connect Coachella conforms to GHG emissions reduction targets set by state, regional and local policies and does not conflict with any applicable plan, policy or adopted reduction strategy, the Project will have no impact.

Mitigation Measures: None required.

Monitoring: Non required.

Sources: City of Coachella General Plan 2035, Coachella Climate Action Plan, April 2015, California Emissions Estimator Model (CalEEMod) Version 2022.1,South Coast Air Quality Management District, Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans, December 2008.

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8 Land Use and Transportation General Plan Policies, Coachella Climate Action Plan, April 2015.

IX. HAZARDS AND HAZARDOUS MATERIALS Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?				X
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				X
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?				X
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.				X

Setting

Hazardous materials include chemicals, oils, and other substances which have the potential to be toxic, and may cause harm to the public and the environment if improperly stored, used, transported, resulting in release into the air, soil, or water.

To avoid such harms, hazardous materials are regulated at the federal level by the Environmental Protection Agency (EPA), and at the state level by the California EPA and the Department of Toxic Substances Control. The use of hazardous materials is also regulated at the regional and local levels, through the Regional Water Quality Control Board, Riverside County Department of Environmental Health, as well as the City's emergency services.

Discussion of Impacts

a) **No Impact.** The Project proposes 3.8 miles of new Class I bike lanes along the east side of Grapefruit Blvd. from Avenue 48 south to Avenue 54, which will incorporate an existing bike path from Avenue 50 to 9th Street. The Project also proposes 3.2 miles of new Class II bike lanes along the north and south sides of Avenue 54 beginning at Van Buren Street, crossing Grapefruit Blvd. and ending at the Coachella Valley Stormwater Channel where the Project will meet the future CV Link path. A shorter .08-mile Class I bike path extension is proposed on the south side of Avenue 48 starting from the southeast corner of the Dillon Road intersection and ending at the southeast corner of the Grapefruit Boulevard intersection. The Project will not result in the transport, use or disposal of hazardous materials, since a bike path is not used for such purposes.

b) **No Impact.** A small amount of chemicals, fuels and oils will be used during construction of the paths to fuel construction equipment and clean tools and machinery. These substances, however, are heavily regulated, and will be used according to manufacturers' instructions. The amounts of materials used, and the short duration of construction, will prevent any hazards due to release of a hazardous material. No impact will occur.

c) **No Impact.** The Project will not emit or handle any hazardous material during its lifespan, although it is located within about ¼ to ½ mile of several schools, including Palm View Elementary, Bobby Duke Middle School, and Valley View Elementary. There will be no impact from hazardous materials at any of these schools from Project implementation.

d) **No Impact.** No portion of the Project area is located on a site included in a list of hazardous materials sites, according to the Department of Toxic Substance Control's Envirostor website. No impact will occur.

e) **No Impact.** The portion of the Project proposed along Avenue 54 is the closest to the Jacqueline Cochran Airport, the closest airport to the Project area, approximately 2 miles to the south. The Project will not pose a safety hazard to the airport, nor will it expose people to excessive noise from the airport, given that the Project consists of a bike path, and the airport is 2 miles away at its closest point. No impact will occur.

f) **No Impact.** The Project consists of Class 1 bike lanes along existing City streets. By definition, Class 1 bike lanes are separated from roadway traffic. This separation will prevent users from interfering with emergency vehicles responding to evacuations or other emergencies. The Project will have no impact on the City's ability to respond to emergencies.

g) **No Impact.** The Project is proposed along existing City streets, in the urbanized area of Coachella. No wildlands occur in the vicinity of any portion of the Project. Therefore, the Project will not be impacted by wildfire.

Mitigation Measures: None required.

Monitoring: None required.

Sources: City of Coachella General Plan 2015; City of Coachella General Plan Update Final Environmental Impact Report (CGPU EIR, SCH No. 2009021007), October 2014. GeoTracker; Department of Toxic Substances Control EnviroStor;

X. HYDROLOGY AND WATER QUALITY Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			X	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) result in substantial erosion or siltation on- or off-site;			X	
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;			X	
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or			X	
(iv) impede or redirect flood flows?			X	
(d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				X
(e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X

Setting

Domestic Water
The Coachella Water Authority (CWA) provides domestic water to most of the City, and the Project area. The Project, consisting of bike lanes along existing roadways, will require water service only for landscaping proposed within the Project footprint.

Surface Water Quality
The City requires that all projects contain and manage all runoff water from rainfall events that flows through any site. When runoff travels over developed surfaces such as roads, parking lots and building roofs, it has the potential to be contaminated by substances such as oils, solvents, and chemicals. In accordance with the National Pollution Discharge Elimination System (NPES), which the City implements, best management practices are required of all projects to control surface waters to prevent pollution.

Floodplain Management
The Project area is within FEMA's Flood Insurance Rate Map Zone X, which indicates areas with a 0.2% annual flood chance and 1% annual chance of flood with average depths of less than 1 foot or with drainage areas less than 1 square mile. Regional flood control is managed by CVWD. Local drainage and runoff facilities are maintained by the City.

A hydrology memorandum was prepared for this Project by Alta Planning & Design, and is included in Appendix E of this document.

Discussion of Impacts

a) **Less Than Significant Impact.** The Project consists of bike lanes through an urbanized area of the City. There will be no sanitary sewer facilities or connections associated with the Project, and as a result the Project will have no impact on water quality standards from these facilities. The Project will connect to existing water lines to provide water for irrigation of landscaping along the Project route. However, because the landscape design calls for drought tolerant landscaping consistent with the City's requirements, the use of water will be minimal during the life of the Project.

The Project will, however, result in an increase in impermeable surfaces, and an associated increase in the potential for polluted surface water to impact water quality. As described in the hydrology memorandum, the Project proposes a combination of best management practices (BMP) to address surface water pollution: bioretention filtration and permeable pavement. The former will be implemented in areas of the Project where landscaping is proposed adjacent to the bike lanes, and the latter in areas where biofiltration areas are not possible. These measures are recognized in the Whitewater River Water Quality Management Plan as being effective in protecting receiving waters from surface water pollution. By implementing these BMPs, the Project will assure that impacts to surface and groundwater will remain less than significant.

b) **Less Than Significant Impact.** The Project will require trucked-in water during construction, to control dust in conformance with SCAQMD Rule 403 (please see Air Quality discussion above). In addition, the Project will connect to existing water lines in Avenue 48, Grapefruit Blvd., and Avenue 54 to provide water for the landscaping areas along the

Project route. However, in conformance with the City's requirements for drought tolerant landscape design, the use of water for landscaping will be minimized to the greatest extent possible, and the water will percolate through the soil, and be at least in part recaptured into the acquifer. The Project will have less than significant impacts on domestic water supplies.

c.i-iv) **Less Than Significant Impact.** As described in the hydrology memorandum, the Project area has limited drainage facilities. Grapefruit Boulevard has limited drainage to its east, which collects storm flows crossing the roadway under current conditions. The Project will result in Class 1 and 2 bike lanes, sidewalks and similar flatwork that will increase impermeable surfaces in the area, and thereby increase storm flows. As a result, the Project has been designed to include permeable pavement and biofiltration swales that will control and filter pollutants, silts and sediments emanating from the surfaces. These BMPs are designed to control runoff, and limit the impacts to both off-site properties and receiving waters. With implementation of the Project's BMPs, the impacts associated erosion, siltation, and flooding will remain less than significant.

d) **No Impact.** The proposed Project occurs on the Valley floor, in an area that is flat and does not contain water bodies. Although the Coachella Valley Stormwater Channel occurs to the east of the Grapefruit Blvd. portion of the Project, the Channel is a dry wash which only transports water during storm events, and does not hold water that could be affected by seiche or tsunami. The pathways are located in Zone X, as defined in the FEMA Flood Insurance Rate Maps, which indicates areas with a 0.2% annual flood chance and 1% annual chance of flood with average depths of less than 1 foot or with drainage areas less than 1 square mile. Therefore, the Project will no be subject to flooding from seiche or tsunami, and no impact will occur.

e) **No Impact.** As described above, the Project will use minimal water when constructed, since it consists of the extension of bike lanes adjacent to existing streets, and will allow landscaping water to percolate back to the groundwater. Therefore, the Project will have no impact on groundwater management planning. As is related to water quality control planning, the Project will implement BMPs recognized to be effective in preventing surface water pollution in the Whitewater River, which is consistent with the water quality control planning for this receiving water. No impact is expected.

Mitigation Measures: None required.

Monitoring: None required.

Sources: City of Coachella General Plan 2015; City of Coachella General Plan Update Final Environmental Impact Report (CGPU EIR, SCH No. 2009021007), October 2014. "Connect Coachella Hydrology Memorandum," prepared by Alta Planning & Design, January 2024.

XI. LAND USE AND PLANNING **Would the project:**	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?				X
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?				X

Setting

The Project area extends from Avenue 48 to Avenue 54 along Grapefruit Blvd., and along Avenue 54 from Van Buren to the Coachella Valley Storm Water Channel. In this area, the General Plan identifies a mix of land use designations, including commercial and industrial uses along Grapefruit Blvd., and residential and agricultural land uses along Avenue 54.

Discussion of Impacts

a) **No Impact.**

b) **No Impact.** The Project proposes 3.8 miles of new Class I bike lanes along the east side of Grapefruit Blvd. from Avenue 48 south to Avenue 54, which will incorporate an existing bike path from Avenue 50 to 9th Street. The Project also proposes 3.2 miles of new Class II bike lanes along the north and south sides of Avenue 54 beginning at Van Buren Street, crossing Grapefruit Blvd. and ending at the Coachella Valley Stormwater Channel where the Project will meet the future CV Link path. A shorter .08-mile Class I bike path extension is proposed on the south side of Avenue 48 starting from the southeast corner of the Dillon Road intersection and ending at the southeast corner of the Grapefruit Boulevard intersection. Throughout the Project route, restriping will be applied, new ADA curb ramps will be installed at various intersections, new crosswalks will be painted, a new traffic circle will also be constructed on Grapefruit Blvd. at the Tyler Street intersection. Avenue 54 will be resurfaced from Van Buren Street to Grapefruit Blvd.

The Project is proposed to implement a connection with the CV Link, a regional multi-modal path that extends from Coachella to Palm Springs. The Project is being developed to implement City General Plan goals and policies, including:

Land Use Element Policy 2.19: **Community Amenities**. Encourage the provision of a high-level of neighborhood and community amenities and design features as a way of balancing increased density, recognizing that the General Plan increases the average planned density by several times and specifies a desire for a very high quality, amenity-rich, livable community.

Land Use Element Goal 9: Corridors and Connectivity. A network of transportation and open space corridors throughout the City that provides a high level of connectivity for vehicles, cyclists and pedestrians.

Mobility Element Policy 3.7: **Neighborhood connectivity**. Create bicycle and pedestrian connections through existing residential neighborhoods, providing access to adjacent neighborhoods and external bicycle/pedestrian facilities.

Mobility Element Policy 4.2: **Priority bike improvements**. Prioritize improvements that address bicycling in existing areas of the City with complementary land use patterns and connections to other modes of travel including walking and transit.

Mobility Element Policy 8.3: **Regional non-motorized connections**. Prioritize connections between the City's bicycle and pedestrian network to regional facilities such as the CV Link and other regional trail facilities.

The Project will implement these policies and provide residents with an improved amenity that allows them to travel through the center of the City without the use of an automobile. As a result of the Project, motorized vehicle use could be reduced, thereby also reducing air and GHG emissions, and providing a beneficial impact to the City's residents and the region as a whole. The Project, therefore, proposes facilities that will not conflict with the City's land use plans and policies, and no impact will occur.

Mitigation Measures:. None required.

Monitoring: None required.

Sources: City of Coachella General Plan 2015

XII. MINERAL RESOURCES **Would the project:**	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

Setting

Sand and gravel, known as aggregate, are the primary mineral resources in the Coachella Valley. Mineral resources in California have been mapped by the Department of Conservation, Division of Mines and Geology, in accordance with the Surface Mining and Reclamation Act (SMARA) of 1975. Three Mineral Resource Zones (MRZs) have been identified:

> MRZ-1: Areas where available geological information indicates that little likelihood exists for the present of significant construction aggregate resources.
> MRZ-2: Areas where available geological information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.
> MRZ-3: Areas containing mineral deposits, the significance of which cannot be evaluated from available data.

The majority of the developed area of the City falls within MRZ-1.

Discussion of Impacts

a-b) **No Impact.** The Project area occurs in MRZ-1, which includes lands with the potential for mineral resources. However, the Project occurs along existing City roadways, in an area of the City that is either currently urbanized, or planned for urban uses in the future. There are no existing mineral extraction or processing facilities adjacent to the Project. The areas suitable for mining of minerals in the region generally occur north of I-10, which is over 1.5 miles north of the northern boundary of the Project at Avenue 48. The Project consists of the construction of bike lanes along existing paved streets, and will not remove lands available for mineral resource extraction. No impact will occur.

Mitigation Measures: None required.

Monitoring: None required.

Sources: City of Coachella General Plan 2015; City of Coachella General Plan Update Final Environmental Impact Report (CGPU EIR, SCH No. 2009021007), October 2014.

XIII. NOISE **Would the project result in:**	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Generation of substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b) Generation of excessive groundborne vibration or groundborne noise levels?			X	
c) For a project located within the vicinity of a primate airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X

Setting

Noise can be defined as unwanted sound. The most common source of noise is traffic noise. Commercial activities, including air compressors and commercial compactors, landscaping equipment, and daily operations, also contribute to noise levels in the city.

Certain construction activities and equipment can generate vibration that may be felt on adjacent properties. The impacts of vibration are evaluated based on the potential to damage existing structures as well as the potential to create a nuisance to individuals. According to the Caltrans Transportation and Construction Vibration Guidance Manual, the threshold for damage to modern structures is a peak particle velocity (PPV) of 0.5 inches per second. The thresholds for human perception of vibration at a PPV of 0.01 inches per second classified as "barely perceptible," 0.04 inches per second as "distinctly perceptible," 0.1 inches per second as strongly perceptible," and 0.4 inches per second as "severe."

Excessive levels of noise can have negative impacts to physical and psychological well-being, property values, the natural environment, and to overall quality of life. Some land uses, such as residential properties, schools, hospitals, and churches, are particularly sensitive to these impacts. The City defines these land uses as noise-sensitive properties. Title 7 of the City's Municipal Code governs noise control in the City. The sound level limits for fixed noise sources are 55 dBA from 6 AM to 10 PM, and 45 dBA from 10 PM to 6 AM for all residential zones.

Discussion of Impacts

a, b) **Less Than Significant Impact.** The Project proposes 3.8 miles of new Class I bike lanes along the east side of Grapefruit Blvd. and 3.2 miles of new Class II bike lanes along the north and south sides of Avenue 54. The Project will generate negligible noise during its operation, since there will be no motorized travel on the paths. Bicyclists and pedestrians will experience noise from the adjacent existing streets, but as they are traveling through any given segment of the Project, and not remaining next to it for any extended period of time, the impact will be less than significant.

During construction, some elevated noise levels and some vibration will be experienced by adjacent residents, as the pathways are constructed next to these properties. However, these levels will be temporary, and will move along the pathways, and not stay stationary next to a particular property for any length of time. Because the Project consists of shallow excavation and paving, some vibration can be expected, but as with construction noise, it will not be stationary, and will move along the pathways. In addition, the City regulates construction activities, limiting them to the less sensitive daytime hours, which will help limit the exposure of adjacent residents (Municipal Code Section 7.04.070). As a result, the impacts of noise and vibration during the construction of the proposed Project are expected to be less than significant.

c) **No Impact.** As described above, the portion of the Project along Avenue 54 is the closest to the Jacqueline Cochran Airport, and approximately 2 miles to the south. The Project is too far distant from the airport to experience significant noise levels, and is outside the airport's 65 dBA noise contour. There will be no impact to the Project from noise at the airport.

Mitigation Measures: None required.

Monitoring: None required.

Sources: City of Coachella General Plan 2015; City of Coachella General Plan Update Final Environmental Impact Report (CGPU EIR, SCH No. 2009021007), October 2014.

XIV. POPULATION AND HOUSING **Would the project:**	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

Setting

The City of Coachella has a population of approximately 42,178 persons, which is expected to grow to 129,300 in 2045.[9] Currently, the City is composed of a mix of single-family, multi-family, and mobile home development, but the majority (73.9%) of housing units are single-family homes.

Discussion of Impacts

a-b) **No Impact.** The Project will result in the construction of bike lanes and related improvements adjacent to existing City streets. As such, it will provide an added amenity to existing and future residents, but will not expand infrastructure in a manner that would induce growth, since no water, sewer or utility lines will be extended for the Project. Because the Project occurs within City rights-of-way, there are no homes within the Project route, and no one will be displaced. The Project will have no impact on population or housing.

Mitigation Measures: None required.

Monitoring: None required.

Source: City of Coachella General Plan 2015

[9] 2020-2045 RTP/SCS Demographics and Growth Forecast by Southern California Association of Governments.

XV. PUBLIC SERVICES **Would the project result in:** Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Fire protection?				X
Police protection?				X
Schools?				X
Parks?				X
Other public facilities?				X

Setting

Fire protection services are provided by the Riverside County Fire Department and CALFire via a cooperative agreement. The Riverside County Fire Department Station 79 is a full-service public safety department which has provided fire suppression and emergency medical services to Coachella residents, businesses and visitors since 1990 from its location at 1377 6th Street. The City may consider new stations to serve the growing entertainment district and northern area as well as the central area in the future as development occurs.

Police Protection
The City of Coachella contracts with the Riverside County Sheriff's Department to provide comprehensive law enforcement services. The City Police Department is comprised of the Investigations, Patrol, Traffic, and Forensics Divisions with overlapping personnel. The Department consists of 32 sworn officer positions, 19 of which are dedicated to the Patrol Division with the remaining officers dedicated to special assignments such as the Community Action Team (C.A.T.), School Resource Officers, along with Gang and Narcotics Enforcement.

Schools
There are two school districts providing public education to students in kindergarten through 12th grade in Coachella: Desert Sands Unified School District (DSUSD) and Coachella Valley Unified School District (CVUSD). The majority of the City occurs within CVUSD's service area. Both districts receive funding from state funds and local property taxes. The districts are authorized to

collect school facilities fees as provided for in Government Code Section 53080 *et. seq.* and 65995 *et seq.* on a per square foot basis for new residential development.

Parks

The City of Coachella currently operates ten parks and recreational facilities that support uses such as sports, community activities and playground. The City's Municipal Code Section 16.36.060 provides for the dedication of land or the payment of fees in lieu thereof for park and recreational facilities as a condition of approval of a tentative map or parcel map. All residential developments subdivisions containing five or more parcels are required to dedicate land, pay a fee, or both. Section 16.36.060 set a minimum of three acres per 1,000 population in a subdivision for neighborhood and community park and recreational facilities.

Discussion of Impacts

a-c) **No Impact.** The Project consists of 3.8 miles of new Class I bike lanes along Grapefruit Blvd. from Avenue 48 south to Avenue 54, and 3.2 miles of new Class II bike lanes along the north and south sides of Avenue 54 beginning at Van Buren Street, crossing Grapefruit Blvd. and ending at the Coachella Valley Stormwater Channel. All of the Project components occur on existing City streets, where police and fire services are provided. Because the Project will provide delineated and separated bike lanes, it will increase safety for bikes and pedestrians, and has the potential to lower accidents, thereby reducing public safety impacts for fire and police services.

The Project will be available to residents, but will not increase impacts to schools, since no new residents will be added to the City as a result of the Project. Similarly, although the Project will facilitate bike connections through the City, including City parks, there are no parks immediately adjacent to the Project, and the use of the bike lanes will not increase the use of City parks.

Mitigation Measures: None required.

Monitoring: None required.

Source: City of Coachella General Plan 2015; City of Coachella General Plan Update Final Environmental Impact Report (CGPU EIR, SCH No. 2009021007), October 2014.

XVI. RECREATION Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

Setting

The City of Coachella provides a variety of recreation facilities and currently has eight parks that host various sports fields, a boxing club and swimming pools, as well as a tot lot and a community center, which total approximately 59.6 acres.

The Desert Recreation District (DRD) also provides recreational services throughout the Coachella Valley. DRD manages, maintains and assists in maintaining over 30 parks and recreation facilities in the valley. DRD also offers a variety of quality programs, services and classes on physical fitness, mental wellness and arts and crafts.

Discussion of Impacts

a, b) The Project will increase recreational opportunities for City residents, but would not increase use of existing facilities. The Project will provide a recreational amenity which is not currently available in the City, and will also add a connection to the CV Link, a regional multi-purpose path, at Avenue 54 and the Coachella Valley Stormwater Channel. When CV Link is constructed, the Project will be part of a regional recreational system which will provide a beneficial impact to City residents.

Mitigation Measures: None required.

Monitoring: None required.

Source: City of Coachella General Plan 2015; City of Coachella General Plan Update Final Environmental Impact Report (CGPU EIR, SCH No. 2009021007), October 2014.

XVII. TRANSPORTATION Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?				X
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?				X
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
d) Result in inadequate emergency access?				X

Setting

The City of Coachella General Plan Mobility Element shows the City's intended future roadway network and sets standards on various Street Typologies and the street network. The Mobility Element policies aim to achieve goals including complete streets, traffic calming, a pedestrian and bicycle trail network, and sustainable transportation (please also see Land Use & Planning, above).

CEQA Guidelines section 15064.3 sets forth guidelines for implementing SB 743 (stats. 2013, ch. 386), which requires amendments to the CEQA Guidelines (pre-2019) to provide an alternative to LOS for evaluating transportation impacts. Changes to CEQA Guidelines were adopted in December 2018, which require all lead agencies to adopt vehicle miles traveled (VMT) as a replacement for automobile delay-based LOS as the new measure for identifying transportation impacts for land use projects. This statewide mandate went into effect July 1, 2020. The City of Coachella has not adopted its own VMT policy yet; land use projects are analyzed using the County of Riverside's Transportation Analysis Guidelines for Level of Service & Vehicle Miles Traveled (December 2020).

Discussion of Impacts

a) **No Impact.** As described elsewhere in this document, the Project proposes bike lanes that are consistent with the General Plan Mobility Element's goals and policies to provide non-motorized transportation through the City. Specifically, the Mobility Element includes:

Mobility Element Policy 3.7: **Neighborhood connectivity**. Create bicycle and pedestrian connections through existing residential neighborhoods, providing access to adjacent neighborhoods and external bicycle/pedestrian facilities.

Mobility Element Policy 4.2: **Priority bike improvements**. Prioritize improvements that address bicycling in existing areas of the City with complementary land use patterns and connections to other modes of travel including walking and transit.

Mobility Element Policy 8.3: **Regional non-motorized connections**. Prioritize connections between the City's bicycle and pedestrian network to regional facilities such as the CV Link and other regional trail facilities.

As a result of this Project, and the eventual construction of the CV Link at the southeastern terminus of the Project, the City will further its Mobility Element goals. Therefore, the Project represents a beneficial impact for the City's transportation plans, and no negative impact will occur.

b) **No Impact.** The purpose of CEQA Guidelines section 15064.3, subdivision (b) is to analyze and reduce the number of vehicle miles traveled in motorized vehicles. As described throughout this document, the proposed Project will improve the non-motorized transportation system in the City, and provide an opportunity for residents to bike to and from their destination, rather than use their automobile. Therefore, the Project directly supports the goals of section 15064.3, and no impact will occur.

c) **Less Than Significant Impact.** The Project proposes 3.8 miles of new Class I bike lanes along the east side of Grapefruit Blvd. from Avenue 48 south to Avenue 54, which will incorporate an existing bike path from Avenue 50 to 9th Street. The Project also proposes 3.2 miles of new Class II bike lanes along the north and south sides of Avenue 54 beginning at Van Buren Street, crossing Grapefruit Blvd. and ending at the Coachella Valley Stormwater Channel where the Project will meet the future CV Link path. A shorter .08-mile Class I bike path extension is proposed on the south side of Avenue 48 starting from the southeast corner of the Dillon Road intersection and ending at the southeast corner of the Grapefruit Boulevard intersection. Throughout the Project route, restriping will be applied, new ADA curb ramps will be installed at various intersections, new crosswalks will be painted, a new traffic circle will also be constructed on Grapefruit Blvd. at the Tyler Street intersection. Avenue 54 will be resurfaced from Van Buren Street to Grapefruit Blvd.

The Project improvements are designed to improve traffic safety by separating bike traffic from automobile traffic, and adding curbs, gutters, and ADA improvements to complete these streets. In addition, the Project will provide new and improved crosswalks, which will improve safety for both bikes and pedestrians. Although the Project could increase bike and pedestrian traffic along the Project route, the reason for the increase would be, in part, the safe environment created by the Project. Therefore, although the Project may increase the number of bikes and pedestrians along Grapefruit Blvd. and Avenue 54, it will do so in a safe manner, and assure that impacts associated with Project design and safety are less than significant.

d) **No Impact.** The Project is to be constructed along existing City roadways. It will not block or redirect any roadway, and will not change the traffic patterns in which emergency services currently operate. The Project will have no impact on the City's ability to provide emergency services.

Mitigation Measures: None required.

Monitoring: None required.

Source: City of Coachella General Plan 2015; City of Coachella General Plan Update Final Environmental Impact Report (CGPU EIR, SCH No. 2009021007), October 2014.

XVIII. TRIBAL CULTURAL RESOURCES a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or		X		
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		X		

Setting

As discussed in Section V, Cultural Resources, the Coachella Valley is the traditional home of the Cahuilla Indians. Today, Native Americans of Pass or Desert Cahuilla heritage are mostly affiliated with one or more of the Indian reservations in and near the Coachella Valley, including the Cabazon, Augustine, Torres Martinez, Twenty-nine Palms, Agua Caliente, and Morongo.

Tribal Cultural Resources
CEQA defines tribal cultural resources as a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is included on a local register of historical resources (PRC §5020.1(k)), or that is listed as a historical resources in the California Register (PRC §5024.1(c)).

As stated in Section V, a historical/archaeological resources study was conducted for the Project. This study determined that there were no archaeologically significant resources on the ground surface in the Project area, but that buried resources could occur.

As required by AB 52, the City conducted Tribal Consultation for this Project. The City sent consultation requests to the Agua Caliente Band of Cahuilla Indians (ACBCI), the Cabazon Band of Cahuilla Indians, the Soboba Band of Luiseño Indians, the Torres Martinez Desert Cahuilla, and the Twentynine Palms Band of Mission Indians in December of 2023. The results of that consultation is described below.

Discussion of Impacts

a) i, ii) Less Than Significant Impact with Mitigation. The Project will result in the shallow disturbance of soils along the edges of existing roadways. In order to determine whether the local Tribes had concerns about the disturbance of Tribal Cultural Resources as a result of the Project, the City sent consultation requests to the five Tribes who have requested consultation on projects in the City. The City received only one request for consultation, from the ACBCI. In January, 2024, the City and ACBCI met to discuss the Project. The ACBCI expressed concerns about buried resources, and indicated that the Project area is within one mile of 2 known village sites. The City indicated that it would require monitoring of earth moving activities during the Project's construction, and ACBCI representatives agreed that this was an appropriate mitigation measure. The ACBCI further indicated that if the City was contacted by the Torres Martinez Band, ACBCI could coordinate monitoring activities with them. As of the date of this writing, the City has not received any request for consultation or monitoring from the Torres Martinez. As provided in Section V, construction activities will be monitored by an archaeologist and an ACBCI Tribal monitor (mitigation measure CUL-1). The implementation of this mitigation measure will assure that any impacts to Tribal Cultural Resources will be reduced to less than significant levels.

Mitigation Measures: See Section V., Cultural Resources

Monitoring: See Section V., Cultural Resources

Sources: Tribal Consultation letters; City of Coachella General Plan 2015

XIX. UTILITIES AND SERVICE SYSTEMS Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			X	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X	
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?				X
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?				X

Setting

The City of Coachella is served by the following utility providers:

Utility	Service Provider(s)
Electricity	Imperial Irrigation District (IID)
Natural gas	Southern California Gas Company (SoCalGas)

Utility	Service Provider(s)
Water	Coachella Water Agency (CWA)
Wastewater	Coachella Sanitary District (CSD) (majority of the City), Valley Sanitary District (VSD)
Solid Waste	Burrtec
Telecommunications	Spectrum, Frontier

Utilities and services are currently available throughout the Project area.

Discussion of Impacts

a) **Less Than Significant Impact.** The Project will not require wastewater treatment or utility connections. The Project will require connection to existing water lines for the watering of drought tolerant landscaping, but will not require any new water service. The Project has been designed to incorporate bioswales for storm water control throughout the length of the route, and will not impact other City drainage facilities. Therefore, no new facilities will be required, and impacts to these services and utilities will be less than significant.

b) **Less Than Significant Impact.** The Project proposes limited drought tolerant landscaping at various points along the Project route. This landscaping will require watering during the life of the Project. However, the amount of water is expected to be minimal, and is not expected to impact CWA water supplies. Impacts will be less than significant.

c) **No Impact.** As described above, there will be no need for wastewater treatment as a result of the Project because no bathrooms are proposed along the route. Therefore, the Project will have no impact on wastewater treatment.

d, e) **No Impact.** The Project will not, in and of itself, generate any solid waste during its lifetime. The bicyclists and pedestrians who may use the route may generate solid waste, but are expected, as in all public facilities, to dispose of it correctly. Trash bins integrated into the City's street furniture may be available for this waste, but otherwise would not be necessary. No impact to landfills or solid waste regulations is expected.

Mitigation Measures: None required.

Monitoring: None required.

Sources: City of Coachella General Plan 2015

XX. WILDFIRE – If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				X
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				X
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?				X
d) 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?				X

Setting

The California Department of Forestry and Fire Protection (CalFire) ranks fire hazards of wildland areas in the state using four main criteria: fuels, weather, assets at risk, and level of service. There are no state responsibility areas (SRA) or Very High Fire Hazard Severity Zones (VHFHSZ) in or near the City.

Discussion of Impacts

a-d) No Impact. The Project consists of bike lanes and related improvements along existing City streets in the City's core. There are no Very High fire zones in or near any portion of the route. Furthermore, the urbanized environment in which the Project occurs does not support the potential for wildfires. No impacts will occur.

Mitigation Measures: None required.

Monitoring: None required.

Sources: City of Coachella General Plan 2015

XXI. MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X		
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			X	
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

a) **Less Than Significant Impact with Mitigation.** As described in Section IV, Biological Resources, the Project has the potential to impact burrowing owls and nesting birds, should they occur along the Project area at the time of construction. However, as required in Mitigation Measures BIO-1 and BIO-2, the potential impacts will be reduced to less than significant levels with pre-construction surveys, and additional performance standards if they are identified during these surveys.

In addition, the Project has the potential to impact buried archaeological resources during its construction, although no such surficial resources were identified during the field survey. With the implementation of Mitigation Measure CUL-1, however, this potential is reduced to less than significant levels because monitors will have the ability to stop and/or redirect work should a buried resource be uncovered.

Therefore, as described in this Initial Study, the impacts to biological and cultural resources will be less than significant with the implementation of mitigation measures.

b) **Less Than Significant Impact.** The Project requires mitigation measures only for biological and cultural resources. All other impact areas were found to be less than significant, or to have no impact on the environment. The Project consists of bike paths along existing City streets, and will improve the City's non-motorized transportation system. The Project will not cumulative increase impacts, and will in some cases, including air and GHG emissions and transportation, reduce potential impacts during its lifetime by allowing residents to bike rather than drive to their destinations. Impacts associated with the Project will therefore not be cumulatively considerable.

c) **Less Than Significant Impact.** As described above, the Project's effects on human beings will be less than significant. The Project will not significantly reduce air quality, or increase noise levels. It will not result in geologic hazards or deplete water supplies. Overall, the project will have less than significant impacts on human beings.

Appendix A

CalEEMod Summary and Detail Report

Connect Coachella Summary Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Connect Coachella
Construction Start Date	6/3/2025
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.00
Precipitation (days)	8.80
Location	33.657007176031016, -116.15395854594627
County	Riverside-Salton Sea
City	Coachella
Air District	South Coast AQMD
Air Basin	Salton Sea
TAZ	5667
EDFZ	19
Electric Utility	Imperial Irrigation District
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

Road Construction	3.20	Mile	24.0	0.00	0.00	—	—	Includes resurfacing of Ave 54.
Other Non-Asphalt Surfaces	254	1000sqft	5.83	0.00	60,620	—	—	Includes cement bike path on Grapefruit and landscaped areas

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces

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	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Unmit.	2.10	1.77	15.0	17.8	0.03	8.28	4.20	3,626	3,690
Mit.	2.10	1.77	15.0	17.8	0.03	3.95	2.11	3,626	3,690
% Reduced	—	—	—	—	—	52%	50%	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Unmit.	2.07	1.74	15.1	17.2	0.03	8.28	4.20	3,593	3,653
Mit.	2.07	1.74	15.1	17.2	0.03	3.95	2.11	3,593	3,653
% Reduced	—	—	—	—	—	52%	50%	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.46	0.39	3.32	4.67	0.01	1.73	0.88	785	798
Mit.	0.46	0.39	3.32	4.67	0.01	0.83	0.44	785	798

% Reduced	—	—	—	—	—	52%	49%	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.08	0.07	0.61	0.85	< 0.005	0.32	0.16	130	132
Mit.	0.08	0.07	0.61	0.85	< 0.005	0.15	0.08	130	132
% Reduced	—	—	—	—	—	52%	49%	—	—
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—
Threshold	75.0	75.0	100	550	150	150	55.0	—	—
Unmit.	No	No	No	No	No	No	No	—	—
Mit.	No	No	No	No	No	No	No	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—
Threshold	75.0	75.0	100	550	150	150	55.0	—	—
Unmit.	No	No	No	No	No	No	No	—	—
Mit.	No	No	No	No	No	No	No	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—
Threshold	—	—	—	—	—	—	—	3,000	3,000
Unmit.	—	—	—	—	—	—	—	No	No
Mit.	—	—	—	—	—	—	—	No	No

2.4. Operations 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	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.00	0.04	0.00	0.00	0.00	0.00	0.00	4.58	4.60
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.00	0.04	0.00	0.00	0.00	0.00	0.00	4.58	4.60

Average Daily (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.00	0.04	0.00	0.00	0.00	0.00	0.00	4.58	4.60
Annual (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.76	0.76
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—
Threshold	55.0	55.0	55.0	550	150	150	55.0	—	—
Unmit.	No	No	No	No	No	No	No	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—
Threshold	55.0	55.0	55.0	550	150	150	55.0	—	—
Unmit.	No	No	No	No	No	No	No	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—
Threshold	—	—	—	—	—	—	—	3,000	3,000
Unmit.	—	—	—	—	—	—	—	No	No

6. Climate Risk Detailed Report

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	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	N/A	N/A	N/A	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	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	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	N/A	N/A	N/A	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 include implementation of climate risk reduction measures.

7. Health and Equity Details

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	76.0
Healthy Places Index Score for Project Location (b)	9.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No

Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	EasternCoachellaValley

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.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

Connect Coachella Detailed Report

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1.1. Basic Project Information

Data Field	Value
Project Name	Connect Coachella
Construction Start Date	6/3/2025
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.00
Precipitation (days)	8.80
Location	33.657007176031016, -116.15395854594627
County	Riverside-Salton Sea
City	Coachella
Air District	South Coast AQMD
Air Basin	Salton Sea
TAZ	5667
EDFZ	19
Electric Utility	Imperial Irrigation District
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

Road Construction	3.20	Mile	24.0	0.00	0.00	—	—	Includes resurfacing of Ave 54.
Other Non-Asphalt Surfaces	254	1000sqft	5.83	0.00	60,620	—	—	Includes cement bike path on Grapefruit and landscaped areas

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces

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	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Unmit.	2.10	1.77	15.0	17.8	0.03	8.28	4.20	3,626	3,690
Mit.	2.10	1.77	15.0	17.8	0.03	3.95	2.11	3,626	3,690
% Reduced	—	—	—	—	—	52%	50%	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Unmit.	2.07	1.74	15.1	17.2	0.03	8.28	4.20	3,593	3,653
Mit.	2.07	1.74	15.1	17.2	0.03	3.95	2.11	3,593	3,653
% Reduced	—	—	—	—	—	52%	50%	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.46	0.39	3.32	4.67	0.01	1.73	0.88	785	798
Mit.	0.46	0.39	3.32	4.67	0.01	0.83	0.44	785	798

% Reduced	—	—	—	—	—	52%	49%	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.08	0.07	0.61	0.85	< 0.005	0.32	0.16	130	132
Mit.	0.08	0.07	0.61	0.85	< 0.005	0.15	0.08	130	132
% Reduced	—	—	—	—	—	52%	49%	—	—
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—
Threshold	75.0	75.0	100	550	150	150	55.0	—	—
Unmit.	No	No	No	No	No	No	No	—	—
Mit.	No	No	No	No	No	No	No	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—
Threshold	75.0	75.0	100	550	150	150	55.0	—	—
Unmit.	No	No	No	No	No	No	No	—	—
Mit.	No	No	No	No	No	No	No	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—
Threshold	—	—	—	—	—	—	—	3,000	3,000
Unmit.	—	—	—	—	—	—	—	No	No
Mit.	—	—	—	—	—	—	—	No	No

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	PM10T	PM2.5T	CO2T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—
2025	2.10	1.77	15.0	17.8	0.03	8.28	4.20	3,626	3,690
2026	1.16	0.98	7.85	12.4	0.02	0.96	0.36	1,877	1,886
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—

2025	2.07	1.74	15.1	17.2	0.03	8.28	4.20	3,593	3,653
2026	1.05	0.88	7.01	10.3	0.01	0.96	0.36	1,594	1,601
Average Daily	—	—	—	—	—	—	—	—	—
2025	0.46	0.39	3.32	3.86	0.01	1.73	0.88	785	798
2026	0.46	0.39	3.10	4.67	0.01	0.30	0.14	722	725
Annual	—	—	—	—	—	—	—	—	—
2025	0.08	0.07	0.61	0.70	< 0.005	0.32	0.16	130	132
2026	0.08	0.07	0.57	0.85	< 0.005	0.05	0.03	120	120

2.3. Construction Emissions by Year, Mitigated

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	PM10T	PM2.5T	CO2T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—
2025	2.10	1.77	15.0	17.8	0.03	3.95	2.11	3,626	3,690
2026	1.16	0.98	7.85	12.4	0.02	0.63	0.34	1,877	1,886
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—
2025	2.07	1.74	15.1	17.2	0.03	3.95	2.11	3,593	3,653
2026	1.05	0.88	7.01	10.3	0.01	0.63	0.32	1,594	1,601
Average Daily	—	—	—	—	—	—	—	—	—
2025	0.46	0.39	3.32	3.86	0.01	0.83	0.44	785	798
2026	0.46	0.39	3.10	4.67	0.01	0.24	0.14	722	725
Annual	—	—	—	—	—	—	—	—	—
2025	0.08	0.07	0.61	0.70	< 0.005	0.15	0.08	130	132
2026	0.08	0.07	0.57	0.85	< 0.005	0.04	0.03	120	120

2.4. Operations 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	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.00	0.04	0.00	0.00	0.00	0.00	0.00	4.58	4.60
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.00	0.04	0.00	0.00	0.00	0.00	0.00	4.58	4.60
Average Daily (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.00	0.04	0.00	0.00	0.00	0.00	0.00	4.58	4.60
Annual (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.76	0.76
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—
Threshold	55.0	55.0	55.0	550	150	150	55.0	—	—
Unmit.	No	No	No	No	No	No	No	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—
Threshold	55.0	55.0	55.0	550	150	150	55.0	—	—
Unmit.	No	No	No	No	No	No	No	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—
Threshold	—	—	—	—	—	—	—	3,000	3,000
Unmit.	—	—	—	—	—	—	—	No	No

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	—	—	—	—	—	—	—	4.58	4.60
Waste	—	—	—	—	—	—	—	0.00	0.00
Total	0.00	0.04	0.00	0.00	0.00	0.00	0.00	4.58	4.60
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	—	0.04	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	—	—	—	—	—	—	—	4.58	4.60
Waste	—	—	—	—	—	—	—	0.00	0.00
Total	0.00	0.04	0.00	0.00	0.00	0.00	0.00	4.58	4.60
Average Daily	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	—	—	—	—	—	—	—	4.58	4.60
Waste	—	—	—	—	—	—	—	0.00	0.00
Total	0.00	0.04	0.00	0.00	0.00	0.00	0.00	4.58	4.60
Annual	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	—	—	—	—	—	—	—	0.76	0.76
Waste	—	—	—	—	—	—	—	0.00	0.00

Total	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.76	0.76

2.6. Operations Emissions by Sector, Mitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	—	—	—	—	—	—	—	4.58	4.60
Waste	—	—	—	—	—	—	—	0.00	0.00
Total	0.00	0.04	0.00	0.00	0.00	0.00	0.00	4.58	4.60
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	—	0.04	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	—	—	—	—	—	—	—	4.58	4.60
Waste	—	—	—	—	—	—	—	0.00	0.00
Total	0.00	0.04	0.00	0.00	0.00	0.00	0.00	4.58	4.60
Average Daily	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	—	—	—	—	—	—	—	4.58	4.60
Waste	—	—	—	—	—	—	—	0.00	0.00
Total	0.00	0.04	0.00	0.00	0.00	0.00	0.00	4.58	4.60

Annual	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	—	—	—	—	—	—	—	0.76	0.76
Waste	—	—	—	—	—	—	—	0.00	0.00
Total	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.76	0.76

3. Construction Emissions Details

3.1. Linear, Grubbing & Land Clearing (2025) - 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	PM10T	PM2.5T	CO2T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.83	1.02	< 0.005	0.03	0.02	142	142
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	—
Onsite truck	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	0.02	0.02	0.17	0.21	< 0.005	0.01	< 0.005	29.5	29.6
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	—
Onsite truck	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	0.03	0.04	< 0.005	< 0.005	< 0.005	4.88	4.90
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.17	0.00	0.02	0.01	25.8	26.2
Vendor	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	< 0.005	< 0.005	4.88	4.95
Vendor	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
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.81	0.82
Vendor	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

3.2. Linear, Grubbing & Land Clearing (2025) - Mitigated

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	PM10T	PM2.5T	CO2T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.83	1.02	< 0.005	0.03	0.02	142	142

Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	—
Onsite truck	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	0.02	0.02	0.17	0.21	< 0.005	0.01	< 0.005	29.5	29.6
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	—
Onsite truck	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	0.03	0.04	< 0.005	< 0.005	< 0.005	4.88	4.90
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.17	0.00	0.02	0.01	25.8	26.2
Vendor	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	< 0.005	< 0.005	4.88	4.95
Vendor	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
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.81	0.82
Vendor	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

3.3. Linear, Grading & Excavation (2025) - 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	PM10T	PM2.5T	CO2T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.95	1.64	13.8	16.0	0.02	0.69	0.63	2,361	2,369
Dust From Material Movement	—	—	—	—	—	7.09	3.43	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.95	1.64	13.8	16.0	0.02	0.69	0.63	2,361	2,369
Dust From Material Movement	—	—	—	—	—	7.09	3.43	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	2.87	3.34	< 0.005	0.14	0.13	492	493
Dust From Material Movement	—	—	—	—	—	1.48	0.71	—	—
Onsite truck	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	0.52	0.61	< 0.005	0.03	0.02	81.4	81.7
Dust From Material Movement	—	—	—	—	—	0.27	0.13	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.09	1.54	0.00	0.20	0.05	232	235
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	0.01	< 0.005	26.1	27.2
Hauling	0.03	0.02	1.13	0.26	0.01	0.29	0.09	1,008	1,058
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	0.91	0.00	0.20	0.05	197	200
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	0.01	< 0.005	26.1	27.2
Hauling	0.03	0.02	1.21	0.27	0.01	0.29	0.09	1,009	1,057
Average Daily	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.23	0.00	0.04	0.01	43.9	44.5
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	5.43	5.66
Hauling	0.01	< 0.005	0.25	0.05	< 0.005	0.06	0.02	210	220
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.01	< 0.005	7.27	7.38
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.90	0.94
Hauling	< 0.005	< 0.005	0.05	0.01	< 0.005	0.01	< 0.005	34.8	36.5

3.4. Linear, Grading & Excavation (2025) - Mitigated

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	PM10T	PM2.5T	CO2T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.95	1.64	13.8	16.0	0.02	0.69	0.63	2,361	2,369

Dust From Material Movement	—	—	—	—	—	2.77	1.34	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.95	1.64	13.8	16.0	0.02	0.69	0.63	2,361	2,369
Dust From Material Movement	—	—	—	—	—	2.77	1.34	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	2.87	3.34	< 0.005	0.14	0.13	492	493
Dust From Material Movement	—	—	—	—	—	0.58	0.28	—	—
Onsite truck	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	0.52	0.61	< 0.005	0.03	0.02	81.4	81.7
Dust From Material Movement	—	—	—	—	—	0.11	0.05	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.09	1.54	0.00	0.20	0.05	232	235
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	0.01	< 0.005	26.1	27.2
Hauling	0.03	0.02	1.13	0.26	0.01	0.29	0.09	1,008	1,058
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	0.91	0.00	0.20	0.05	197	200
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	0.01	< 0.005	26.1	27.2

Hauling	0.03	0.02	1.21	0.27	0.01	0.29	0.09	1,009	1,057
Average Daily	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.23	0.00	0.04	0.01	43.9	44.5
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	5.43	5.66
Hauling	0.01	< 0.005	0.25	0.05	< 0.005	0.06	0.02	210	220
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.01	< 0.005	7.27	7.38
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.90	0.94
Hauling	< 0.005	< 0.005	0.05	0.01	< 0.005	0.01	< 0.005	34.8	36.5

3.5. Linear, Drainage, Utilities, & Sub-Grade (2026) - 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	PM10T	PM2.5T	CO2T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.99	0.83	6.95	9.70	0.01	0.29	0.27	1,465	1,470
Dust From Material Movement	—	—	—	—	—	0.53	0.06	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.99	0.83	6.95	9.70	0.01	0.29	0.27	1,465	1,470
Dust From Material Movement	—	—	—	—	—	0.53	0.06	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.20	0.17	1.41	1.97	< 0.005	0.06	0.05	297	298
Dust From Material Movement	—	—	—	—	—	0.11	0.01	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.26	0.36	< 0.005	0.01	0.01	49.2	49.3
Dust From Material Movement	—	—	—	—	—	0.02	< 0.005	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.95	0.00	0.14	0.03	151	154
Vendor	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.06	0.56	0.00	0.14	0.03	129	131
Vendor	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
Average Daily	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.03	0.01	27.9	28.3
Vendor	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
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	< 0.005	< 0.005	4.62	4.69
Vendor	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

3.6. Linear, Drainage, Utilities, & Sub-Grade (2026) - Mitigated

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	PM10T	PM2.5T	CO2T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.99	0.83	6.95	9.70	0.01	0.29	0.27	1,465	1,470
Dust From Material Movement	—	—	—	—	—	0.21	0.02	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.99	0.83	6.95	9.70	0.01	0.29	0.27	1,465	1,470
Dust From Material Movement	—	—	—	—	—	0.21	0.02	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.17	1.41	1.97	< 0.005	0.06	0.05	297	298
Dust From Material Movement	—	—	—	—	—	0.04	< 0.005	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.26	0.36	< 0.005	0.01	0.01	49.2	49.3
Dust From Material Movement	—	—	—	—	—	0.01	< 0.005	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.95	0.00	0.14	0.03	151	154
Vendor	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.06	0.56	0.00	0.14	0.03	129	131
Vendor	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
Average Daily	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.03	0.01	27.9	28.3
Vendor	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
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	< 0.005	< 0.005	4.62	4.69
Vendor	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

3.7. Linear, Paving (2026) - 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	PM10T	PM2.5T	CO2T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	0.90	7.78	11.1	0.02	0.32	0.29	1,676	1,681
Onsite truck	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	0.23	0.19	1.66	2.37	< 0.005	0.07	0.06	358	359
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.30	0.43	< 0.005	0.01	0.01	59.3	59.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.07	1.27	0.00	0.18	0.04	202	205
Vendor	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.20	0.00	0.04	0.01	39.3	39.8
Vendor	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
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.01	< 0.005	6.50	6.58
Vendor	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

3.8. Linear, Paving (2026) - Mitigated

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	PM10T	PM2.5T	CO2T	CO2e
Onsite	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	0.90	7.78	11.1	0.02	0.32	0.29	1,676	1,681
Onsite truck	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	0.23	0.19	1.66	2.37	< 0.005	0.07	0.06	358	359
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.30	0.43	< 0.005	0.01	0.01	59.3	59.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.07	1.27	0.00	0.18	0.04	202	205
Vendor	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.20	0.00	0.04	0.01	39.3	39.8
Vendor	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
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.01	< 0.005	6.50	6.58
Vendor	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

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. 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	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4.1.2. Mitigated

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	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4.2. Energy

4.2.1. Electricity Emissions By Land Use - 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	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	0.00	0.00

4.2.2. Electricity Emissions By Land Use - Mitigated

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	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	0.00	0.00

4.2.3. Natural Gas Emissions By Land Use - 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	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4.2.4. Natural Gas Emissions By Land Use - Mitigated

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	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.02	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—

Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.02	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—
Total	—	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Consumer Products	—	< 0.005	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4.3.2. Mitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.02	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—

Consumer Products	—	0.02	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—
Total	—	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Consumer Products	—	< 0.005	—	—	—	—	—	—	—
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4.4. Water Emissions by Land Use

4.4.1. 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	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	4.58	4.60
Total	—	—	—	—	—	—	—	4.58	4.60
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	4.58	4.60
Total	—	—	—	—	—	—	—	4.58	4.60
Annual	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	0.76	0.76

Total	—	—	—	—	—	—	—	0.76	0.76

4.4.2. Mitigated

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	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	4.58	4.60
Total	—	—	—	—	—	—	—	4.58	4.60
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	4.58	4.60
Total	—	—	—	—	—	—	—	4.58	4.60
Annual	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	0.76	0.76
Total	—	—	—	—	—	—	—	0.76	0.76

4.5. Waste Emissions by Land Use

4.5.1. 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	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	0.00	0.00

4.5.2. Mitigated

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	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	0.00	0.00

4.6. Refrigerant Emissions by Land Use

4.6.1. 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	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.6.2. Mitigated

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	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

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

4.7.2. Mitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2T	CO2e

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

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	PM10T	PM2.5T	CO2T	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	PM10T	PM2.5T	CO2T	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	PM10T	PM2.5T	CO2T	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	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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	PM10T	PM2.5T	CO2T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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	PM10T	PM2.5T	CO2T	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
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	6/3/2025	9/16/2025	5.00	76.0	—
Linear, Grading & Excavation	Linear, Grading & Excavation	9/17/2025	12/31/2025	5.00	76.0	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	1/1/2026	4/14/2026	5.00	74.0	—
Linear, Paving	Linear, Paving	4/15/2026	8/1/2026	5.00	78.0	—

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
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Linear, Grading & Excavation	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Grading & Excavation	Graders	Diesel	Average	1.00	8.00	148	0.41
Linear, Grading & Excavation	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Linear, Grading & Excavation	Rubber Tired Dozers	Diesel	Average	1.00	8.00	150	0.36
Linear, Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37

Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Graders	Diesel	Average	1.00	8.00	148	0.41
Linear, Drainage, Utilities, & Sub-Grade	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Linear, Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Linear, Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Linear, Paving	Rollers	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Paving	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Linear, Paving	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Linear, Grading & Excavation	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Grading & Excavation	Graders	Diesel	Average	1.00	8.00	148	0.41
Linear, Grading & Excavation	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Linear, Grading & Excavation	Rubber Tired Dozers	Diesel	Average	1.00	8.00	150	0.36
Linear, Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37

Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Graders	Diesel	Average	1.00	8.00	148	0.41
Linear, Drainage, Utilities, & Sub-Grade	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Linear, Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Linear, Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Linear, Paving	Rollers	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Paving	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Linear, Paving	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	2.50	12.8	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	8.33	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	22.5	12.8	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	1.00	8.33	HHDT,MHDT

Linear, Grading & Excavation	Hauling	14.8	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	15.0	12.8	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	8.33	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	20.0	12.8	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	8.33	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	2.50	12.8	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	8.33	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	22.5	12.8	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	1.00	8.33	HHDT,MHDT
Linear, Grading & Excavation	Hauling	14.8	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	15.0	12.8	LDA,LDT1,LDT2

Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	8.33	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	20.0	12.8	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	8.33	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, 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 (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Linear, Grubbing & Land Clearing	—	—	24.0	0.00	—
Linear, Grading & Excavation	—	9,000	24.0	0.00	—
Linear, Drainage, Utilities, & Sub-Grade	—	—	24.0	0.00	—

5.6.2. Construction Earthmoving Control Strategies

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

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Road Construction	24.0	100%
Other Non-Asphalt Surfaces	5.83	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	457	0.03	< 0.005
2026	0.00	457	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

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)
0	0.00	0.00	0.00	15,238

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)

Other Non-Asphalt Surfaces	0.00	457	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Other Non-Asphalt Surfaces	0.00	457	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Other Non-Asphalt Surfaces	0.00	1,137,572

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Other Non-Asphalt Surfaces	0.00	1,137,572

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Other Non-Asphalt Surfaces	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Other Non-Asphalt Surfaces	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

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

5.18.1.2. Mitigated

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

5.18.1.2. Mitigated

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)

5.18.2.2. Mitigated

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	23.2	annual days of extreme heat
Extreme Precipitation	0.40	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.06	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	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	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	N/A	N/A	N/A	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	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	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	N/A	N/A	N/A	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 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	88.7
AQ-PM	8.80
AQ-DPM	53.3
Drinking Water	18.1
Lead Risk Housing	34.9
Pesticides	46.9
Toxic Releases	6.19
Traffic	10.4
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	65.3
Haz Waste Facilities/Generators	92.9
Impaired Water Bodies	77.3
Solid Waste	59.2
Sensitive Population	—
Asthma	54.3
Cardio-vascular	75.6
Low Birth Weights	45.1
Socioeconomic Factor Indicators	—
Education	88.2
Housing	98.0
Linguistic	99.9
Poverty	91.1
Unemployment	98.6

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	10.03464648
Employed	28.69241627
Median HI	10.22712691
Education	—
Bachelor's or higher	4.824842808
High school enrollment	8.135506224
Preschool enrollment	7.198768125
Transportation	—
Auto Access	63.41588605
Active commuting	6.544334659
Social	—
2-parent households	91.89015783
Voting	11.48466573
Neighborhood	—
Alcohol availability	73.0784037
Park access	19.64583601
Retail density	18.06749647
Supermarket access	15.03913769
Tree canopy	3.528807905
Housing	—
Homeownership	78.22404722
Housing habitability	29.87296292
Low-inc homeowner severe housing cost burden	7.891697677

Low-inc renter severe housing cost burden	24.79147953
Uncrowded housing	18.95290645
Health Outcomes	—
Insured adults	2.887206467
Arthritis	0.0
Asthma ER Admissions	54.4
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	47.0
Cognitively Disabled	74.6
Physically Disabled	57.4
Heart Attack ER Admissions	55.4
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
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	0.0
SLR Inundation Area	0.0
Children	7.3
Elderly	97.6
English Speaking	7.1
Foreign-born	91.0
Outdoor Workers	2.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	68.8
Traffic Density	17.7
Traffic Access	23.0
Other Indices	—
Hardship	92.5
Other Decision Support	—
2016 Voting	20.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	76.0
Healthy Places Index Score for Project Location (b)	9.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	EasternCoachellaValley

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	Approximate construction phase timeframe. Construction timeline is estimated from June 2025 to August 2026.
Construction: Off-Road Equipment	List modified per engineer's consultation.
Operations: Vehicle Data	No operational vehicle trips as this is a non-trip-generating land use.
Operations: Consumer Products	—

Appendix B

Biological Resources Assessment
&
Coachella Valley Multiple Species Habitat Conservation Plan Compliance Report

DRAFT CONNECT COACHELLA PROJECT
GRAPEFRUIT BOULEVARD AND AVENUE 54 BIKE PATH DEVELOPMENT

Biological Resources Assessment & Coachella Valley Multiple Species Habitat Conservation Plan Compliance Report

CITY OF COACHELLA, RIVERSIDE COUNTY, CALIFORNIA

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Survey: 4 October 2023

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1.0 INTRODUCTION

At the request of Terra Nova Planning & Research (Terra Nova), this biological resource assessment report (BRAR) was prepared by WSP USA Environment & Infrastructure Inc. (WSP USA) for the proposed Connect Coachella Project Bike Paths located along both Grapefruit Avenue/Highway 111 and Avenue 54 in the city of Coachella, Riverside County, California. Information contained herein is intended to be used for compliance with the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP), California Environmental Quality Act (CEQA), as well as federal and California Endangered Species Acts.

2.0 PROJECT LOCATION / DESCRIPTION

Terra Nova is preparing California Environmental Quality Act (CEQA) documentation for the proposed Connect Coachella Project. The focus of the work will include installing 3.8 miles of Class I Bike Path along Highway 111/Grapefruit Boulevard between Avenue 48 and Avenue 54 (with a gap between Leoco Lane and 9th Street where there is an existing segment of bike path); and 3.2 miles of Class II Bike lanes on Avenue 54 between Polk Street and Van Buren Street. The project route is located in paved roads on Avenue 54, and in an approximately 25-foot wide ROW that traverses both cleared and developed areas on the east side of Hwy. 111/Grapefruit Blvd. (please see Photographs 1 – 4 in Appendix C). The segments of proposed bike path along Hwy. 111/Grapefruit Blvd. are located on cleared and/or developed ground between the Union Pacific Railroad line and the eastern shoulder of Hwy. 111/Grapefruit Blvd. Surrounding land uses over the entire proposed route include commercial and residential development, and agricultural lands (both active and inactive). Specifically, the project route traverses portions of Sections 31, 32, 5, 8, and 9, Townships 5 and 6 South; Range 8 East as shown on the United States Geological Survey (USGS) *Indio*, California, 7.5-minute topographic quadrangle (Appendix A – Figure 2). The elevation of the project route ranges from approximately -42 to -106 feet below mean sea level.

3.0 REGULATORY FRAMEWORK

3.1 Federal

Endangered Species Act (ESA) – The United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service are the designated federal agencies accountable for administering the ESA. The ESA defines species as “endangered” or “threatened” and provides regulatory protection at the federal level.

- Section 9 of the ESA prohibits the “take” of listed (i.e., endangered or threatened) species. The ESA’s definition of take is “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct.” Recognizing that take cannot always be avoided, Section 10(a) includes provisions for take that is incidental to, but not the purpose of, otherwise lawful activities. Specifically, Section 10(a) (1) (A) permits (authorized take permits) are issued for scientific purposes. Section 10(a) (1) (B) permits (incidental take permits) are issued for the incidental take of listed species that does not jeopardize the species.
- Section 7 (a) (2) requires federal agencies to evaluate the proposed project with respect to listed or proposed listed, species and their respective critical habitat (if applicable). Federal agencies must employ programs for the conservation of listed species and are prohibited from authorizing, funding, or carrying out any action that would jeopardize a listed species or destroy or modify its “critical habitat.”

As defined by the ESA, "individuals, organizations, states, local governments, and other non-federal entities are affected by the designation of critical habitat only if their actions occur on federal lands, require a federal permit, license, or other authorization, or involve federal funding.

Section 10(a) of the ESA authorizes the issuance of incidental take permits and establishes standards for the content of habitat conservation plans (see Section 3.3 below).

Migratory Bird Treaty Act (MBTA) – Treaties signed by the U.S., Great Britain, Mexico, Japan, and the countries of the former Soviet Union make it unlawful to pursue, capture, kill, and/or possess, or attempt to engage in any such conduct to any migratory bird, nest, egg or parts thereof listed in the document. As with the ESA, the MBTA also allows the Secretary of the Interior to grant permits for the incidental take of these protected migratory bird species.

National Environmental Policy Act (NEPA) – If portions of a proposed project could fall under the jurisdiction of a federal agency (i.e., U.S. Bureau of Reclamation, U.S. Army Corps of Engineers) they are subject to environmental review pursuant to NEPA. NEPA establishes certain criteria that must be adhered to for any project that is "financed, assisted, conducted or approved" by a federal agency. The federal lead agency is required to "determine whether the proposed action will significantly affect the quality of the human environment."

Section 404 of the Clean Water Act – This section of the Clean Water Act, administered by the U.S. Army Corps of Engineers (USACE), regulates the discharge of dredged and fill material into "waters of the United States." The USACE has created a series of nationwide permits that authorize certain activities within waters of the U.S. provided that the proposed activity does not exceed the impact threshold of 0.5 acre for nationwide permits, takes steps to avoid impacts to wetlands and other designated U.S. waters where practicable, minimizes potential impacts to wetlands, and provides compensation for any remaining, unavoidable impacts through activities to restore or create wetlands. For projects that exceed the threshold for nationwide permits, individual permits under Section 404 can be issued. An inspection of the project site to determine presence or absence of potential jurisdictional wetlands and waters was conducted during the assessment for this project.

3.2 State

California Endangered Species Act (CESA) – This legislation is similar to the federal ESA, but it is administered by the California Department of Fish and Wildlife (CDFW – formerly Department of Fish and Game). The CDFW is authorized to enter into "memoranda of understanding" with individuals, public agencies, and other institutions to import, export, take, or possess state-listed species for scientific, educational, or management purposes. CESA prohibits the take of state-listed species except as otherwise provided in state law. Unlike the federal ESA, the CESA applies the take prohibitions to species currently petitioned for state-listing status (candidate species). State lead agencies are required to consult with CDFW to ensure that actions are not likely to jeopardize the continued existence of any state-listed species or result in the destruction or degradation of occupied habitat.

California Environmental Quality Act (CEQA) – The basic goal of CEQA is to maintain a high-quality environment now and in the future. The specific goals are for California's public agencies to:

1) identify the significant environmental effects of their actions; and, either
2) avoid those significant environmental effects, where feasible; or
3) mitigate those significant environmental effects, where feasible.

CEQA applies to "projects" proposed to be undertaken or requiring approval by state and local government agencies. Projects are activities that have the potential to have a physical impact on the environment and may include the enactment of zoning ordinances, the issuance of conditional use permits and the approval of tentative subdivision maps. Where a project requires approvals from more than one public agency, CEQA requires one of these public agencies to serve as the "lead agency."

A "lead agency" must complete the environmental review process required by CEQA. The most basic steps of the environmental review process are to:

4) Determine if the activity is a "project" subject to CEQA.
5) Determine if the "project" is exempt from CEQA.
6) Perform an Initial Study to identify the environmental impacts of the project and determine whether the identified impacts are "significant". Based on its findings of "significance", the lead agency prepares one of the following environmental review documents:
    a) Negative Declaration if it finds no "significant" impacts.
    b) Mitigated Negative Declaration if it finds "significant" impacts but revises the project to avoid or mitigate those significant impacts.
    c) Environmental Impact Report (EIR) if it finds "significant" impacts.

While there is no ironclad definition of "significance", Article 5 of the State CEQA Guidelines (California Natural Resources Agency 2014) provides criteria to lead agencies in determining whether a project may have significant effects.

The Native Plant Protection Act (NPPA) – The NPPA includes measures to preserve, protect, and enhance rare and endangered native plant species. Definitions for “rare and endangered” are different from those contained in CESA. However, the list of species afforded protection in accordance with the NPPA includes those listed as rare and endangered under CESA. NPPA provides limitations on take as follows: “no person will import into this state, or take, possess, or sell within this state” any rare or endangered native plants, except in accordance with the provisions outlined in the act. If a landowner is notified by CDFW, pursuant to section 1903.5 that a rare or endangered plant is growing on their property, the landowner shall notify CDFW at least 10 days prior to the changing of land uses to allow CDFW to salvage the plants.

Natural Community Conservation Planning (NCCP) Program – A NCCP, which is managed by the CDFW, is intended to conserve multiple species and their associated habitats, while also providing for compatible use of private lands. Through local planning, the NCCP planning process is designed to provide protection for wildlife and natural habitats before the environment becomes so fragmented or degraded by development that species listing are required under CESA. Instead of conserving small, often isolated “islands” of habitat for just one listed species, agencies, local jurisdictions, and/or other interested parties have an opportunity through the NCCP to work cooperatively to develop plans that consider broad areas of land for conservation that would provide habitat for many species. Partners enroll in the programs, and by mutual consent, areas considered to have high conservation priorities or values are set aside and protected from development. Partners may also agree to study, monitor, and develop management plans for these high value “reserve” areas. The NCCP provides an avenue for fostering economic growth by allowing approved development in areas with lower conservation value. The project site is in a combined Habitat Conservation Plan (HCP) / NCCP, see Section 3.3.

Sections 1600-1603 of the State Fish and Game Code – The California Fish and Game (Wildlife) Code, pursuant to Sections 1600 through 1603, regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife resources. Under state code, CDFW jurisdiction is assessed in the field based on one, or a combination, of the following criteria:

7) At minimum, intermittent, and seasonal flow through a bed or channel with banks and that also supports fish or other aquatic life.
8) A watercourse having a surface or subsurface flow regime that supports or that has supported riparian vegetation.
9) Hydrogeomorphically distinct top-of-embankment to top-of-embankment limits.
10) Outer ground cover and canopy extents of, typically, riparian associated vegetation species that would be sustained by surface and/or subsurface waters of the watercourse.

The CDFW requires that public and private interests apply for a "Streambed Alteration Agreement" for any project that may impact a streambed or wetland. The CDFW has maintained a "no net loss" policy regarding impacts to streams and waterways and requires replacement of lost habitats on at least a 1:1 ratio.

Section 2081 of the State Fish and Game Code – Under Section 2081 of the California Fish and Game Code, the CDFW authorizes individuals or public agencies to import, export, take, or possess state endangered, threatened, or candidate species in California through permits or memoranda of understanding. These acts, which are otherwise prohibited, may be authorized through permits or "memoranda of understanding" if (1) the take is incidental to otherwise lawful activities, (2) impacts of the take are minimized and fully mitigated, (3) the permit is consistent with regulations adopted in accordance with any recovery plan for the species in question, and (4) the applicant ensures suitable funding to implement the measures required by the CDFW. The CDFW shall make this determination based on the best scientific information reasonably available and shall include consideration of the species' capability to survive and reproduce.

Section 3505.5 of the State Fish and Game Code – This section makes it unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds-of-prey, e.g.: owls, hawks, eagles, etc.) or to take, possess, or destroy the nest or eggs of any bird-of-prey.

Clean Water Act – The Regional Water Quality Control Board (RWQCB) regulates activities pursuant to Section 401(a)(1) of the Clean Water Act (CWA). Section 401 of the CWA specifies that certification from the State is required for any applicant requesting a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities that may result in any discharge into navigable waters. Through the Porter Cologne Water Quality Control Act, the RWQCB asserts jurisdiction over Waters of the State of California (WSC) which is generally the same as WUS but may also include isolated waterbodies. The Porter Cologne Act defines WSC as "surface water or ground water, including saline waters, within the boundaries of the state".

3.3 Coachella Valley Multiple Species Habitat Conservation Plan

Finalized in October 2008, and amended in 2016, the CVMSHCP is a comprehensive regional plan that addresses the conservation needs of 27 species of native flora and fauna and 24 natural vegetation communities occurring throughout the Coachella Valley region of western Riverside County, California. Permits for the CVMSHCP were issued by the CDFW on September 9, 2008 and the United States Fish and Wildlife Service (USFWS) on October 1, 2008 (TE104604-0). Managed by the Coachella Valley Conservation Commission (CVCC), CVMSHCP participants include Riverside County, the Cities of Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, Rancho Mirage, as well as the Coachella Valley Association of Governments (CVAG), Coachella Valley Water

District, Imperial Irrigation District, Mission Springs Water District and the California Department of Transportation (CVAG 2008, 2016).

The CVMSHCP serves two primary purposes: Balancing environmental protection and economic development objectives in the CVMSHCP planning area and simplifying compliance with endangered species related laws. The CVMSHCP accomplishes this by conserving unfragmented habitat to permanently protect and secure viable populations of the covered 27 species within the planning area. The covered species include those plants and animals that are either currently listed as threatened or endangered, are proposed for listing, or are believed by an appointed Scientific Advisory Committee, USFWS and CDFW, to have a high probability of being proposed for listing in the future if not conserved by the CVMSHCP. The goal of the CVMSHCP is to meet the requirements of the ESA and CESA, while at the same time allowing for the economic growth (land development) within the plan area without significant delay or hidden costs. Under the CVMSHCP, land development/mitigation fees are collected from all new development projects occurring in the plan area. The purpose of this fee is to support the assembly of a preserve system for the covered species and natural vegetation communities within areas identified as having high conservation value (CVAG 2008).

4.0 METHODS

4.1 Literature Review

In preparation for the field surveys, a literature search was conducted to identify special status biological resources known from the vicinity of the project site. In the context of this report, and for the purpose of this assessment, vicinity is defined as areas within a 5-mile radius of the project site.

The literature search included a review of the following documents:

- California Natural Diversity Data Base (CNDDB) RareFind 5 (CDFW 2023a)
- Special Animals List (CDFW 20223)
- California Native Plant Society's (CNPS) Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2023a)
- CVMSHCP (CVAG 2008)
- United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2019. Web Soil Survey
- USGS 7.5' *Indio, West Berdoo Canyon, Myoma,* and *La Quinta Calif.* quadrangles (USGS 1972 and 1988)

Scientific nomenclature for this document follows standard reference sources: For plant communities, CVMSHCP (CVAG 2008), Sawyer et. al (2009), and/or Holland (1986); for flora, Jepson eFlora (2022) and the USDA NRCS PLANTS Database (2022); for amphibians, reptiles, and mammals, CDFW (2016); and for birds, California Bird Records Committee (2022).

4.2 Field Assessment

The field assessment was conducted on 17 August 2023 by WSP USA Senior Wildlife Biologist Nathan Moorhatch. On-site suitable habitat was assessed based on the presence of constituent habitat elements (e.g., soils, vegetation, and topography) characteristic of the potentially occurring special status biological resources determined by the literature review. The project ROW and adjacent properties (where accessible) were assessed on foot and by vehicle (in those areas where there was nowhere safe to park and/or were completely paved over) to record pertinent field data and current site conditions. Adjacent undeveloped areas within an approximate 150-meter (~500-foot) buffer zone that were unfenced and unsigned (i.e., not posted with “No Trespassing” and/or “Private Property”) were also assessed for burrowing owl (*Athene cunicularia*). Inaccessible areas were scanned for burrowing owl habitat and sign (i.e., burrows & perches with whitewash) with binoculars. The project ROW on Grapefruit Blvd./Highway 111 is bordered along its entire east side by a Union Pacific Railroad line. Mr. Moorhatch did not cross this rail line for safety/legal reasons, and any buffer beyond this area was not included in the survey. All on-site flora and fauna observed or otherwise detected (e.g., vocalizations, presence of scat, tracks, and/or bones) during the assessment were recorded in field notes and are included in Appendix B. General weather and site conditions were also recorded at the beginning and end of the survey. Temperatures and wind speeds were recorded with a handheld Kestrel 2000 anemometer. Percent cloud cover was visually estimated.

5.0 RESULTS

The proposed bike path route is surrounded by development, primarily commercial, residential, and infrastructure development along the Grapefruit Boulevard segments. The project ROW segments that run along or on Avenue 54 are bordered by a mixture of residential and agricultural development. The entire project ROW has been routinely disturbed or in some areas completely developed and consists of largely barren ground with a scant cover of weedy plant species along the margins. No drainage features occur within the project site. Representative site photos are included in Appendix C.

5.1 Coachella Valley Multiple Species Habitat Conservation Plan

The entire project is located within the CVMSHCP fee area but is not within a conservation area. The northern edge of the project site is located approximately 2.30 miles southwest of the East Indio Hills Conservation Area (Figure 6, Appendix A). The development of the project site will have no effect on the East Indio Hills Conservation Area.

5.2 Weather Conditions

Weather conditions during the field assessment were mostly clear and extremely hot. There was 35-40% cloud cover with temperatures that ranged from 111 to 113 degrees Fahrenheit. Winds were calm to low with wind speeds measured between 0 to 6 miles per hour.

5.3 Topography and Soils

The proposed project alignment is relatively flat. Elevation ranges from 42 feet below sea level at the northern end of the proposed bike path on 48th Street just east of Highway 111 to 106 feet below sea level at the southeast corner of the path at Avenue 54 and the Coachella Sanitary District facility. Eight soil types represented by three soil series occur on the project site. These include: 1) Coachella fine sand, wet, 0 to 2 percent slopes (CrA), 2) Gilman fine sandy loam, wet 0 to 2 percents (GcA), 3) Gilman fine sandy loam, moderately fine substratum, 0 to 2 percent slopes (GDA), 4) Gilman silt loam, 0 to 2 percent slopes (GeA); 5) Gilman silt loam, wet, 0 to 2 percent slopes (GfA), 6) Indio fine sandy loam, wet (Ir), 7) Indio very fine sandy loam, wet (It), and 8) Indio very fine sandy loam (Is); (USDA, NRCS. 2019) (Appendix A - Figure 4).

The Coachella series consists of moderately well drained soils that formed in alluvium derived from igneous rock. This soil series typically occurs on alluvial fans. This soil is considered prime farm land if irrigated and drained. This soil is also known to be non-saline to slightly saline.

Gilman series consists of very deep, well drained soils that formed in stratified stream alluvium that typically occur on flood plains and alluvial fans. Gilman soils are on flood plains and alluvial fans. Gilman soils were historically, and still are used for irrigated cropland and livestock grazing (USDA, NRCS. 2019).

Indio soil series consist of "very deep, well or moderately well drained soils formed in young calcareous, silty mixed alluvium derived from mixed rock sources. They are intermittently moist soils typically found on alluvial fans, lacustrine basins and flood plains that were historically, and still are used for irrigated cropland and livestock grazing (USDA, NRCS. 2019).

The field assessment confirmed that much of the on-site topsoils have been removed during past grading and clearing activities over most of the project ROW. Much of the area on and adjacent to the project ROW has been heavily altered for commercial, residential, and agricultural development, and portions of the proposed bike path are located on the paved Avenue 54.

The site does not contain active sand dunes, drifts, rock outcrops, significant rocky areas, clay lenses, springs, or seeps.

5.4 Vegetation

Much of the proposed bike path route appears to have been cleared of vegetation prior to 1985 (historic aerial imagery Google Earth Pro 2023). The entire project route has been either cleared, completely developed (proposed bike lanes in the paved Avenue 54), or significantly altered (such as through landscaping). The native topsoil has been removed and/or replaced with fill, or in some areas asphalt or concrete. There are no native vegetation communities present on the project footprint, or on the areas immediately adjacent to the project ROW (see Appendix C Site Photographs).

A total of 23 plant species were identified across the project route during the assessment (Appendix B). These included of a mixture of disturbance-tolerant native and non-native and/or weedy species, of which 48% (11) were nonnative species. Representative plant species identified within the project site include big saltbush (*Atriplex lentiformis*), Jimsonweed (*Datura wrightii*), Athel (*Tamarix aphylla*), puncture vine (*Tribulus terrestris*), Bermuda grass (*Cynodon dactylon*), common purslane (*Portulaca oleracea*), alkali heliotrope (*Heliotropium curassavicum* var. *oculatum*), and bush seepweed *(Suaeda nigra).*

5.5 Wildlife

Vertebrate wildlife directly observed and/or detected otherwise (e.g., scat, bones, tracks, feathers, burrows, etc.) during the assessment was not notably diverse or abundant, limited to just two (2) species, both of which are common to the region. This included two bird species tolerant of agricultural, residential, and commercial development and natural areas adjacent to disturbed sites: Eurasian collared-dove (*Streptopelia decaocto)* and turkey vulture (*Cathartes aura*). The number of species detected certainly does not represent the total number of species that may occur on the project site. The low number of wildlife species observed during the field visit is unsurprising considering the intense heat (111°F to 113°F). Brief, one visit assessments are inherently limited by the seasonal timing and short duration of the survey period as well as the nocturnal, fossorial and/or migratory habits of many animals. The disturbed and/or developed condition of the project ROW greatly reduces and/or eliminates the potential for use by most special status species, as many of these require higher quality and/or more extensive areas of natural habitats. Some are habitat specialists requiring aeolian deposits or riparian vegetation, which are not present on the project site. No actively nesting birds were detected on or adjacent to the site during the assessment.

5.6 Special Status Biological Resources

Some plant and/or animal taxa are designated as having special status due to declining populations, limited geographic distributions and/or vulnerability to climate change, habitat loss and/or fragmentation. Some have been listed as threatened or endangered by the USFWS or by the CDFW and are protected by the federal and state ESAs. Others have been identified, and are managed as sensitive by the USFWS, CDFW, or by private conservation organizations, including the CNPS, but have not been formally listed as threatened or endangered. Impacts to such species can still be considered significant under the CEQA, if not avoided, minimized and/or mitigated by specific project design and implementation.

The literature review and field visit resulted in a list of 48 special status biological resources which could potentially occur on the project site and/or vicinity (5-mile radius) of the project site. Tables 1-3 provide a summary of these resources, their current conservation status, habitat associations and potential to occur on the project site. No special status species were observed on-site during the assessment (Appendix B). No species listed as threatened or endangered, or designated as California Species of Special Concern (CSC) by the CDFW were observed on the project ROW.

Table 1. Special Status Plants

Species	Protective Status	Habitat	Flowering Period	Occurrence Probability
Abronia villosa var. aurita Chaparral sand-verbena	F: ND C: ND CNPS List: 1B.1 State Rank: S2 CVMSHCP: No	Chaparral, coastal scrub, desert dunes; found in sandy areas. 245 to 5,250 feet amsl.	(January) March - September	**Absent** Habitat lacking, site below known elevational range of species.
Astragalus lentiginosus var. coachellae Coachella Valley milk-vetch	F: END C: ND CNPS List: 1B.2 State Rank: S1 CVMSHCP: Yes	Annual/Perennial herb found in sandy flats, washes, alluvial fans, sand field, dunes and dune edges, at 130 to 2,150 feet, a CA endemic.	February - May	**Absent** Habitat absent and site is below known elevational range of species.
Astragalus preussii var.laxiflorus Lancaster milk-vetch	F: ND C: ND CNPS List: 1B.1 State Rank: S1 CVMSHCP: No	Alkaline clay flats, sandy/gravelly washes, Chenopod scrub. 2,295 – 2,410 feet in elevation. Known in CA only from near Lancaster and Edwards AFB, where extremely rare.	March - May	**Absent** Habitat not present, site is well below known elevational range of species. Site is also not within known range of species.
Astragalus sabulonum Gravel milk-vetch	F: ND C: ND CNPS List: 2B.2 State Rank: S2 CVMSHCP: No	Desert dunes, Mojavean Desert scrub, Sonoran Desert scrub; usually found on sandy flats and washes, sometimes found on gravelly roadsides. -195 to 3,050 feet.	February - June	**Absent** No native habitat or plant community on site, no Astragalus sp. observed during survey.
Bursera microphylla little-leaf elephant tree	F: ND C: ND CNPS List: 2B.3 State Rank: S2 CVMSHCP: No	Rocky Sonoran desert scrub (including washes), between 655 and 2,295 feet amsl (above mean sea level).	June - July	**Absent** Habitat not present, project is below elevation range of species. A distinctive species that would not have been missed if present.

Species	Protective Status	Habitat	Flowering Period	Occurrence Probability
Ditaxis claryana Glandular ditaxis	F: ND C: ND CNPS List: 2B.2 State Rank: S2 CVMSHCP: No	Mojavean Desert scrub, Sonoran Desert scrub; found in sandy areas. 0 to 1,395 feet.	October - March	**Absent**, site below known elevational range of species (below sea level), no native habitat or plant community on ROW.
Ditaxis serrata var. *californica* California ditaxis	F: ND C: ND CNPS List: 3.2 State Rank: S2? CVMSHCP: No	Usually associated with washes and canyons in desert areas, between 100 and 3,280 feet elevation.	March - December	**Absent** Site is highly disturbed, no *Ditaxis* present and site is below known elevational range of species
Leptosiphon floribundus ssp. *hallii* Santa Rosa Mountains leptosiphon	F: ND C: ND CNPS List: 1B.3 State Rank: S1S2 CVMSHCP: No	Associated with desert canyons in Sonoran desert scrub, Pinyon and juniper woodlands between 3,280 and 6,560 feet amsl.	May – July (November)	**Absent**, site far below known elevational range of species (below sea level), no habitat on or adjacent to the project.
Marina orcuttii var. *orcuttii* California marina	F: ND C: ND CNPS List: 1B.3 State Rank: S2? CVMSHCP: No	Gravelly/rocky hillsides in pinyon-juniper woodland, chaparral, and Sonoran desert scrub between 3,445 and 3,805 feet in elevation.	May - October	**Absent** No habitat on or adjacent to site. Site is far below elevational range of species.
Matelea parvifolia spear-leaf matelea	F: ND C: ND CNPS List: 2B.3 State Rank: S3 CVMSHCP: No	Dry, rocky slopes; desert scrub; mountains, mesas and canyons between 2,000 and 3,000 feet in California. Not common.	Mar – May (July)	**Absent** No habitat on-site, site also below elevational range of species.
Nemacaulis denudata var. *gracilis* slender cottonheads	F: ND C: ND CNPS List: 2B.2 State Rank: S2 CVMSHCP: No	Sandy areas in coastal and desert areas, saltbush scrub, creosote bush scrub, and coastal grasslands between 165 and 1,310 feet elevation.	(March) - May	**Absent** No habitat on-site, site below elevation range of species.
Phaseolus filiformis slender-stem bean	F: ND C: ND CNPS List: 2B.1 State Rank: S1 CVMSHCP: No	Associated with gravelly washes bordered by creosote-dominated rocky slopes at around 400 feet elevation.	April	**Absent** No habitat on-site. ROW is below elevation range of species. CNDDB record is from over 10 miles south of the project.
Pseudorontium cyathiferum Deep Canyon snapdragon	F: ND C: ND CNPS List: 2B.3 State Rank: S1 CVMSHCP: No	Rocky habitats in Sonoran desert scrub (washes, rocky slopes) between 0-2,625 feet elevation.	February - April	**Absent** Not known from Coachella valley floor, no habitat on site.

Species	Protective Status	Habitat	Flowering Period	Occurrence Probability
Selaginella eremophila desert spike-moss	F: ND C: ND CNPS List: 2B.2 State Rank: S2S3 CVMSHCP: No	Often found growing in rock crevices or on rocks (also the ground) on rocky slopes between 655 and 4,250 feet in elevation in desert and desert edge areas.	(May) June – (July) doesn't truly "bloom", but produces antheridia	**Absent** No habitat on-site, site also below elevational range of species.
Senna covesii Cove's cassia	F: ND C: ND CNPS List: 2B.2 State Rank: S3 CVMSHCP: No	Dry sandy desert washes and slopes between 740 and 4,250 feet amsl.	March – June (August)	**Absent** No habitat on-site, site also below elevational range of species.
Stemodia durantifolia purple stemodia	F: ND C: ND CNPS List: 2B.1 State Rank: S2 CVMSHCP: No	Wet or moist sandy areas in riparian habitats (within surrounding Sonoran desert scrub) between 590 and 1,000 feet elevation.	(Jan)April - December	**Absent** No habitat on-site. Project is below known elevation range of species.
Wislizenia refracta ssp. *refracta* jackass-clover	F: ND C: ND CNPS List: 2B.2 State Rank: S1 CVMSHCP: No	Grows on playas, sandy washes, desert dunes, both Mojavean and Sonoran scrubs, alkaline flats, sometimes roadside. Between 1,970 and 2,625 feet amsl.	April - November	**Absent** No habitat on-site. Site is below known elevation range of species.
Xylorhiza cognata Mecca-aster	F: ND, BLM sensitive C: ND CNPS List: 1B.2 State Rank: S2 CVMSHCP: Yes	Grows on sandstone and clay substrates on steep canyon slopes between 65 and 1,000 feet elevation.	Jan - June	**Absent** No habitat on-site, site also below elevational range of species (entire ROW is below sea level). Outside species' range.

Table 2. Special Status Vegetation Communities

Community	Protective Status (F=Federal, C=California)	Occurrence Probability
Desert Fan Palm Oasis Woodland	F: ND C: ND State rank: S3.2 CVMSHCP: No	**Absent** Vegetation community not present.

Table 3. Special Status Wildlife

Species	Protective Status (F=Federal, C=California)	Habitat	Occurrence Probability
Invertebrates			
Danaus plexippus Monarch Butterfly	F: C C: CSC State Rank: S2S3 CVMSHCP: No	Can be found in a variety of areas where milkweed and flowering plants are present; milkweeds are necessary for breeding	**Absent** No milkweed present on-site. Very little remaining vegetation for nectar sources.
Dinacoma caseyi Casey's June beetle	F: END C: ND State rank: S1 CVMSHCP: No	Sandy soils; flightless females live below ground and come to surface only for mating. Known only from two populations in a small area of southern Palm Springs	**Absent** Site outside currently known geographic distribution. No habitat onsite.
Euparagia unidentata Algodones euparagia	F: ND C: ND State Rank: S1S2 CVMSHCP: No	Almost all known records of this species are from desert dune/sand field areas.	**Absent** Habitat lacking, site isolated from sand dune areas.
Macrobaenetes valgum Coachella giant sand treader cricket	F: ND C: ND State Rank: S1S2 CVMSHCP: Yes	Found in the sandy areas of the specialized sand dune ecosystem of Coachella Valley (aka "blow sand" habitat)	**Absent** No habitat onsite or adjacent, site isolated from sand dune areas.
Oliarces clara cheeseweed owlfly	F: ND C: ND State Rank: S2 CVMSHCP: No	Occur on or near bajadas, attracted to elevated topographic features when mating	**Absent** Habitat lacking, also no elevated features for males to congregate at during mating. No native habitat remaining.
Fish			
Cyprinodon macularius Desert pupfish	F: END C: END State rank: S1 CVMSHCP: Yes	Desert ponds, springs, marshes, and streams. Able to adapt to a variety of aquatic habitats, including those having high temperatures and salinities	**Absent** No habitat on or adjacent to site.
Reptiles			
Gopherus agassizii Desert tortoise	F: THR C: THR State Rank: S2S3 CVMSHCP: Yes	Found in desert environments with high plant diversity, digging burrows in soils friable enough for digging.	**Absent** Habitat lacking, site isolated from any adjacent habitat and located in developed areas (residential, commercial, and agricultural).
Phrynosoma mcallii Flat-tailed horned lizard	F: ND C: CSC State rank: S2 CVMSHCP: Yes	Fine sand in desert washes and flats with vegetative cover and ants, generally below 600 feet elevation in Riverside, San Diego, and Imperial Counties.	**Absent** Habitat lacking, site isolated from sand sources.

Species	Protective Status (F=Federal, C=California)	Habitat	Occurrence Probability
Uma inornata Coachella Valley fringe-toed lizard	F: THR C: END State rank: S1 CVMSHCP: Yes	Sandy areas of the Coachella Valley (dunes and sand field habitats)	**Absent** Habitat not present, site isolated from sand sources and any previous sandy topsoils have been removed and/or altered.
Crotalus ruber red-diamond rattlesnake	F: ND C: CSC State rank: S3 CVMSHCP: No	Inhabits a variety of habitats including chaparral, woodland, grassland, and desert edge areas from Coastal San Diego County to eastern slopes of mountains bordering the Colorado Desert.	**Absent** More common in desert edge areas [rocky], no habitat onsite, not expected this far east on the valley floor.
Birds *birds covered by the CVMSHCP still cannot be directly impacted while nesting or in burrows			
Athene cunicularia Burrowing Owl	F: MBTA, BCC C: SSC State: S3 CVMSHCP: Yes	Occupies open, dry grasslands, scrub habitats, agricultural, railroad rights-of-way, and margins of highways, golf courses, and airports. Utilizes ground squirrel burrows and man-made structures, such as earthen berms, cement culverts, cement, asphalt, and debris piles for nesting and shelter.	**Nesting: Absent** No owls or suitable burrows/surrogates present. Closest CNDDB record (2007) is ~0.83 mi. E of Grapefruit Blvd., N of Ave. 50 and S of Ave. 49 **Foraging: Absent** Much of the ROW has been cleared and graded, surrounding open areas also degraded/disturbed
Buteo regalis Ferruginous Hawk	F: ND C: ND State Rank: S3S4 CVMSHCP: No	Prefers arid and semiarid grassland and prairie regions; can also be found at foothills, mid-elevation plateaus, riparian corridors and at desert edges; rock outcrops, solitary trees, and shallow canyons may characterize potential habitat	**Nesting: Absent** No suitable nesting habitat species does not nest in our area (winter visitor only) **Foraging: Absent** The project ROW is roadside in an urban/disturbed setting, does not support prey base to attract this raptor. At best would be a "flyover" along Ave. 54.
Empidonax traillii extimus Southwestern willow flycatcher	F: END C: END State: S1 CVMSHCP: Yes	Nests in large areas of riparian forests and woodlands	**Nesting: Absent** No suitable nesting habitat **Foraging: Absent** No suitable foraging habitat on or adjacent to site.
Falco mexicanus Prairie falcon	F: ND C: WL State: S4 CVMSHCP: No	Another raptor that favors dry, open terrain for foraging, although smaller open areas adjacent to human development are not as commonly used. Usually nests on cliff ledges.	**Nesting: Absent** No suitable nesting habitat **Foraging: Low** Low quality foraging habitat along Ave. 54.

Species	Protective Status (F=Federal, C=California)	Habitat	Occurrence Probability
Lanius ludovicianus loggerhead shrike	F: MBTA C: SSC State Rank: S4 CVMSHCP: No	A variety of open habitats with perches for scanning, and fairly dense shrubs/brush for nesting. Woodlands, pinyon-juniper, Joshua trees, desert oases, scrub and washes.	**Nesting: Absent** No suitable nesting habitat **Foraging: Low** Low potential along Avenue 54.
Polioptila melanura Black-tailed gnatcatcher	F: ND C: WL State rank: S3S4 CVMSHCP: No	Nests in wooded desert wash habitat containing mesquite, palo verde, ironwood, and acacia. May also occur in areas with salt cedar, especially when adjacent to native wooded desert wash habitat. Also occurs in desert scrub habitat in winter.	**Nesting: Absent** Suitable habitat not present. 1928 CNDDB record from adjacent to ROW is now fully developed as First St. in Coachella. **Foraging: Absent** ROW is highly disturbed, no habitat on or adjacent to site.
Pyrocephalus rubinus Vermilion flycatcher	F: ND C: SSC State Rank: S2S3 CVMSHCP: No	Usually found near water in habitats including arid scrub, farmlands, golf courses, desert or savanna, and riparian woodlands	**Nesting: Absent** Marginally suitable habitat present on ROW, but location next to Hwy 111 and development would make occupation very unlikely. **Foraging: Low** Low potential in agricultural areas along Ave. 54.
Toxostoma crissale Crissal thrasher	F: ND C: SSC State rank: S3 CVMSHCP: Yes*	Dense thickets of shrubs or low trees in desert riparian and desert wash habitats. Southeastern California to Texas and northern Mexico.	**Nesting: Absent** Habitat nor present **Foraging: Absent** No habitat present.
Toxostoma lecontei LeConte's thrasher	F: BCC C: ND) State rank: S3 CVMSHCP: Yes	Resident of open desert wash, scrub, alkali scrub, succulent scrub habitats, nests in dense spiny shrubs and cacti in washes, usually within 2-8 feet of the ground.	**Nesting: Absent** Nesting habitat not present. **Foraging: Absent** Same as above
Vireo bellii pusillus Least Bell's vireo	F: END C: END State rank: S2 CVMSHCP: Yes*	Riparian woodland habitats along the riverine systems of Southern California	**Nesting: Absent** No suitable nesting habitat **Foraging: Absent** No suitable foraging habitat.

Species	Protective Status (F=Federal, C=California)	Habitat	Occurrence Probability
Mammals			
Chaetodipus fallax pallidus Pallid San Diego pocket mouse	F: ND C: SSC State rank: S3S4 CVMSHCP: No	Desert border areas in desert wash, desert scrub, desert succulent scrub, pinon-juniper, etc. Associated with sandy herbaceous areas usually in association with rocks or coarse gravel from sea level to 1350 m (4500 ft).	**Absent** Site largely outside preferred range of species and lacking rocky and/or sandy herbaceous areas.
Eumops perotis californicus Western mastiff bat	F: ND C: SSC State rank: S3S4 CVMSHCP: No WBWG: H	Many open, semi-arid to arid areas including conifer and deciduous forests, grasslands, chaparral, and coastal scrubs. Roosts in crevices in cliff faces, buildings, trees and tunnels.	**Absent** Suitable roosting habitat lacking, unlikely to forage due to general lack of vegetation to support a substantial insect population.
Lasiurus xanthinus Western yellow bat	F: ND C: SSC State rank: S3 CVMSHCP: Yes WBWG: H	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis. Roosts in trees, particularly palms. Forages over water and among trees.	**Very Low** Landscaped *Washingtonia* palms (both species) present along parts of ROW, but proximity to development as well as disturbance from traffic/human activities would make a very low probability of occurrence.
Neotoma lepida intermedia San Diego desert woodrat	F: ND C: SSC State rank: S3S4 CVMSHCP: No	Most often in Coastal scrub in southern California (San Diego to San Luis Obispo Counties) but does range into desert areas. Most common in areas with rock outcrops, cliffs, and slopes.	**Absent** Site lacks rocky habitat, cacti and succulent plants absent. Native habitat and topsoils have been removed.
Nyctinomops femorosaccus pocketed free-tailed bat	F: ND C: SSC State rank: S3 CVMSHCP: No WBWG: M	Colonial and roosts primarily in crevices of rugged cliffs, high rocky outcrops and slopes. It has been found in a variety of plant associations, including desert shrub and pine-oak forests. The species may also roost in buildings, caves, and (rarely) under roof tiles.	**Absent** Most of the ROW does not have roosting habitat, proximity to development and human disturbance likely to preclude presence. Not expected to forage in vicinity either.

Species	Protective Status (F=Federal, C=California)	Habitat	Occurrence Probability
Ovis canadensis nelsoni pop 2 Peninsular bighorn sheep DPS	F: END C: THR, FP State rank: S2 CVMSHCP: Yes	Eastern slopes of the Peninsular Ranges generally below 4,600 ft. elev., range of this DPS is from the San Jacinto Mtns. south to the international border. Optimal habitat includes steep-walled canyons and ridges bisected by rocky/sandy washes w available water.	**Absent** No suitable habitat on site, site is not within the known range of this subspecies (too far east on the valley floor).
Perognathus longimembris bangsi Palm Springs pocket mouse	F: BLM Sensitive C: SSC State Rank: S2 CVMSHCP: Yes	Sonoran Desert habitats with level to gently sloping topography, sparse to moderate vegetative cover, and loosely packed or sandy soils.	**Absent** Suitable habitat lacking, no native plant community. Most of the ROW is highly disturbed/developed.
Taxidea taxus American Badger	F: ND C: SSC State Rank: S3 CVMSHCP: No	Can be found in brushy areas and hot desert habitats, occasionally found in open chaparral and riparian zones; typically have numerous burrows in areas with substantial rodent populations	**Absent** Suitable habitat lacking and project site does not support a substantial rodent population due to disturbance, lack of vegetation, and immediate proximity to development.
Xerospermophilus tereticaudus chlorus Coachella Valley (Palm Springs) round-tailed ground squirrel	F: ND C: SSC State Rank: S2 CVMSHCP: Yes	Prefers open, flat, grassy areas in fine-textured, sandy soil in desert succulent scrub, desert wash, desert scrub, alkali scrub, & levees.	**Absent** Suitable habitat lacking, project ROW is mainly roadside (paved) and surrounded by commercial and residential development. 1938 CNDDB record is now also developed as First St. in Coachella.

Definitions of occurrence probability:

Occurs: Observed on the site by AMEC personnel or recorded on-site by other qualified biologists.

High: Observed in similar habitat in region by qualified biologists, or habitat on the site is a type often utilized by the species and the site is within the known range of the species.

Moderate: Reported sightings in surrounding region, or site is within the known range of the species and habitat on the site is a type occasionally used by the species.

Low: Site is within the known range of the species but habitat on the site is rarely used by the species.

Absent: A focused study failed to detect the species, or no suitable habitat is present.

Definitions of status designations and occurrence probabilities.

Federal designations: (federal Endangered Species Act, US Fish and Wildlife Service):

- END: Federally listed, Endangered.
- THR: Federally listed, Threatened.
- BCC: Bird of Conservation Concern
- C: Candidate for Federal listing
- ND: Not designated.

State designations: (California Endangered Species Act, California Dept. of Fish and Game)

- END: State listed, Endangered.
- THR: State listed, Threatened.

RARE: State listed as Rare (Listed "Rare" animals have been re-designated as Threatened, but Rare plants have retained the Rare designation.)
CSC: California Special Concern Species.
WL: Watch List Species.
ND: Not designated.

CDFW CNDDB rankings: Animals
S1 = Extremely endangered: <6 viable occurrences or <1,000 individuals, or < 2,000 acres of occupied habitat
S2 = Endangered: about 6-20 viable occurrences or 1,000 - 3,000 individuals, or 2,000 to 10,000 acres of occupied habitat
S3 = Restricted range, rare: about 21-100 viable occurrences, or 3,000 – 10,000 individuals, or 10,000 – 50,000 acres of occupied habitat
S4 = Apparently secure; some factors exist to cause some concern such as narrow habitat or continuing threats
S5 = Demonstrably secure; commonly found throughout its historic range
SH = all sites are historical, this species may be extinct, further field work is needed

CDFW CNDDB rankings: Plants and Vegetation Communities
S1 = Less than 6 viable occurrences OR less than 1,000 individuals OR less than 2,000 acres
S1.1 = very threatened
S1.2 = threatened
S1.3 = no current threats known
S2 = 6-20 viable occurrences OR 1,000-3,000 individuals OR 2,000-10,000 acres
S2.1 = very threatened
S2.2 = threatened
S2.3 = no current threats known
S3 = 21-80 viable occurrences or 3,000-10,000 individuals OR 10,000-50,000 acres
S3.1 = very threatened
S3.2 = threatened
S3.3 = no current threats known
S4 = Apparently secure within California; this rank is clearly lower than S3, but factors exist to cause some concern. i.e., there is some threat, or somewhat narrow habitat.
S5 = Demonstrably secure to ineradicable in California.

California Native Plant Society (CNPS) designations:
California Rare Plant Ranks (CRPR) Note: According to the CNPS (http://www.cnps.org/programs/Rare_Plant/inventory/names.htm), ALL plants on Lists 1A, 1B, 2A, and 2B meet definitions for state listing as threatened or endangered under Secs. 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code. Certain plants on Lists 3 and 4 do as well.
The CDFW (http://www.dfg.ca.gov/hcpb/species/t_e_spp/nat_plnt_consv.shtml) states that plants on Lists 1A, 1B, 2A, and 2B of the CNPS Inventory consist of plants that may qualify for listing, and recommends they be addressed in CEQA projects (CEQA Guidelines Section 15380). However, a plant need not be in the Inventory to be considered a rare, threatened, or endangered species under CEQA. In addition, CDFW recommends, and local governments may require, protection of plants which are regionally significant, such as locally rare species, disjunct populations of more common plants, or plants on the CNPS Lists 3 and 4.
List 1A: Plants presumed extinct in California.
List 1B: Plants rare and endangered in California and throughout their range.
List 2A: Plants presumed extirpated in California, but more common elsewhere.
List 2B: Plants rare, threatened, or endangered in California, but more common elsewhere.
List 3: Plants for which more information is needed.
List 4: Plants of limited distribution; a "watch list."
CA Endemic: Taxa that occur only in California
CNPS Threat Code:
.1 - Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 – Fairly endangered in California (20-80% occurrences threatened)
.3 – Not very endangered in California (<20% of occurrences threatened, or no current threats known)
Note: All List 1A (presumed extinct in California) and some List 3 (need more information- a review list) plants lacking any threat information receive no threat code extension. Also, these Threat Code guidelines represent a starting point in the assessment of threat level. Other factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are also considered in setting the Threat Code.

Western Bat Working Group (WBWG) designations:
The Western Bat Working Group is comprised of agencies, organizations and individuals interested in bat research, management and conservation from the 13 western states and provinces. Its goals are (1) to facilitate communication among interested parties and reduce risks of species decline or extinction; (2) to provide a mechanism by which current information on bat ecology, distribution and research techniques can be readily accessed; and (3) to develop a forum to discuss conservation strategies, provide technical assistance and encourage education programs.

H: High: Species which are imperiled or are at high risk of imperilment based on available information on distribution, status, ecology and known threats.

M: Medium: Species which warrant a medium level of concern and need closer evaluation, more research, and conservation actions of both the species and possible threats. A lack of meaningful information is a major obstacle in adequately assessing these species' status and should be considered a threat.

L: Low: Species for which most of the existing data support stable populations, and for which the potential for major changes in status in the near future is considered unlikely. There may be localized concerns, but the overall status of the species is believed to be secure. Conservation actions would still apply for these bats, but limited resources are best used on High and Medium status species.

P: Periphery: This designation indicates a species on the edge of its range, for which no other designation has been determined.

CVMSHCP designations
Yes: Conserved by the CVMSHCP
No: Not Specifically Conserved by the CVMSHCP
C: Considered, but not included in the CVMSHCP

5.7 Discussion of the Special-status Species Tables

Much of the proposed bike path route appears to have been cleared of vegetation prior to 1985 (historic aerial imagery Google Earth Pro 2023). The entire project route has been either cleared, completely developed (proposed bike lanes in the paved Avenue 54), or significantly altered (such as through landscaping). The proposed bike path route is surrounded by development, primarily commercial, residential, and infrastructure development along the Grapefruit Boulevard/Hwy 111 segments. The project ROW segments that run along or on Avenue 54 are bordered by a mixture of residential and agricultural development. The entire project ROW has been routinely disturbed or in some areas completely developed and consists of largely barren ground with a scant cover of weedy plant species along the margins. The Union Pacific Railroad alignment borders the entire stretch of the proposed bike path that runs along the east side of Grapefruit Boulevard/Hwy 111. All of this serves to illustrate that this project is located in an almost completely developed area devoid of natural habitat and plant communities. Unsurprisingly, of the 48 special status biological resources listed in Tables 1-3, 44 have no potential for occurrence. They will not be discussed further. Three bird species: Prairie falcon (*Falco mexicanus*), vermilion flycatcher (*Pyrocephalus rubinus*), and loggerhead shrike (*Lanius ludovicianus*) are expected to have a low probability to forage over the site (although this would be rare given the extensively disturbed nature of the site and area) and are not expected to nest on the proposed project area. Only one sensitive mammal: western yellow bat (*Lasiurus xanthinus*) is expected to have any potential to occur along the project route. There is a very low potential for this species to roost in the skirts of some of the landscaped palms present adjacent to a few areas of the proposed bike path route along Grapefruit Boulevard/Hwy. 111 and Avenue 54. Please refer to Appendix C Site Photographs to observe the current site conditions and level of disturbance.

5.7.1 CVMSHCP Covered Species

Sixteen of the species listed in Tables 1 – 3 are conserved under the CVMSHCP: Coachella Valley milk-vetch, Mecca aster, Coachella giant sand treader cricket, desert pupfish, desert tortoise, flat-tailed horned lizard, Coachella Valley fringe-toed lizard, burrowing owl, Southwestern willow flycatcher, crissal thrasher Le Contes' thrasher, Least Bell's vireo, western yellow bat, Palm Springs pocket mouse, Coachella Valley (Palm Springs) round-tailed ground squirrel, and Peninsular bighorn sheep. Only one of these species is expected to have any potential to occur on the project site, and that is a very low probability (see discussion in Section 5.7 above). Furthermore, participation in the CVMSHCP, payment of the CVMSHCP development/mitigation fee and participation in the plan will fully mitigate project related impacts (although none are anticipated) to any of these CVMSHCP covered species.

No burrows suitable for burrowing owl use were observed on or adjacent to the project site. Where accessible, adjacent vacant lands were surveyed within 500 feet of the site. No burrowing owls, their sign, or burrows capable of supporting owls were observed in this buffer area. The burrowing owl is not listed as threatened or endangered by the USFWS or CDFW. It is, however, managed as a Bird of Conservation Concern (BCC) by the USFWS and designated as a SSC by the CDFW. It is also protected from take by the MBTA and California Fish and Game Code. The burrowing owl is a covered species under the CVMSHCP, however the federal permit for the CVMSHCP does not allow take of this species under the MBTA. For these reasons, all burrowing owls must be avoided or relocated prior to any ground disturbing activities. A preconstruction survey for burrowing owl can be performed prior to construction to ensure that no owls have moved onto the site in the interim time between this survey and project implementation.

5.7.2 Potentially Occurring Species Not Covered Under the CVMSHCP and USFWS IPAC Species

Only three special status species that are not covered by the CVMSHCP are considered to have at least some potential to forage on or over the project site. Prairie falcon, loggerhead shrike, and vermilion flycatcher are expected to have a low probability to forage over the site (although this would be rare given the extensively disturbed nature of the site and surrounding area). None of these birds are listed as threatened or endangered by either State or Federal agencies but vermilion flycatcher and loggerhead shrike are considered "Species of Special Concern" by the California Department of Fish and Wildlife (CDFW), prairie falcon is considered a "Watchlist" species by CDFW.

The USFWS IPAC report generated for this project lists five sensitive wildlife species and one plant as having potential to be affected by development of this project. As discussed in Tables 1 – 3 in Section 5.6, none of these species would be expected to occur on this site. Monarch butterflies require milkweeds for larval development and other flowering plants for adult nectar sources. No milkweed were observed on the site, and flowering plants were limited to a sparse growth of mainly weedy species along some of the street edges. This species is not expected to utilize this site (apart from the occasional transient individual passing through). There is no habitat present for desert tortoise, Coachella Valley fringe-toed lizard, least Bell's vireo, southwestern willow flycatcher, or Coachella Valley milk-vetch on or adjacent to the project site.

Should project-related disturbance be conducted during the nesting season (1 February through 31 August), a nesting bird clearance survey is recommended to ensure that implementation of the proposed project does not impact nesting birds.

6.0 DISCUSSION

The proposed project consists of installing 3.8 miles of Class I Bike Path along Highway 111/Grapefruit Boulevard between Avenue 48 and Avenue 54 (with a gap between Leoco Lane and 9th Street where there is an existing segment of bike path); and 3.2 miles of Class II Bike lanes on Avenue 54 between Polk Street and Van Buren Street. As discussed in Section 5.7 the project site has been cleared of vegetation for at least the past 14 years, with some portions of the project site having been cleared for almost 20 years. The site has been graded, compacted, and soil binders have been applied in the past (as seen in historic aerial photographs and visual evidence at the time of the field survey). The "native" or natural topsoil has been removed quite some time ago. The project site is also located in an area that consists of commercial development with a few vacant lots that have also been cleared and graded. There is no native habitat on the project site or in the immediate vicinity. It provides no connectivity to any adjacent native habitat or conservation areas. The project site does not contain any United States Army Corps of Engineers, Regional Water Quality Control Board, or CDFW jurisdictional waters. The project site is not within and/or adjacent to any CVMSHCP Conservation Areas, so will not be subject to CVMSHCP land use adjacency guidelines. Nevertheless, implementation of the proposed project is expected to permanently disturb all areas within the project site, which in turn may potentially result in direct or indirect disturbance to biological resources, sensitive and otherwise, occurring (not anticipated), or potentially occurring on- and/or adjacent to the site. We have made recommendations above for the protection of these species. Additionally, to prevent impacts to all native birds protected by the MBTA and state fish and game code, the following measures should be taken:

6.1 Protection of Nesting Birds

All native bird species that are excluded from coverage under the CVMSHCP are still protected by the MBTA and the state Fish and Game Code. This includes virtually all native migratory and resident bird species. Avoidance of impacts to these birds is a requirement of the federal permit issued for the CVMSHCP. To avoid impacting nesting birds either avoidance of project-related disturbance during the nesting season (1 February through 31 August) or nesting bird surveys conducted by a qualified ornithologist or biologist immediately prior to on-site disturbance during the nesting season would be required. If nesting birds are found, no work would be permitted near the nest until young have fledged. There is no established protocol for nest avoidance, however, when consulted the CDFW generally recommends avoidance buffers of about 500 feet for birds-of-prey and species listed as threatened or endangered, and 100–300 feet for unlisted songbirds.

6.2 Burrowing Owl

As noted above, no burrowing owls or their sign were observed on the project ROW. Also, no burrows or burrow surrogates that could be used by burrowing owls were present on or adjacent to the proposed bike path routes at the time of this survey. This species nests and roosts underground so is uniquely vulnerable to ground disturbing activities. A pre-construction survey following CDFG (2012) guidelines must be conducted prior to initiating construction to ensure that no owls have moved onto the site in the interim between this survey and project startup. Unless avoidable, all burrowing owls present must be relocated prior to any ground disturbing activities. If burrowing owls remain on-site, a Burrowing Owl Relocation and Management Plan will be prepared to describe and outline how the burrowing owl will be actively or passively relocated per CDFW guidelines. Prior to construction, any owls occurring on-site will be relocated prior to vegetation removal or grading activities. Relocation will require prior permission from the CDFW, at a minimum. Since the burrowing owl is a covered species under the CVMSHCP, additional mitigation/conservation measures will not be required.

7.0 CONCLUSION

With the implementation of the recommendations above, impacts to special status biological resources are anticipated to be avoided, minimized, and/or mitigated in accordance with the CVMSHCP and other resource agency requirements.

8.0 LITERATURE CITED AND REFERENCES

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USGS 7.5' *Indio, La Quinta, Myoma, and West Berdoo Canyon, Calif.* 7.5-minute topographic quadrangles (USGS 1972 and 1988)

APPENDIX A

FIGURES

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c)

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig1_RegionalSetting.mxd, jason.erlich 9/6/2023

1 inch = 1 miles

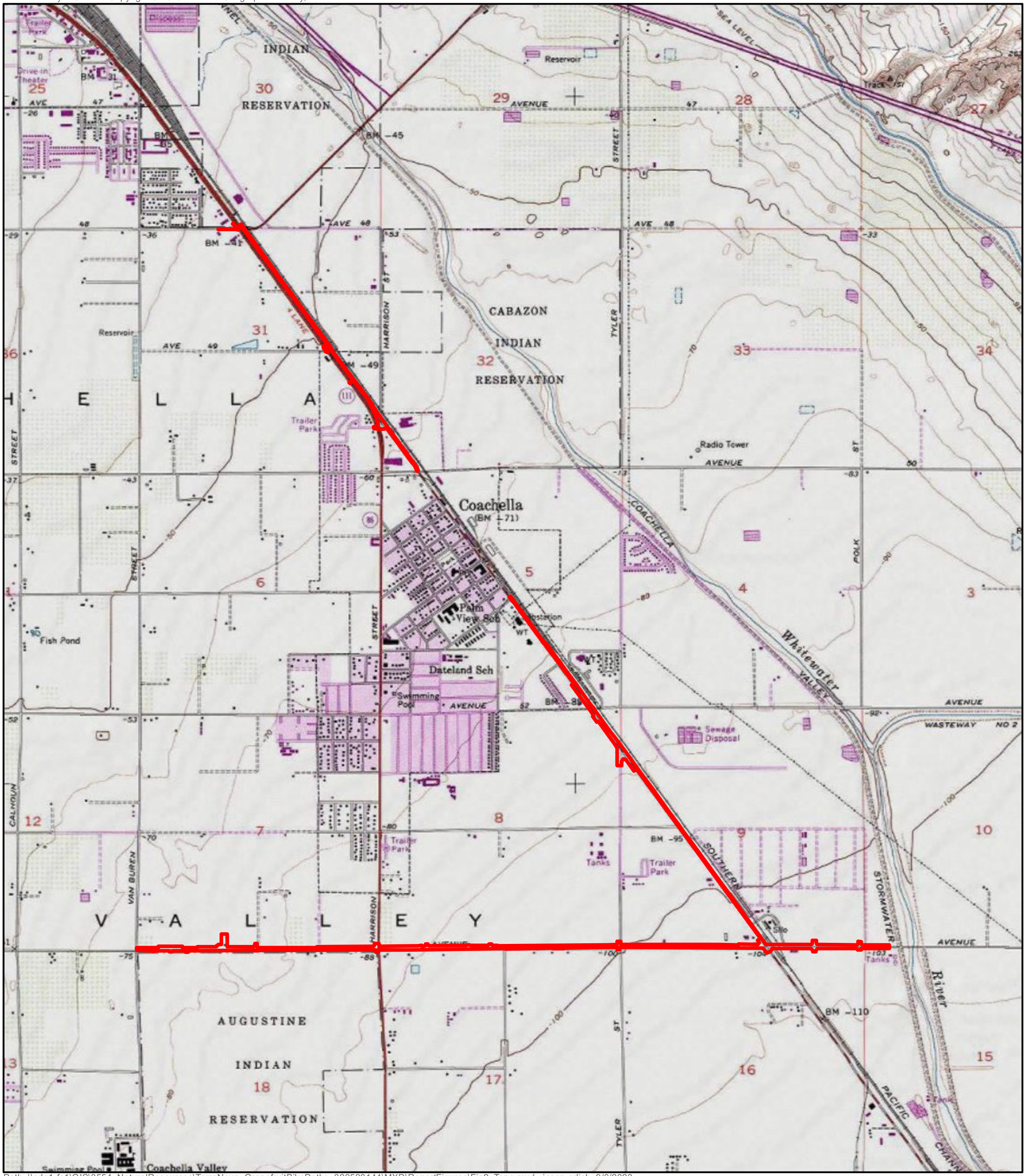
0 0.5 1 Miles

Project Area

FIGURE 1

Regional Setting
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed



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1 inch = 3,000 feet

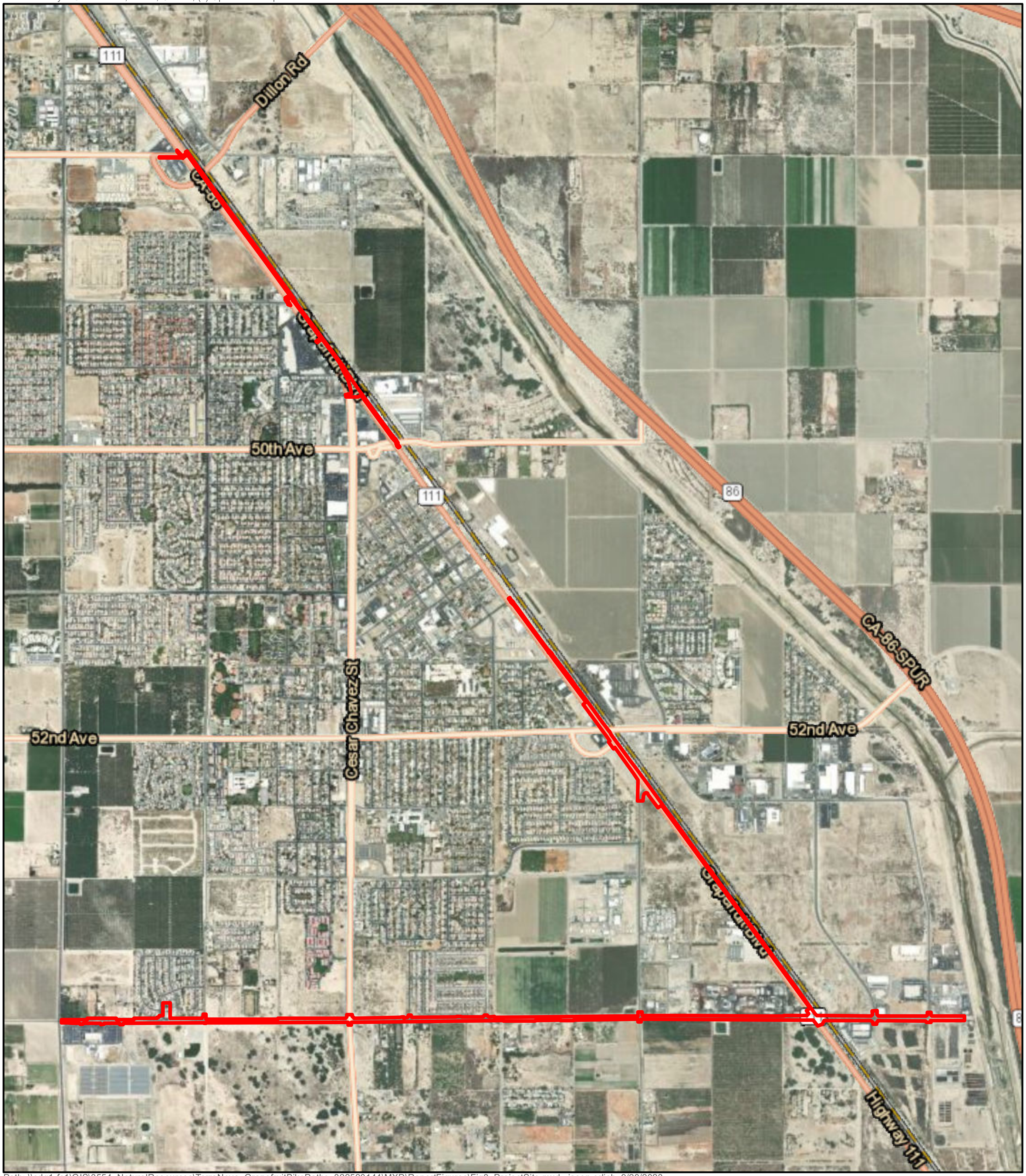
0 1,500 3,000 Feet

Project Area

FIGURE 2

USGS 7.5' Topo Quad: Indio
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



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1 inch = 2,500 feet

0 1,250 2,500 Feet

Project Area

FIGURE 3

Project Site
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

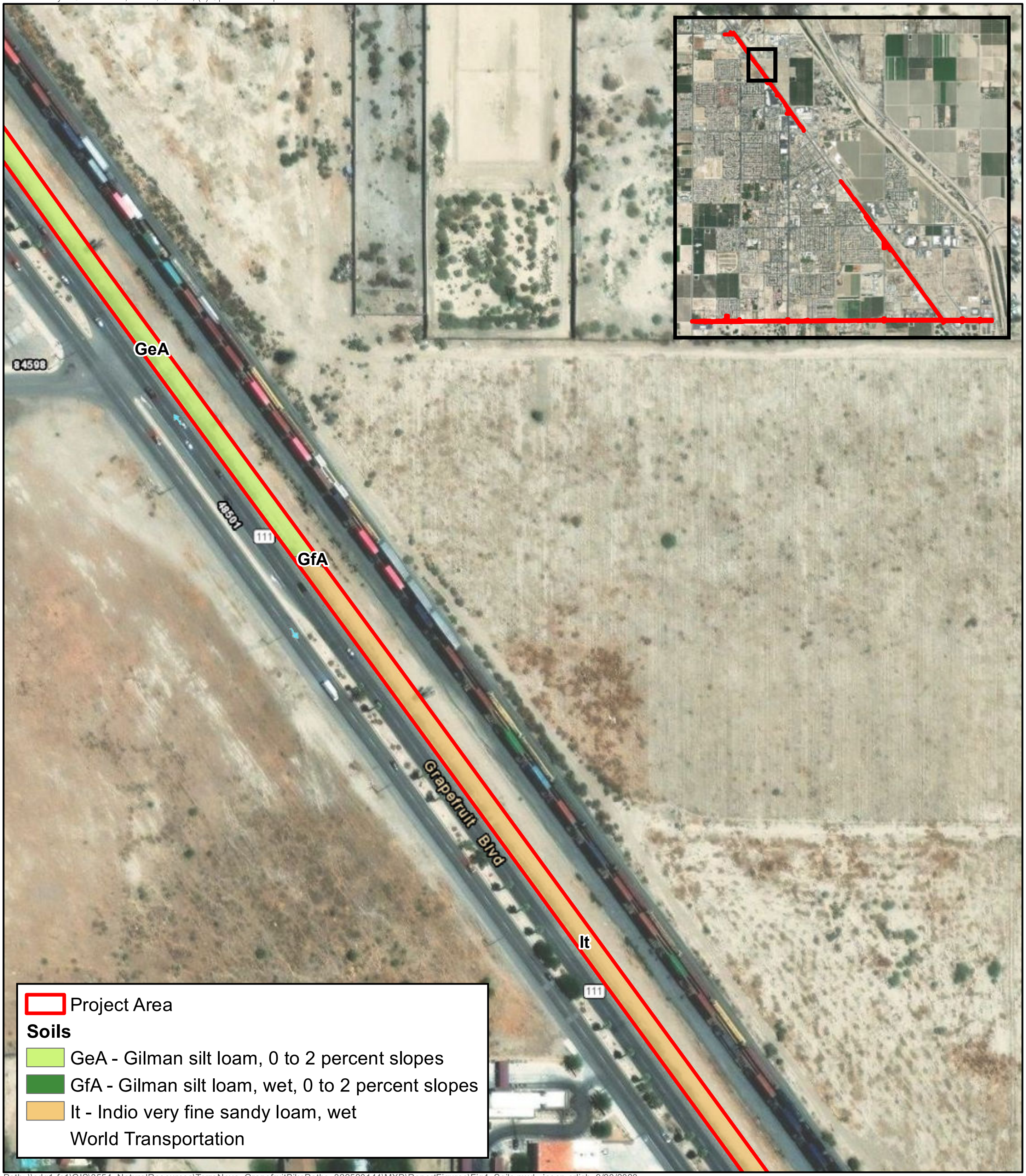
Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig4_Soils.mxd, jason.erlich 9/20/2023

wsp

FIGURE 4a

Soils
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



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1 inch = 200 feet

0 100 200 Feet

wsp

FIGURE 4b

Soils
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig4_Soils.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

wsp

FIGURE 4c

Soils
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig4_Soils.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

wsp

FIGURE 4d

Soils

Grapefruit Avenue Bike Paths Project

Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig4_Soils.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

wsp

FIGURE 4e

Soils
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

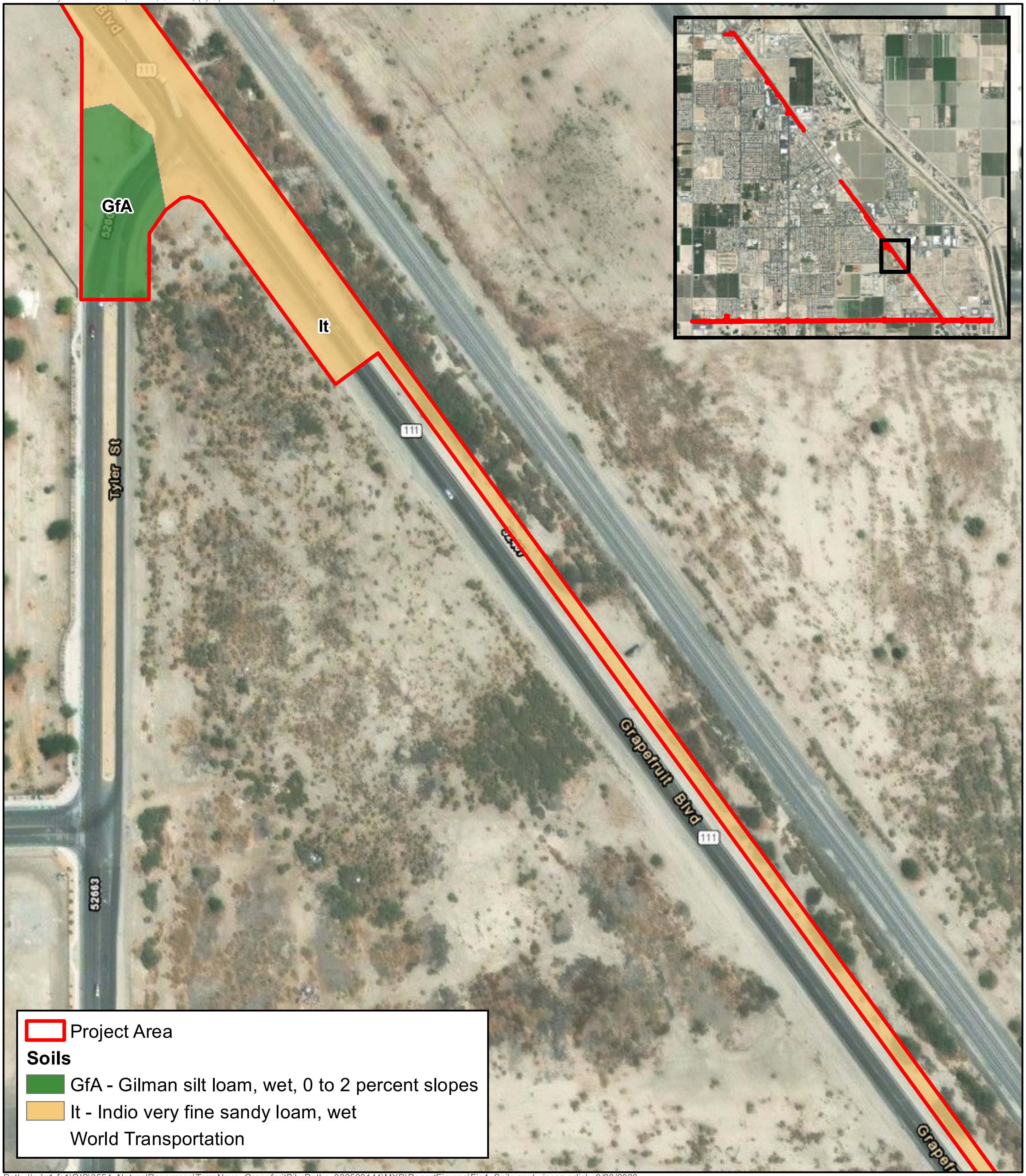
Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig4_Soils.mxd, jason.erlich 9/20/2023

wsp

FIGURE 4f

Soils
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



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1 inch = 200 feet

0 100 200 Feet

wsp

FIGURE 4g

Soils
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig4_Soils.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

FIGURE 4h

Soils
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig4_Soils.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

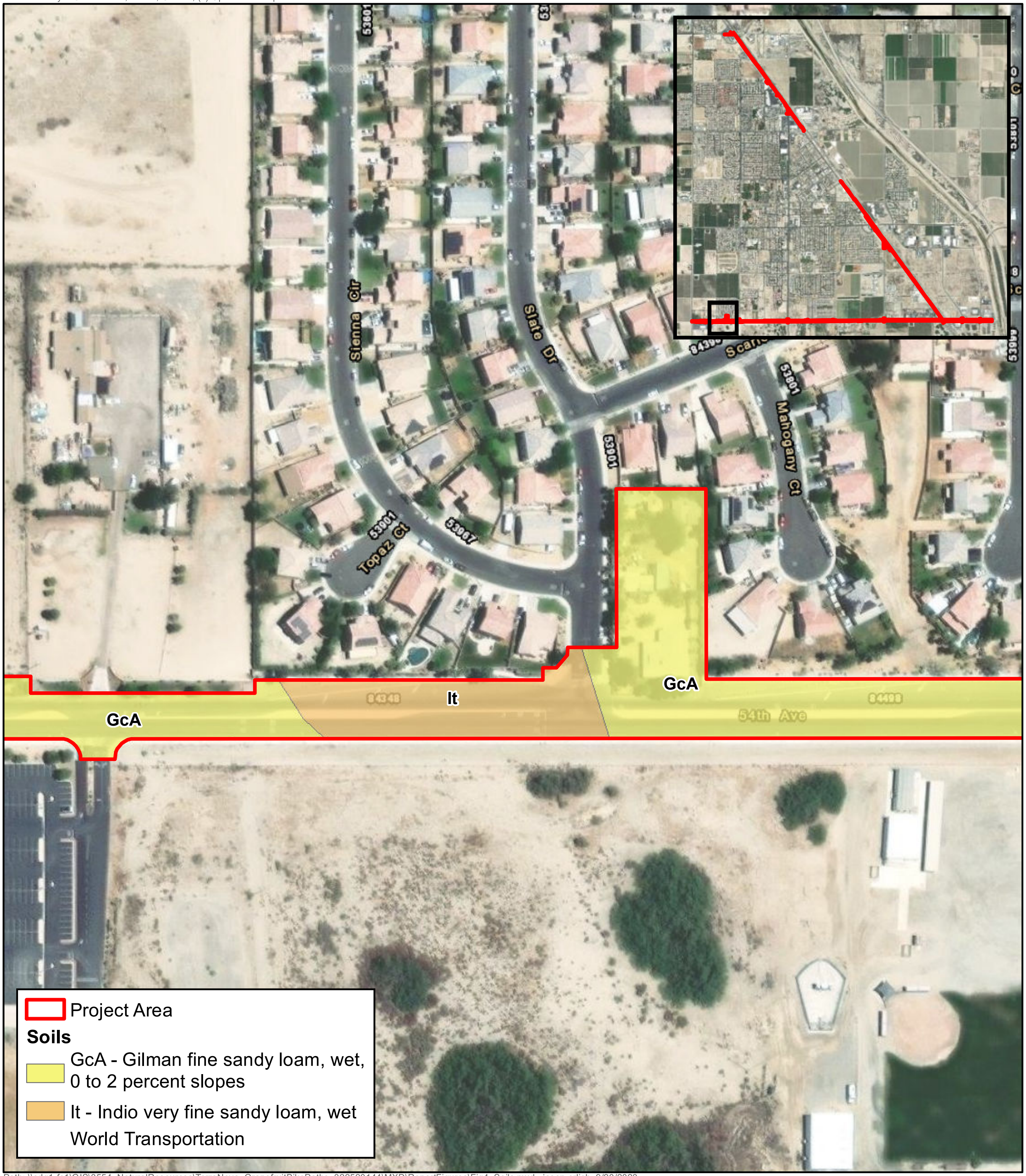
0 100 200 Feet

wsp

FIGURE 4i

Soils
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



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1 inch = 200 feet

0 100 200 Feet

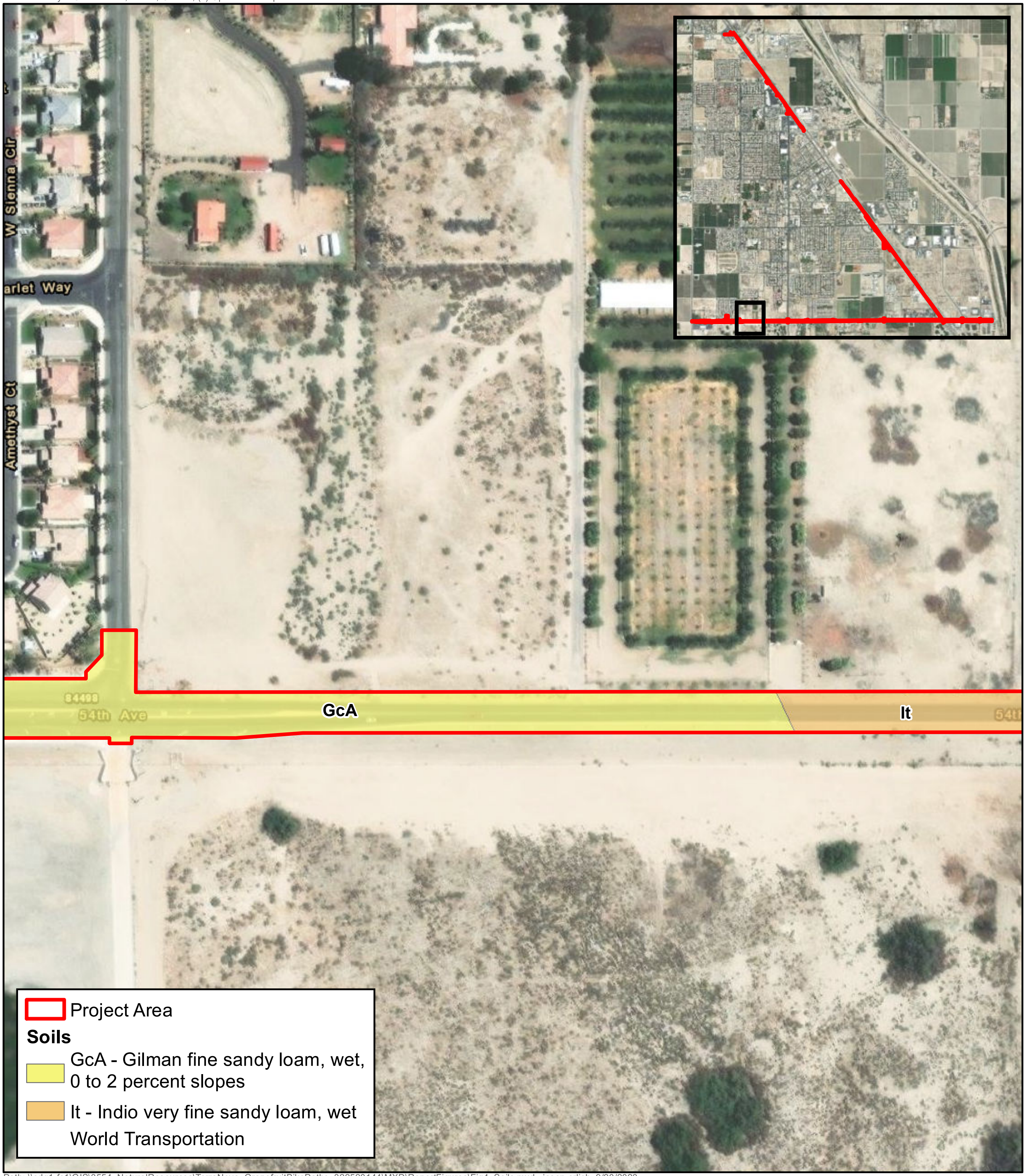
FIGURE 4j

Soils

Grapefruit Avenue Bike Paths Project

Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



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1 inch = 200 feet

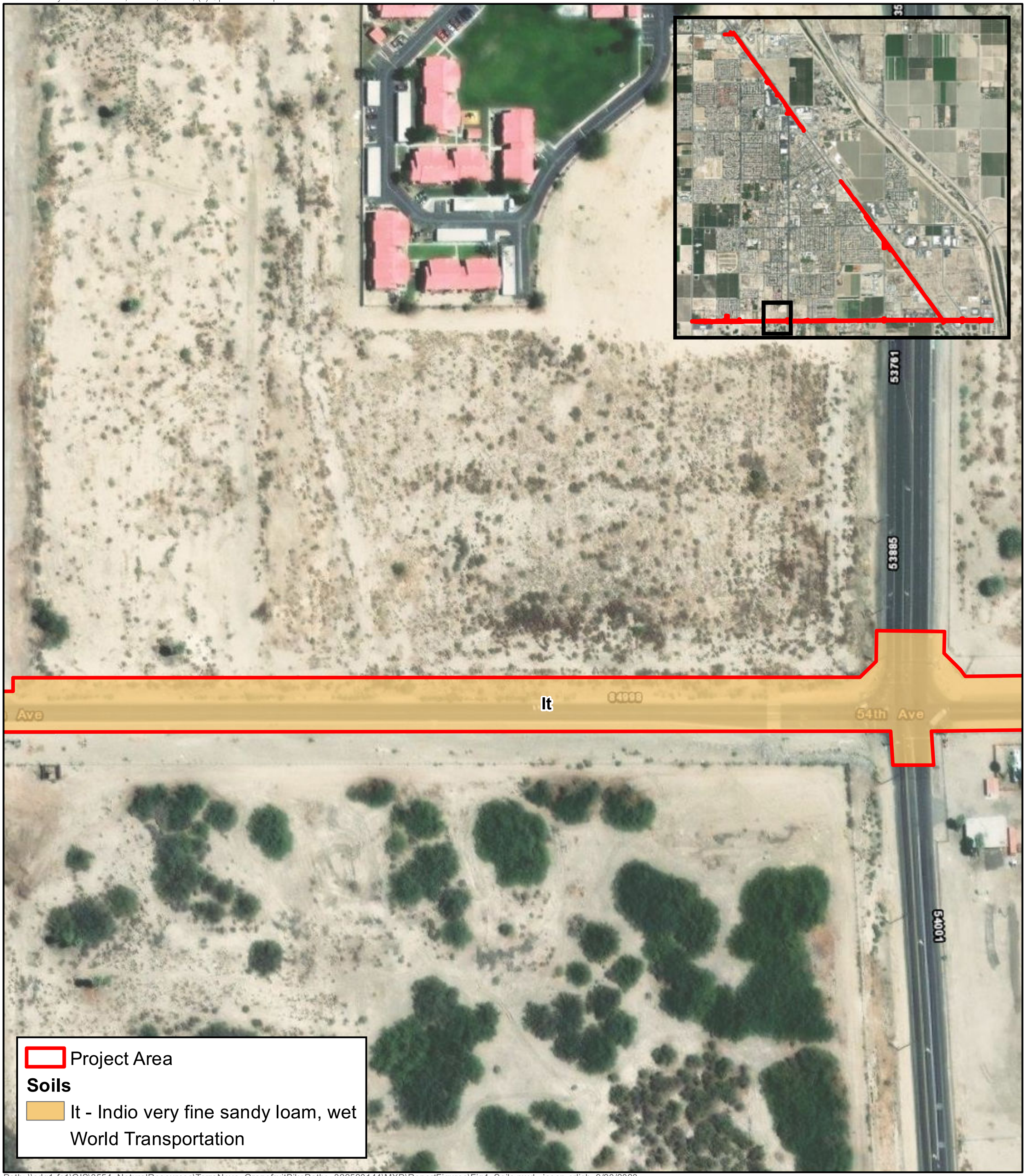
0 100 200 Feet

wsp

FIGURE 4k

Soils
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



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1 inch = 200 feet

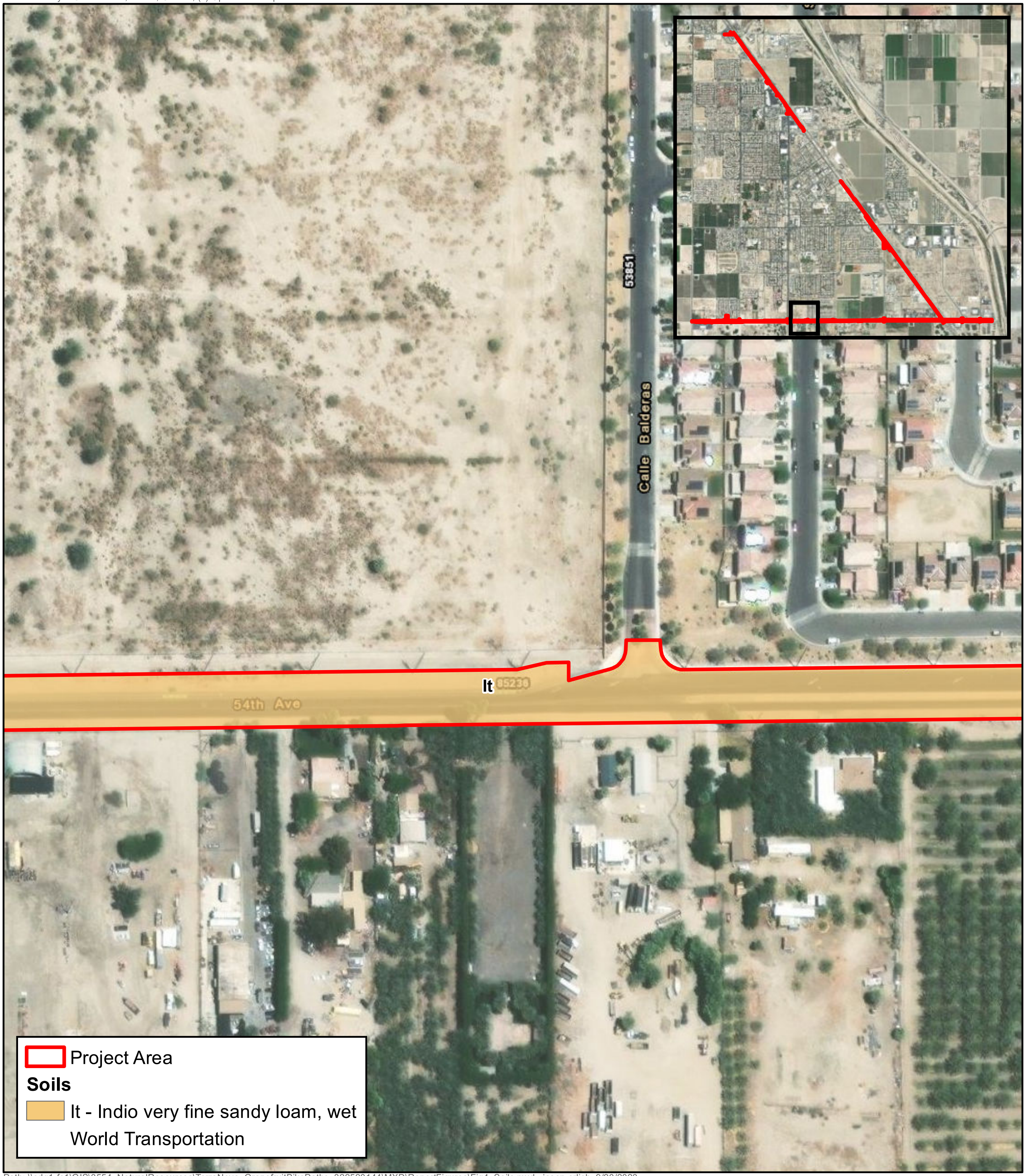
0 100 200 Feet

wsp

FIGURE 4l

Soils
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



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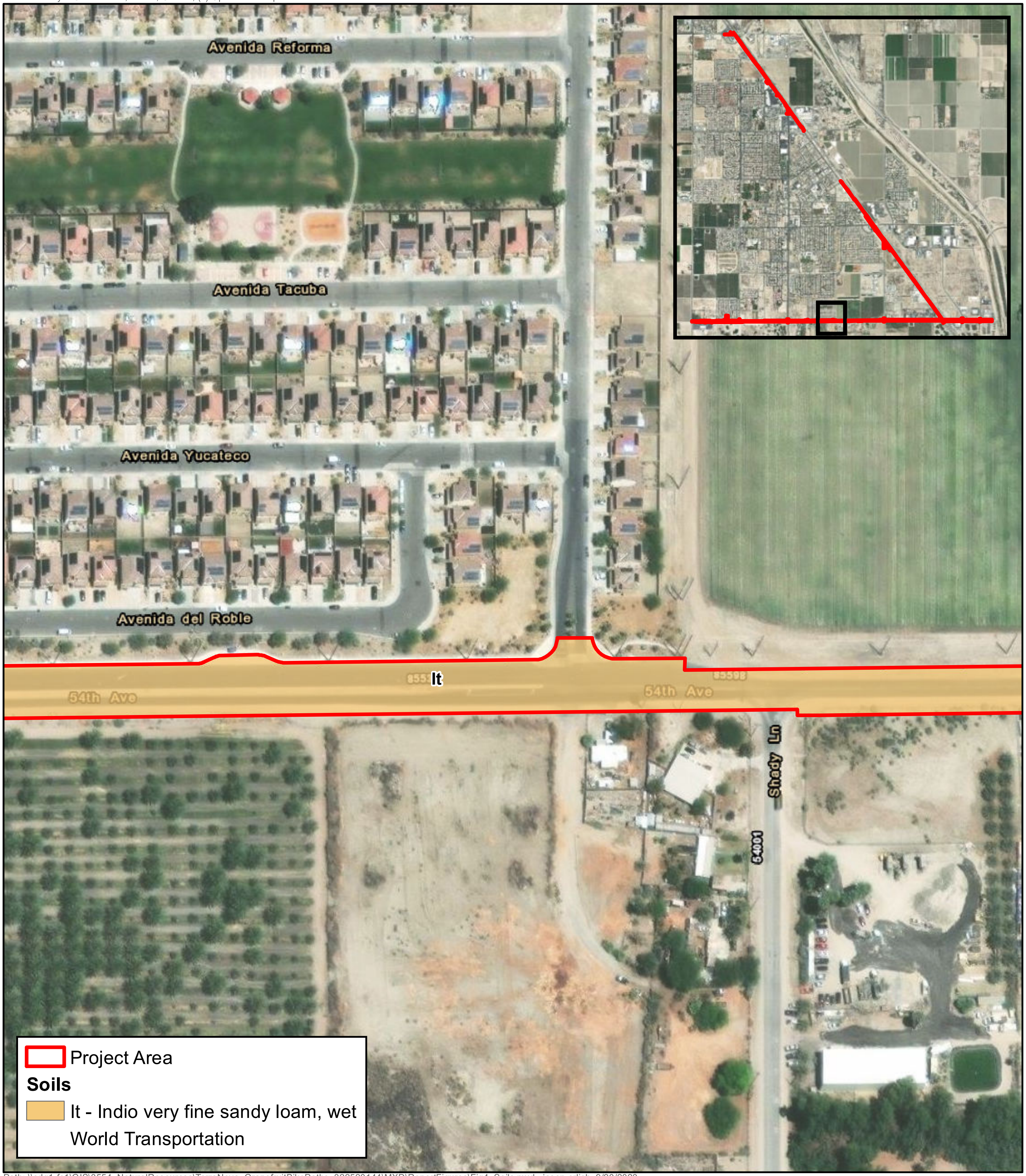
1 inch = 200 feet
0 100 200 Feet

wsp

FIGURE 4m

Soils
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



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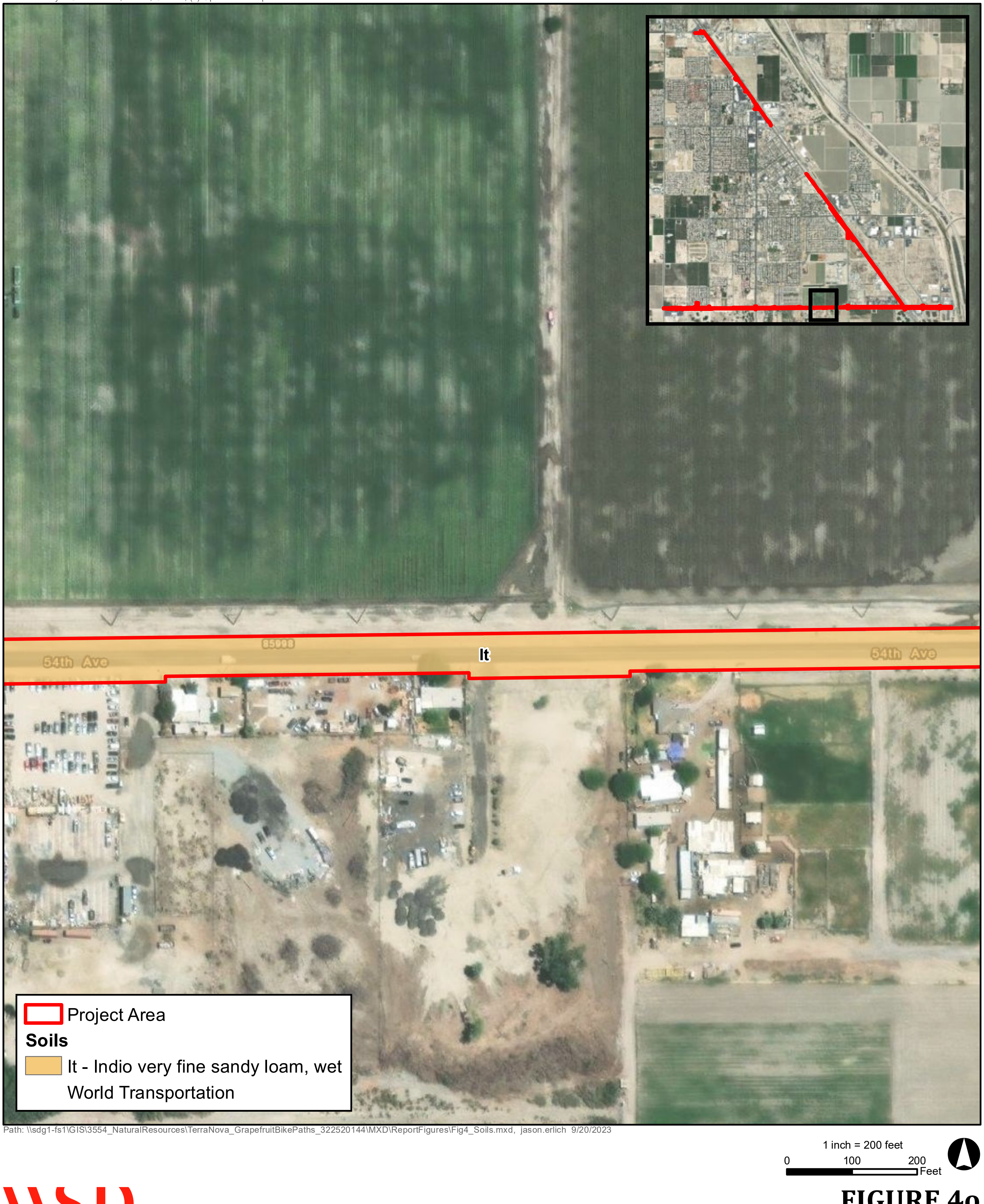
1 inch = 200 feet

0 100 200 Feet

FIGURE 4n

Soils
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



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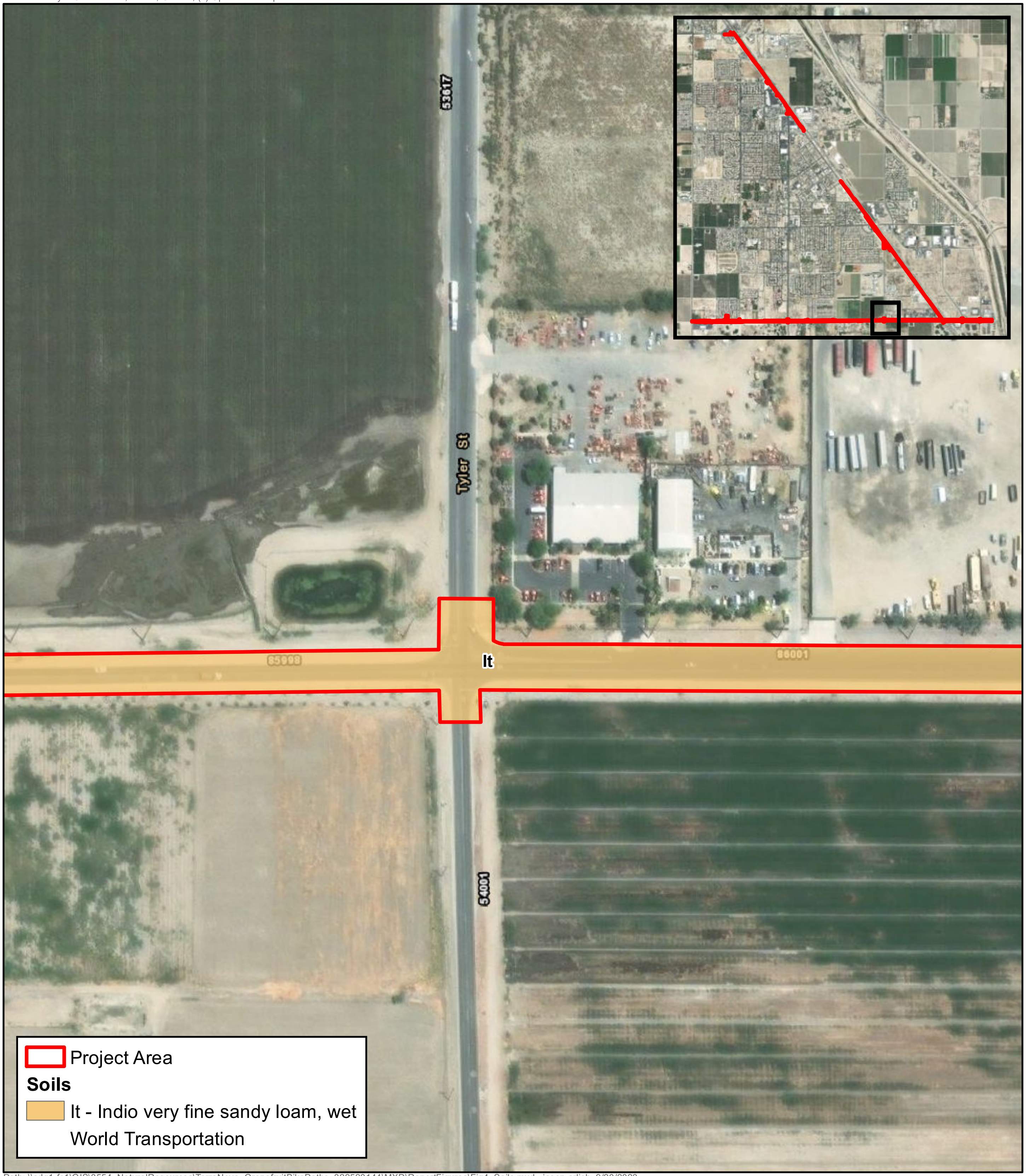
wsp

FIGURE 4o

Soils
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



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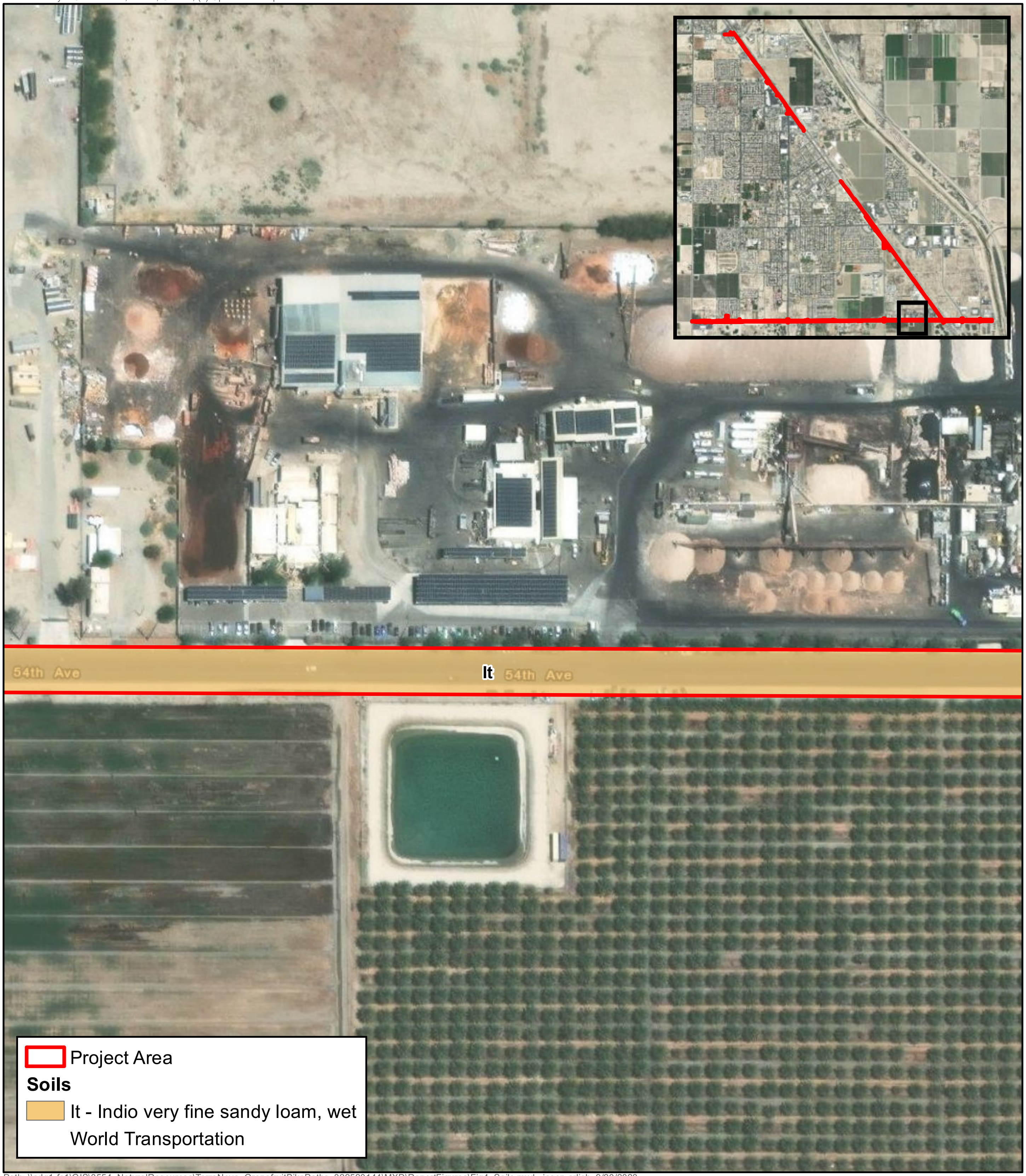
1 inch = 200 feet

0 100 200 Feet

FIGURE 4p

Soils
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



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1 inch = 200 feet

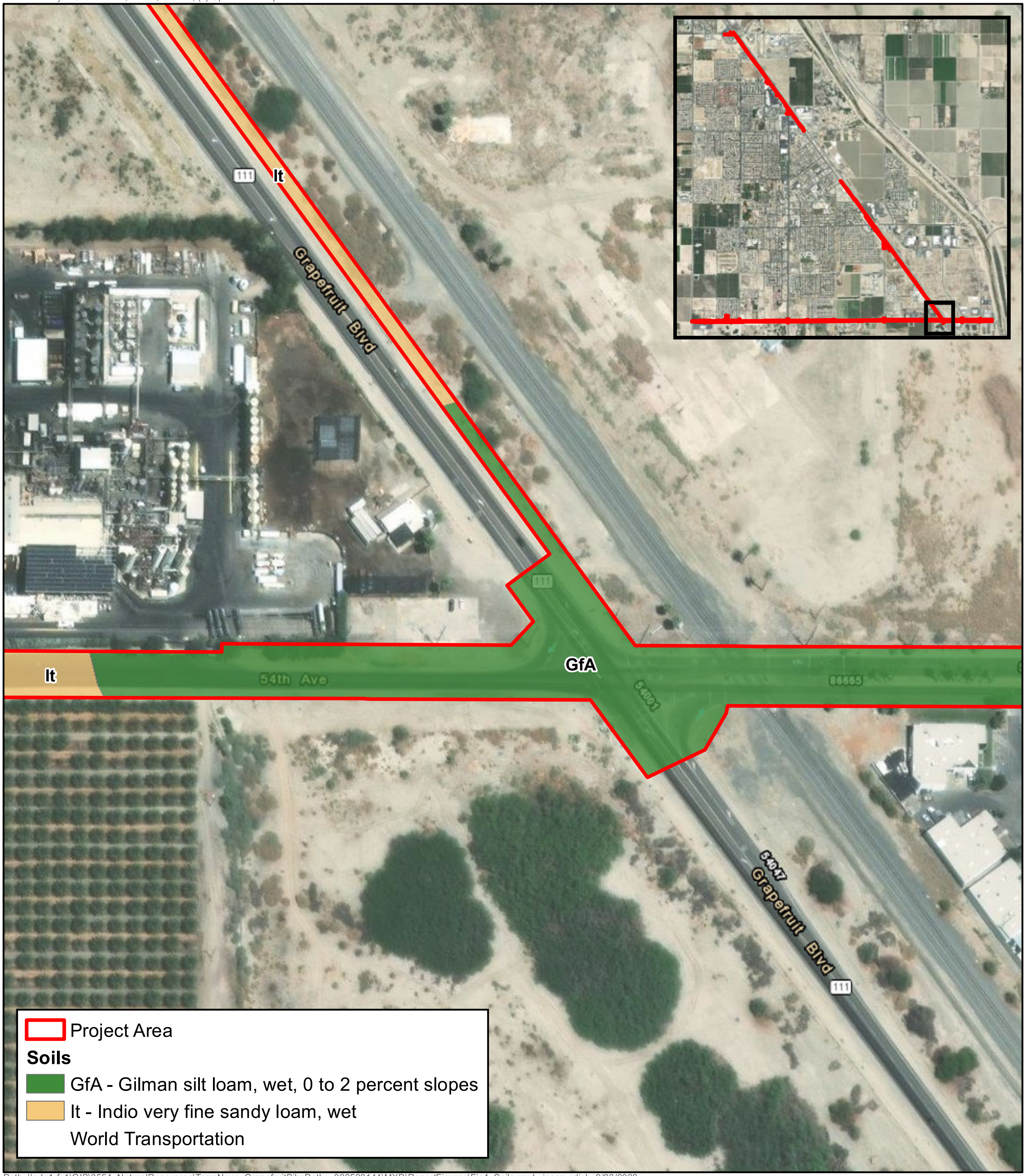
0 100 200 Feet

wsp

FIGURE 4q

Soils
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



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1 inch = 200 feet

0 100 200 Feet

wsp

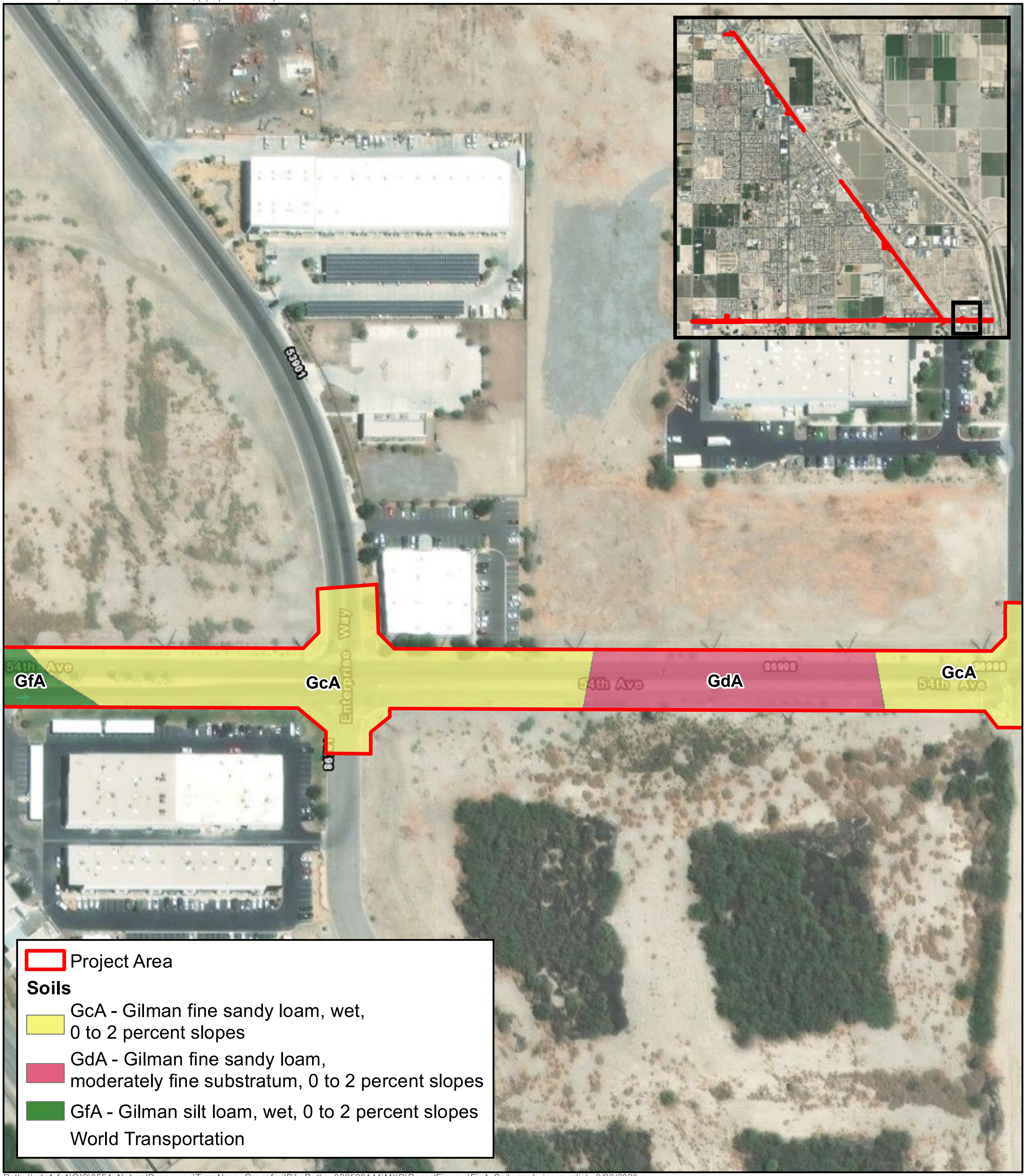
FIGURE 4r

Soils

Grapefruit Avenue Bike Paths Project

Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



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1 inch = 200 feet

0 100 200 Feet

wsp

FIGURE 4s

Soils
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig4_Soils.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

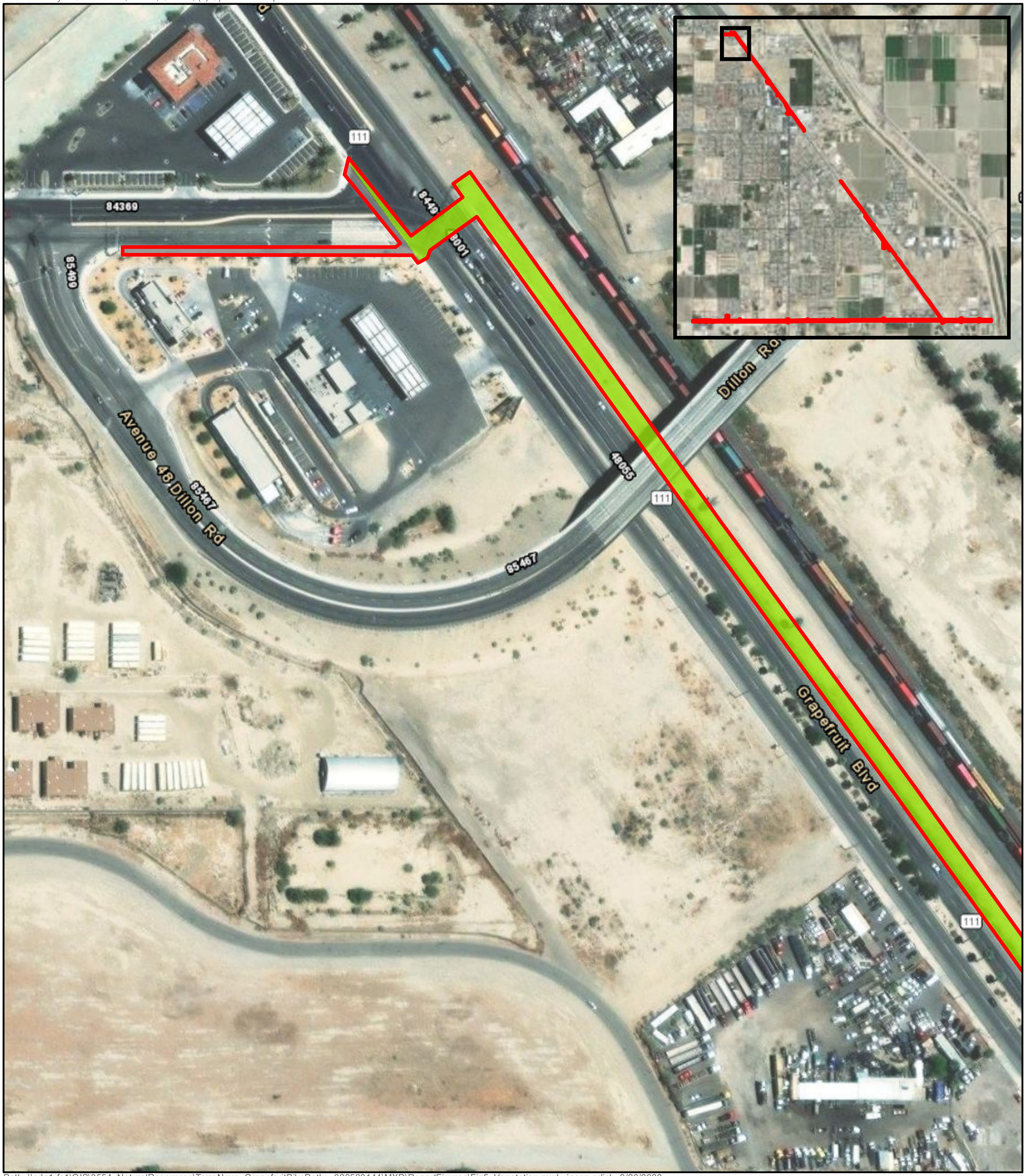
0 100 200 Feet

wsp

FIGURE 4t

Soils
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



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1 inch = 200 feet

0 100 200 Feet

wsp

Project Area

Vegetation Communities

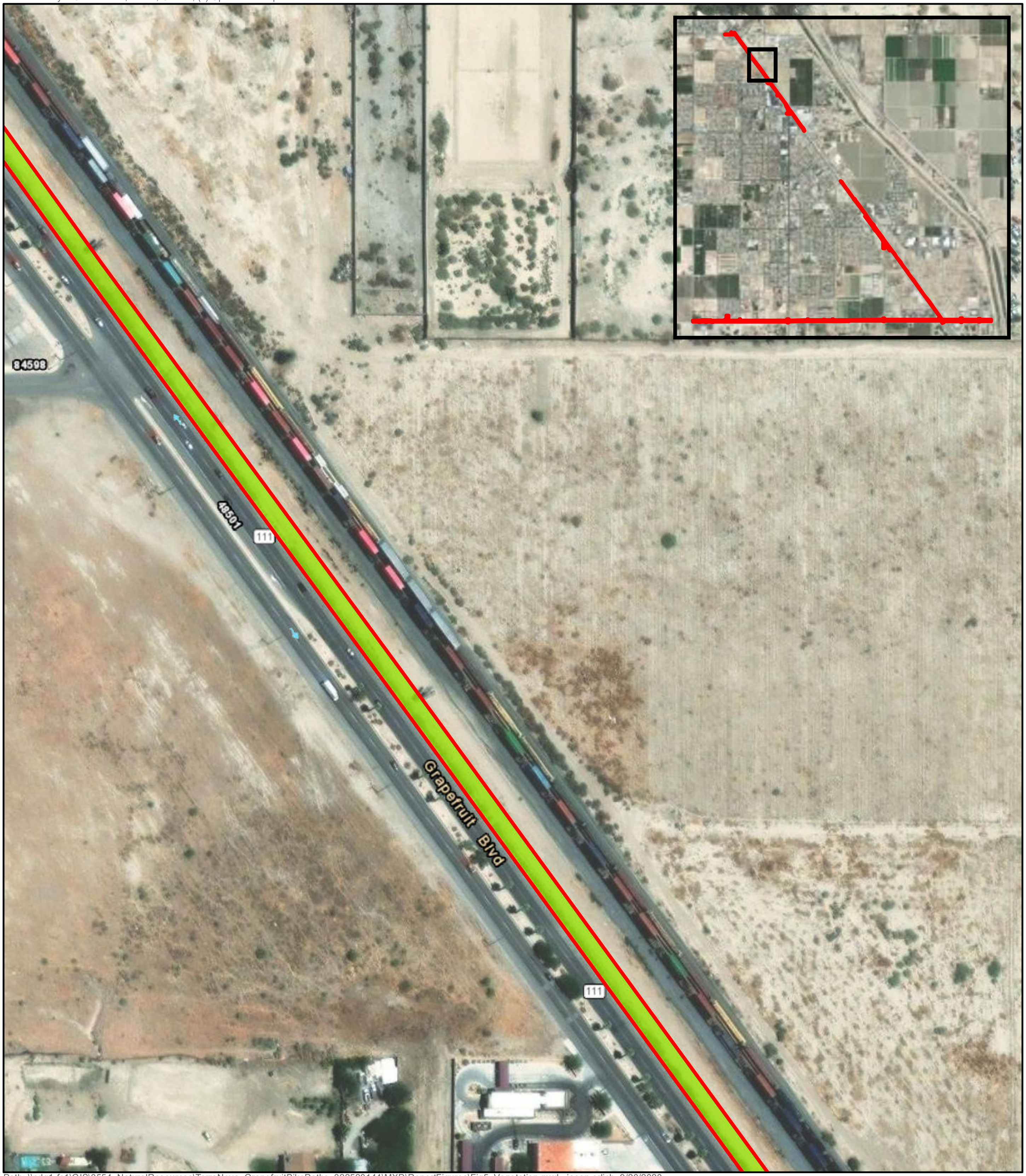
Agriculture

Urban

FIGURE 5a

Vegetation
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



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1 inch = 200 feet

0 100 200 Feet

Project Area

Vegetation Communities

Agriculture

FIGURE 5b

Vegetation
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig5_Vegetation.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

wsp

Project Area

Vegetation Communities

Agriculture

FIGURE 5c

Vegetation
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig5_Vegetation.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

wsp

Project Area

Vegetation Communities

Agriculture

Urban

FIGURE 5d

Vegetation
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig5_Vegetation.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

wsp

Project Area

Vegetation Communities

Agriculture

FIGURE 5e

Vegetation
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig5_Vegetation.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

wsp

Project Area

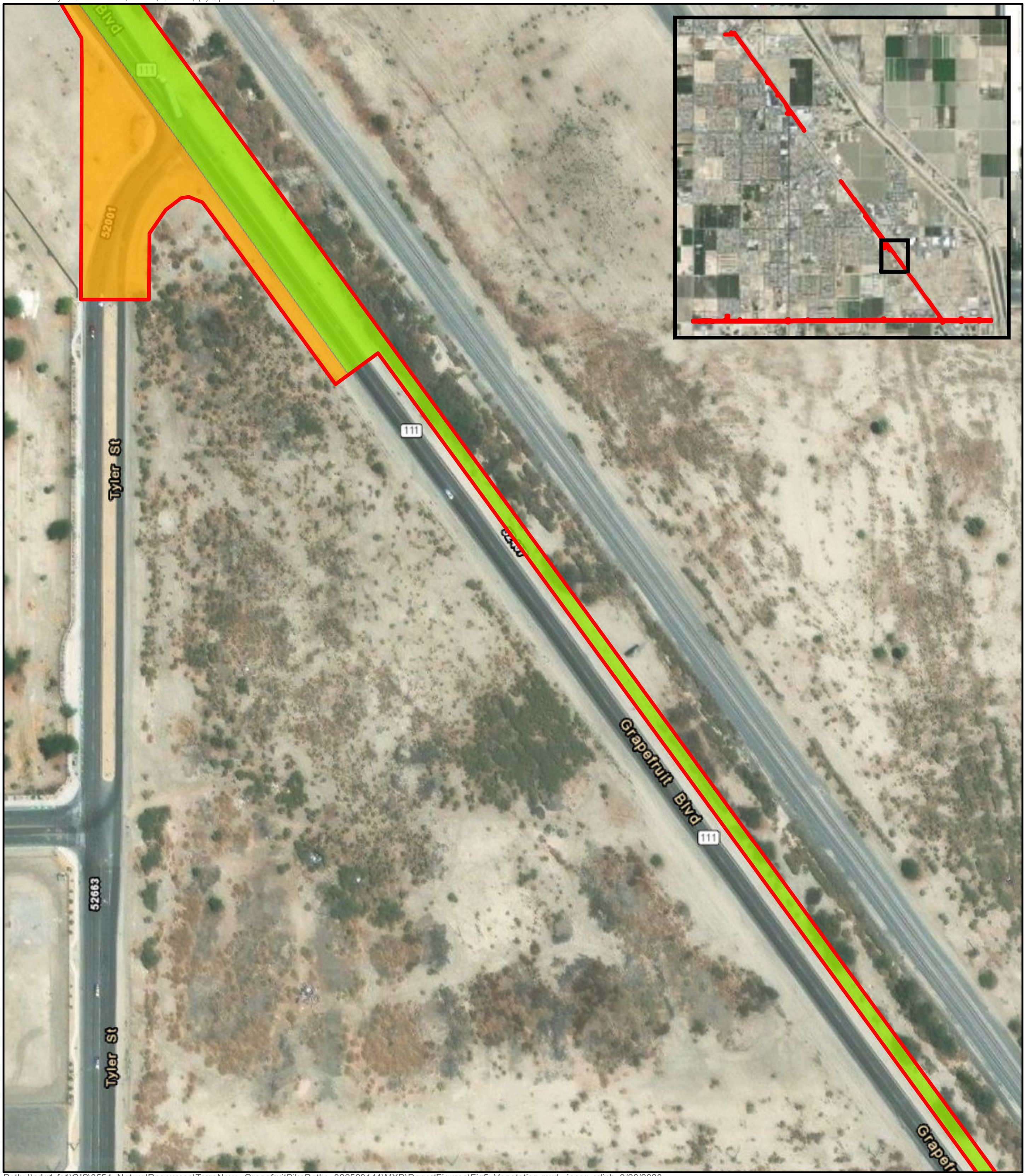
Vegetation Communities

Agriculture

Desert saltbush scrub

FIGURE 5f

Vegetation
Grapefruit Avenue Bike Paths Project
Riverside County, California



Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig5_Vegetation.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

wsp

Project Area

Vegetation Communities

Agriculture

Desert saltbush scrub

FIGURE 5g

Vegetation

Grapefruit Avenue Bike Paths Project

Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig5_Vegetation.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

Project Area

Vegetation Communities

Agriculture

FIGURE 5h

Vegetation

Grapefruit Avenue Bike Paths Project

Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig5_Vegetation.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

wsp

Project Area

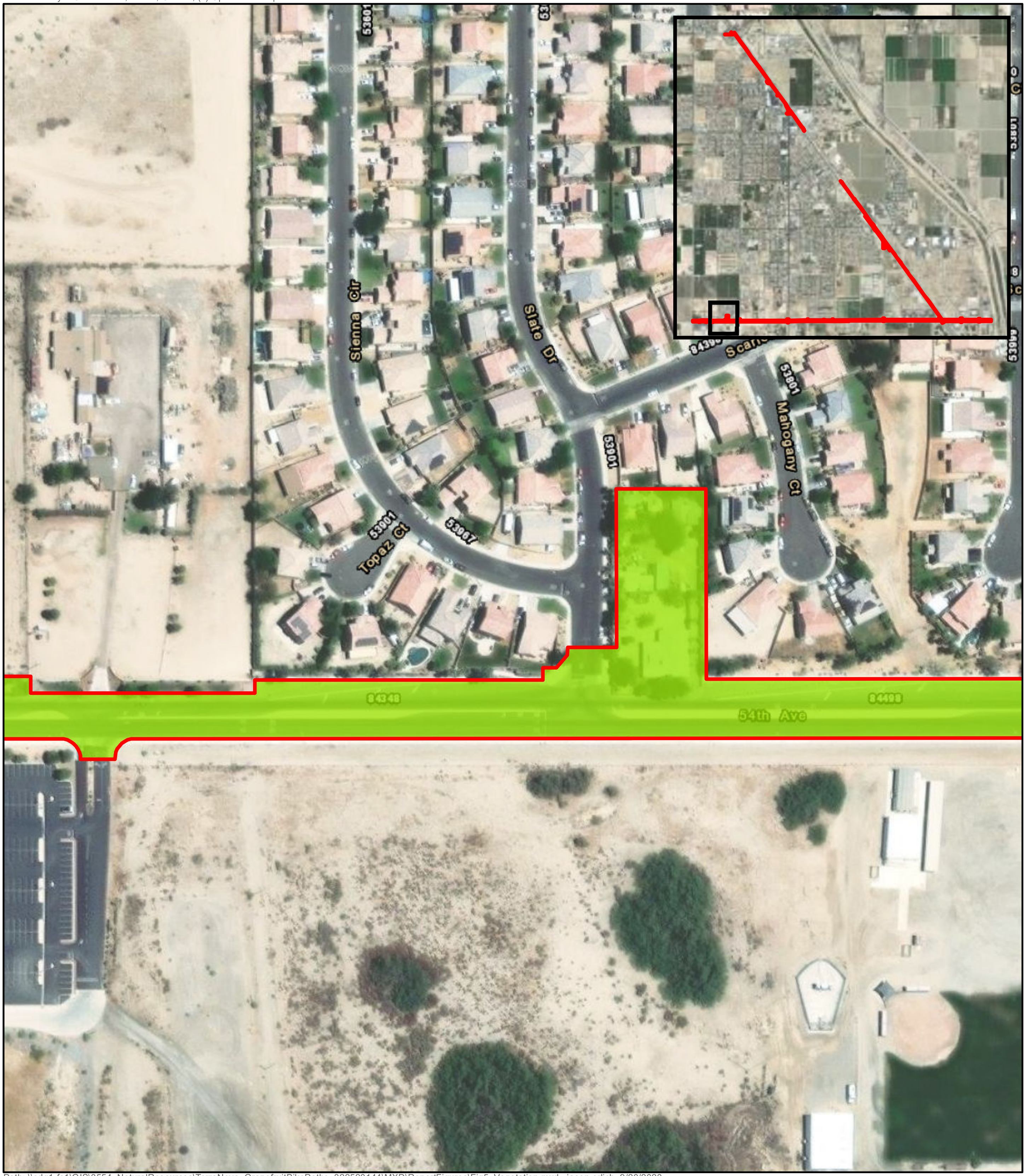
Vegetation Communities

Agriculture

FIGURE 5i

Vegetation
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



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1 inch = 200 feet

0 100 200 Feet

wsp

Project Area

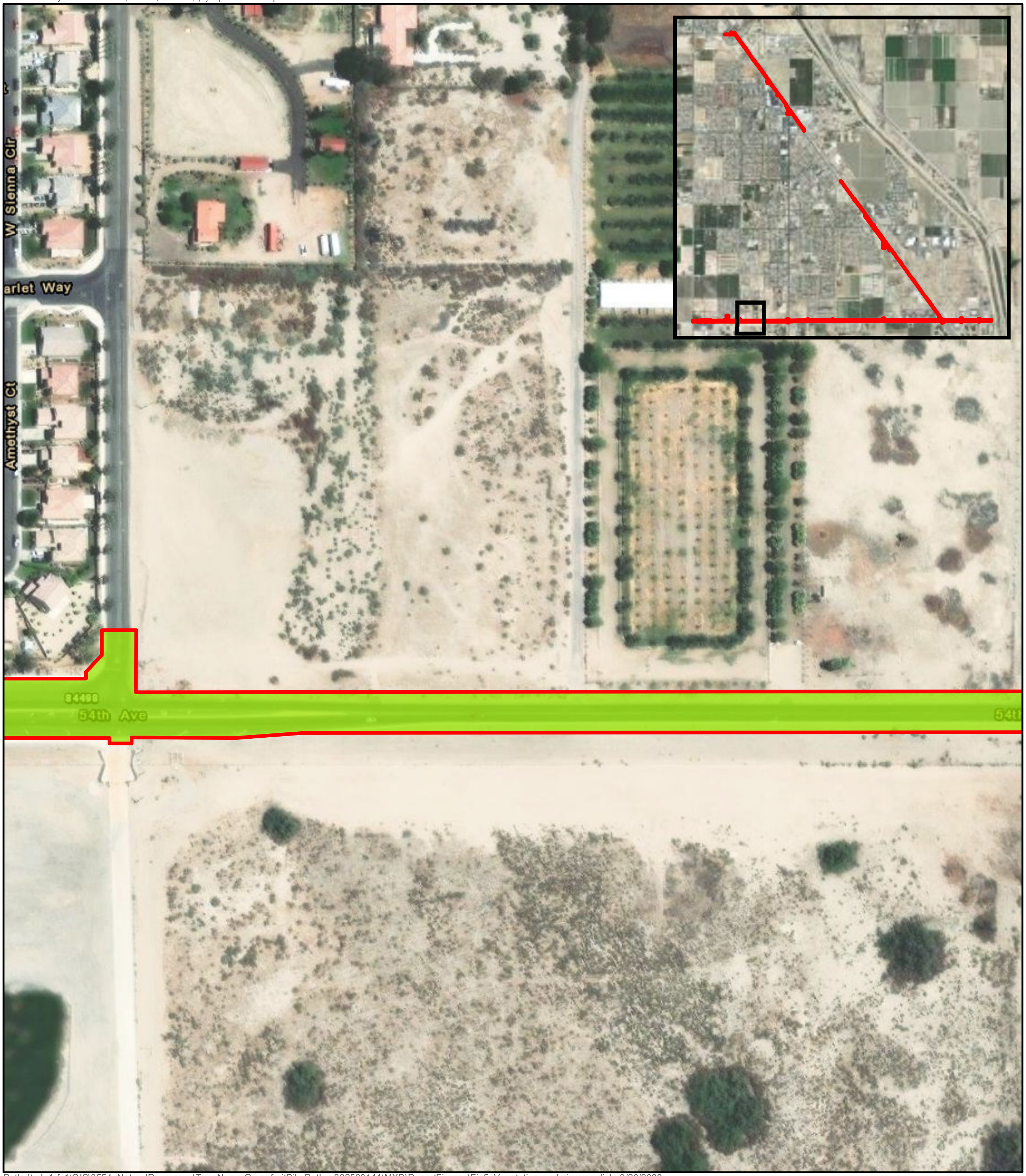
Vegetation Communities

Agriculture

FIGURE 5j

Vegetation
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig5_Vegetation.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

wsp

Project Area

Vegetation Communities

Agriculture

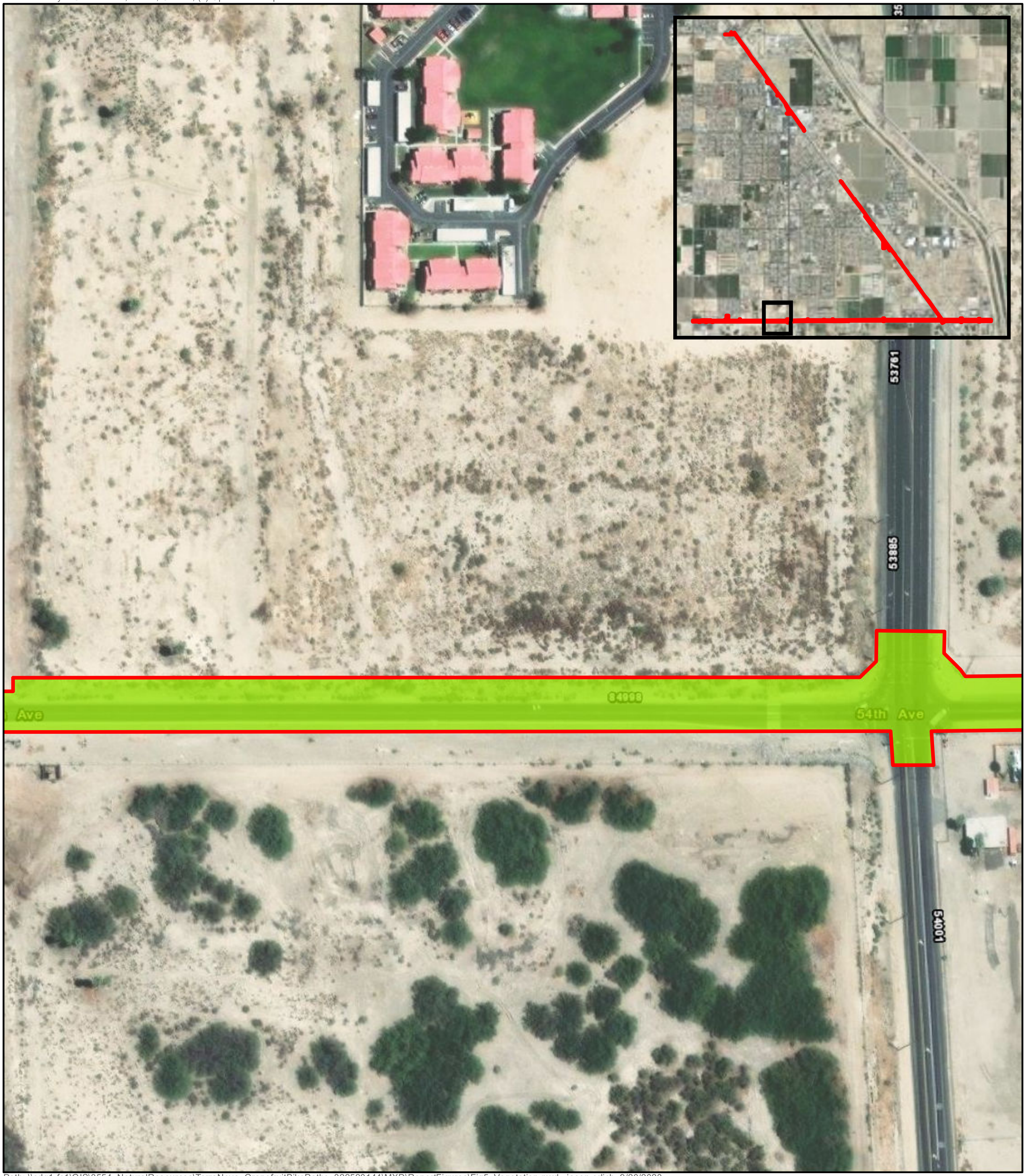
FIGURE 5k

Vegetation

Grapefruit Avenue Bike Paths Project

Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig5_Vegetation.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

wsp

Project Area

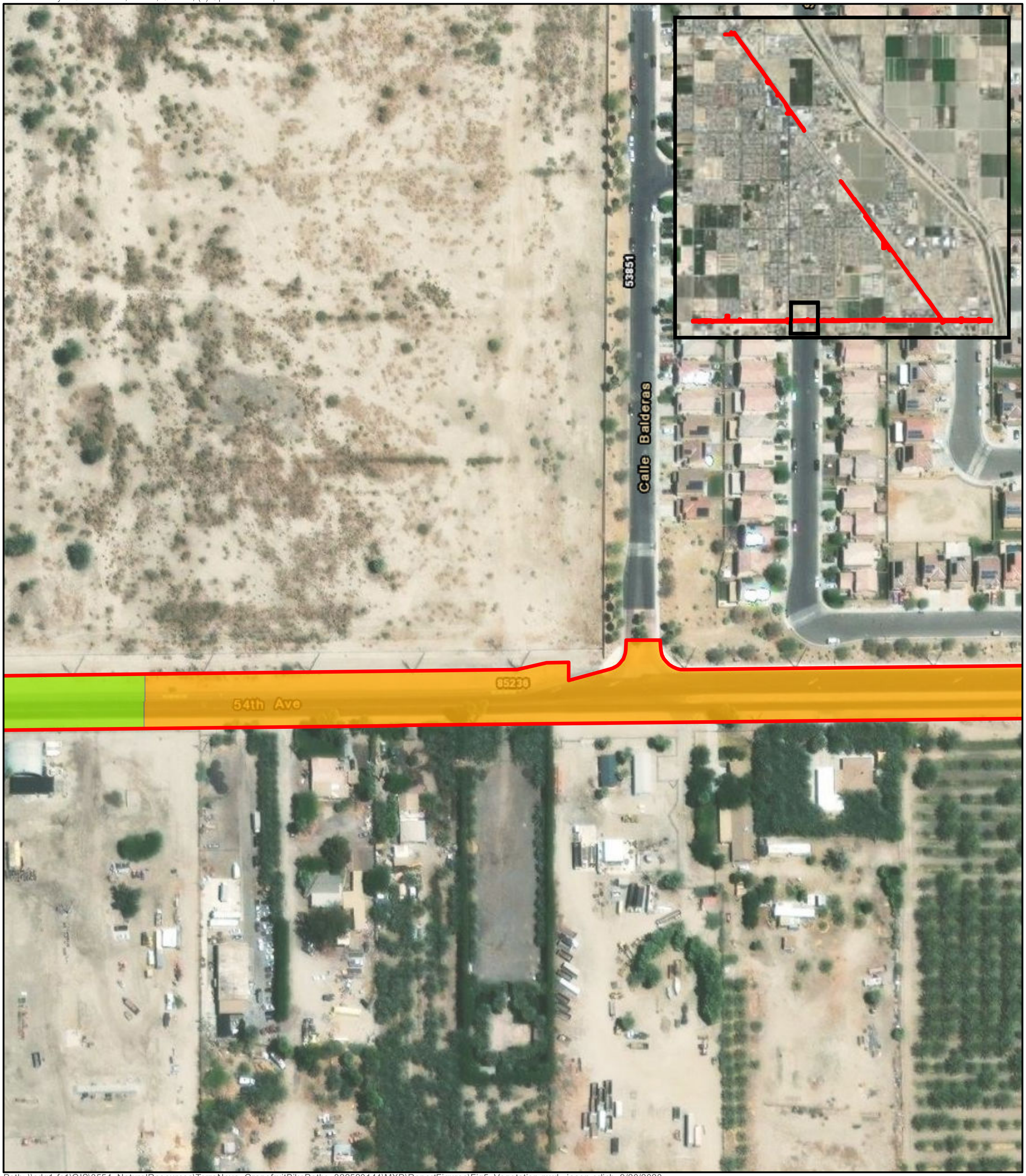
Vegetation Communities

Agriculture

FIGURE 5l

Vegetation
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



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1 inch = 200 feet

0 100 200 Feet

wsp

Project Area

Vegetation Communities

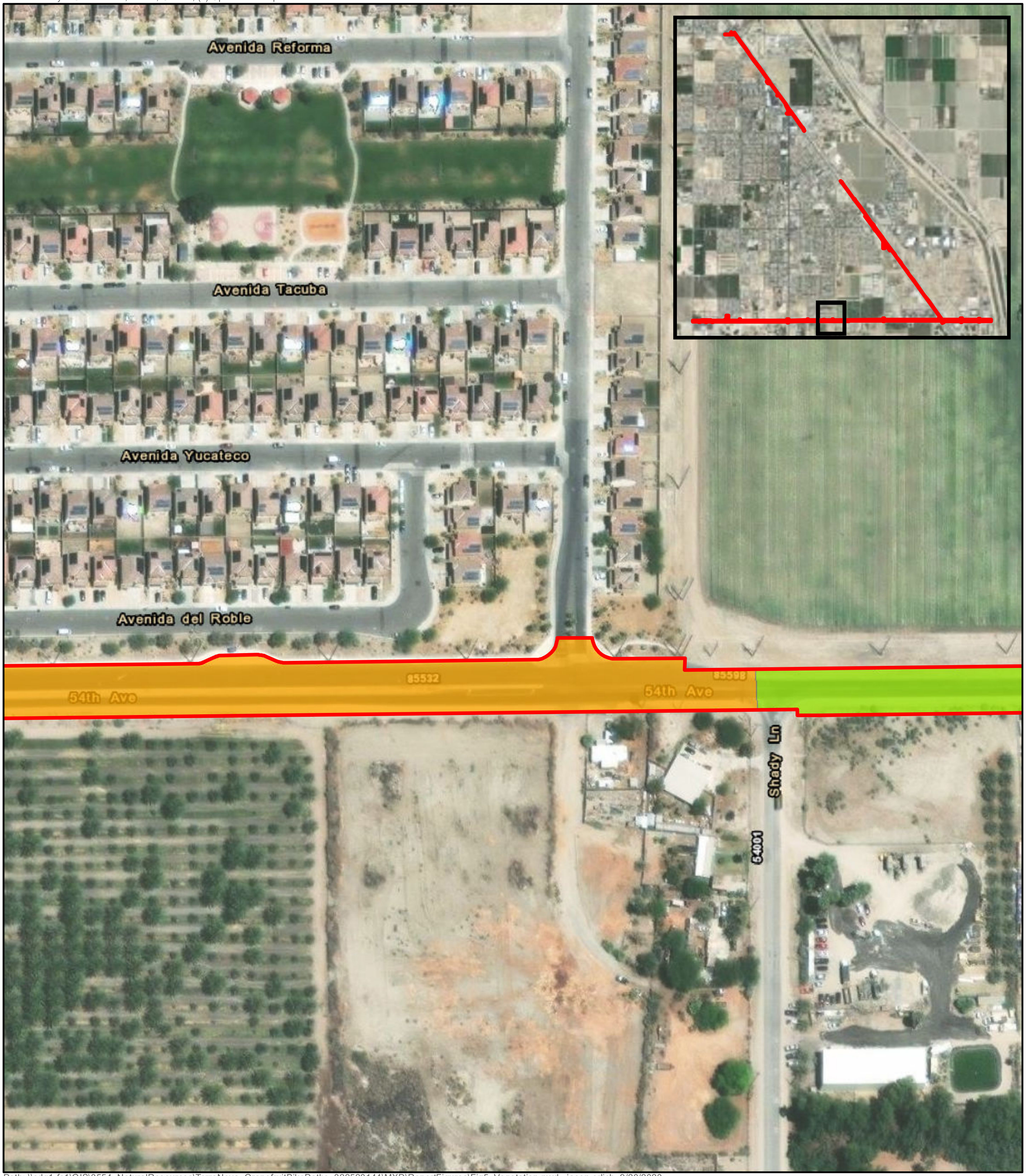
Agriculture

Desert saltbush scrub

FIGURE 5m

Vegetation
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



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1 inch = 200 feet

0 100 200 Feet

Project Area

Vegetation Communities

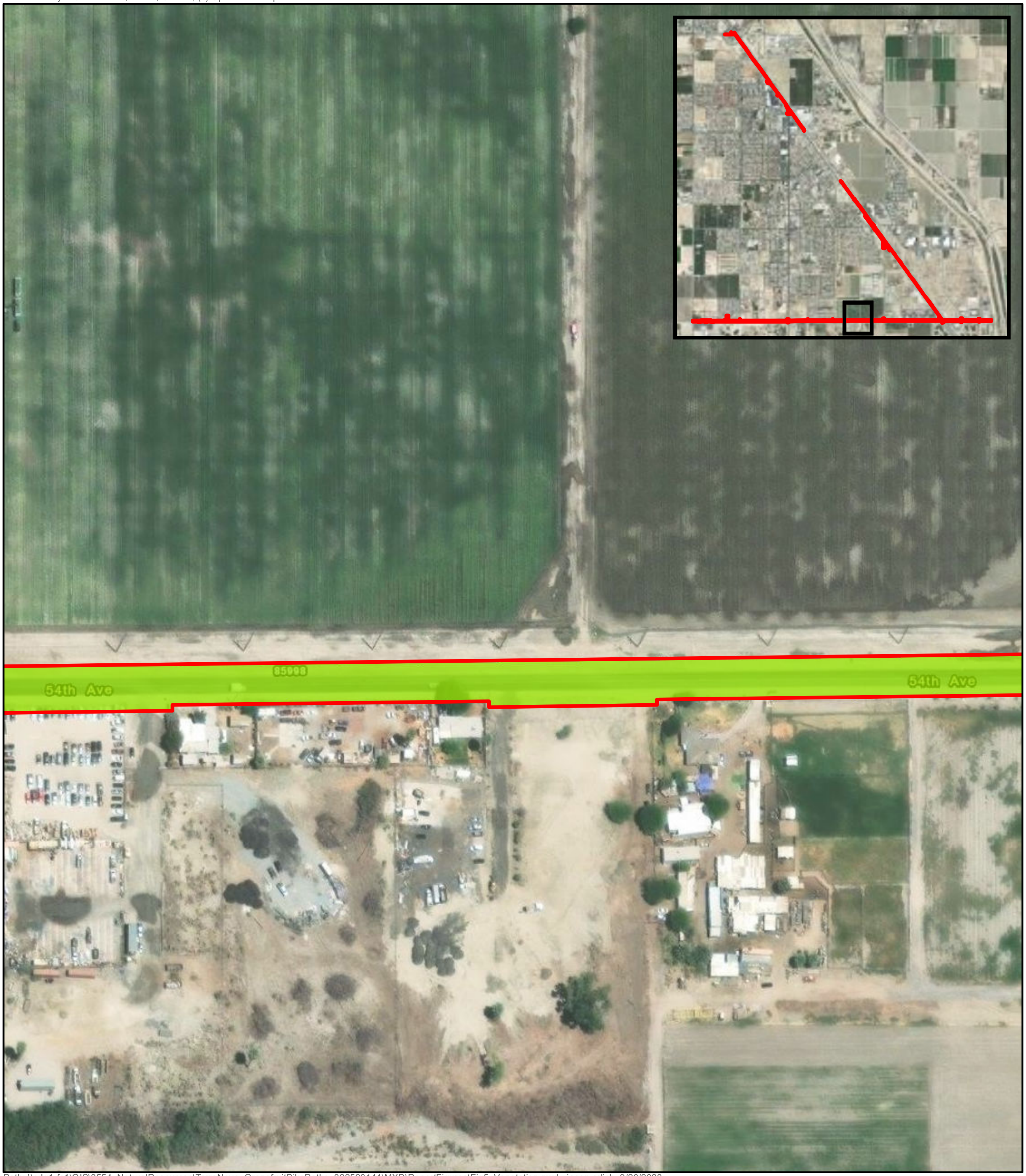
Agriculture

Desert saltbush scrub

FIGURE 5n

Vegetation
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig5_Vegetation.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

Project Area

Vegetation Communities

Agriculture

FIGURE 5o

Vegetation
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig5_Vegetation.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

wsp

Project Area

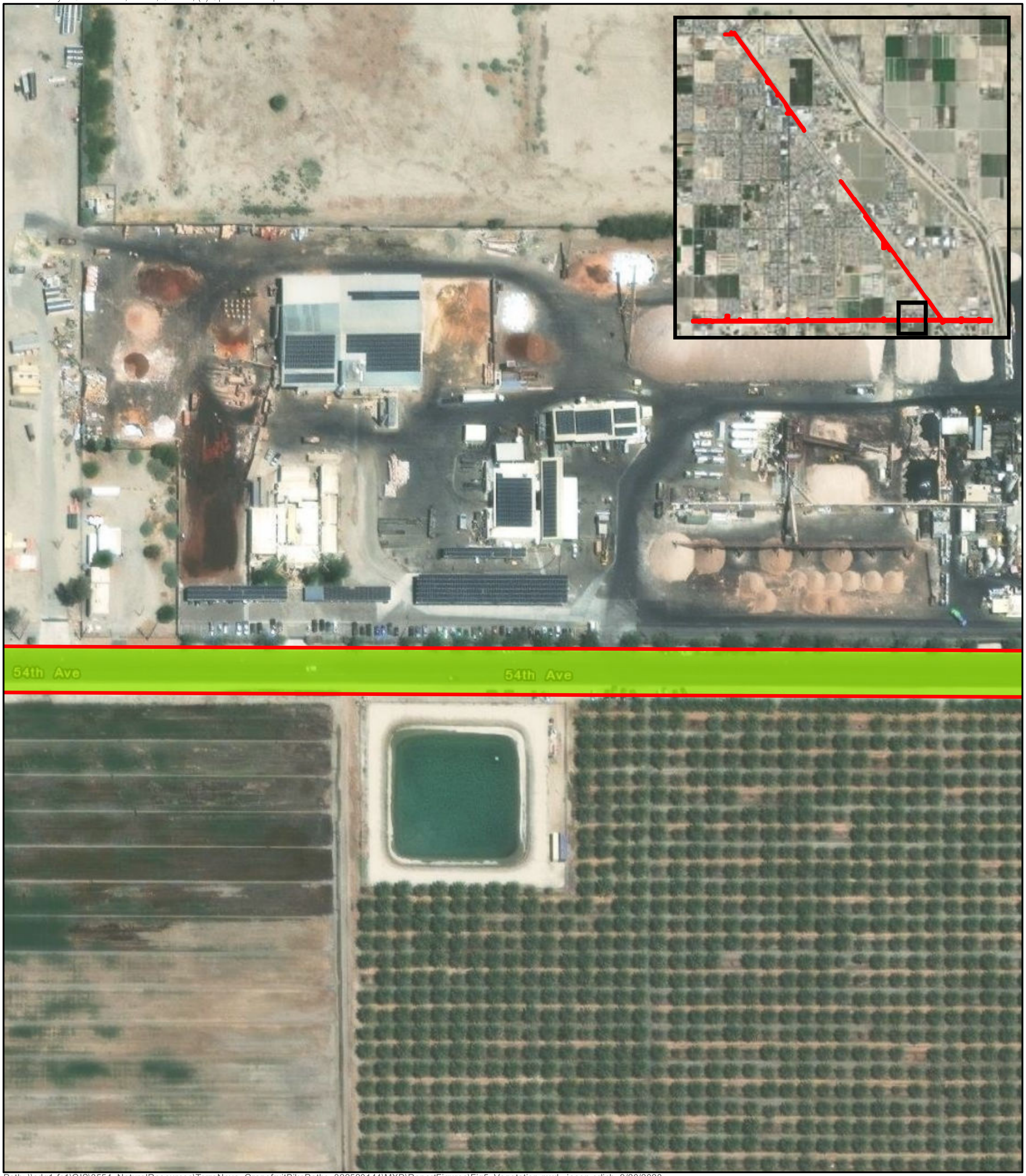
Vegetation Communities

Agriculture

FIGURE 5p

Vegetation
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig5_Vegetation.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

wsp

Project Area

Vegetation Communities

Agriculture

FIGURE 5q

Vegetation
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig5_Vegetation.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

wsp

Project Area

Vegetation Communities

Agriculture

Desert saltbush scrub

FIGURE 5r

Vegetation
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig5_Vegetation.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

wsp

Project Area

Vegetation Communities

Agriculture

FIGURE 5s

Vegetation
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig5_Vegetation.mxd, jason.erlich 9/20/2023

1 inch = 200 feet

0 100 200 Feet

wsp

Project Area

Vegetation Communities

Agriculture

FIGURE 5t

Vegetation
Grapefruit Avenue Bike Paths Project
Riverside County, California

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Path: \\sdg1-fs1\GIS\3554_NaturalResources\TerraNova_GrapefruitBikePaths_322520144\MXD\ReportFigures\Fig6_CVMSHCP.mxd, jason.erlich 9/19/2023

1 inch = 2 miles
0 1 2 Miles

Project Area
CVMSHCP Conservation Area

FIGURE 6

CVMSHCP Conservation Areas
Grapefruit Avenue Bike Paths Project
Riverside County, California

APPENDIX B

PLANTS AND VERTEBRATE WILDLIFE OBSERVED

Plants Observed or Detected
Grapefruit Boulevard and Avenue 54 Bike Path Project Site, Coachella, Riverside County, California

ANGIOSPERMAE	
DICOTYLEDONEAE	**DICOT FLOWERING PLANTS**
Aizoaceae	**Iceplant Family**
Sesuvium verrucosum	western sea-purslane
Apocynaceae	**Dogbane Family**
Funastrum hirtellum	trailing townula
**Nerium oleander*	Oleander (landscape hedge)
Asteraceae	**Sunflower Family**
Dicoria canescens	desert twinbugs
Helianthus annuus	common sunflower
Pluchea sericea	arrow weed
Brassicaceae	**Mustard Family**
**Brassica tournefortii*	Sahara mustard
**Sisymbrium irio*	London rocket
Chenopodiaceae	**Goosefoot Family**
Atriplex lentiformis	big saltbush
Suaeda nigra	bush seepweed
Fabaceae	**Legume Family**
**Medicago sativa*	Alfalfa (roadside waif)
**Parkinsonia aculeata*	Mexican palo verde (landscape)
Psorothamnus emoryi	Emory's indigobush
Prosopis glandulosa var. *torreyana*	honey mesquite (few individuals)
Heliotropiaceae	**Heliotrope Family**
Heliotropium curassavicum var. *oculatum*	alkali heliotrope
Myrtaceae	**Myrtle Family**
**Eucalyptus globulus*	blue gum
Portulacaceae	**Purslane Family**
**Portulaca oleracea*	common purslane
Solanaceae	**Nightshade Family**
Datura wrightii	Jimsonweed
Tamaricaceae	**Tamarisk Family**
**Tamarix aphylla*	Athel

Zygophyllaceae	**Caltrop Family**
**Tribulus terrestris*	puncture vine

MONOCOT ANGIOSPERMS

Arecaceae	**Palm Family**
Washingtonia filifera	California fan palm (planted)
**Washingtonia robusta*	Mexican fan palm (planted)
Poaceae	**Grass Family**
**Cynodon dactylon*	Bermuda grass

* - denotes a non-native species

Wildlife Observed
Grapefruit Boulevard and Avenue 54 Bike Path Project Site, Coachella, Riverside County, California

<u>CHORDATES</u>	**<u>CHORDATA</u>**
<u>BIRDS</u>	**<u>AVES</u>**
Pigeons and Doves	**Columbidae**
Eurasian collared-dove	*Streptopelia decaocto*
New World Vultures	**Cathartidae**
turkey vulture	*Cathartes aura*

* - non-native species

APPENDIX C

SITE PHOTOS

Photo 1. Northern end of the proposed bike path route in Arco Gas station parking lot at 48th Street and Highway 111/Grapefruit Boulevard.

Photo 2..View of proposed bike path route on east side of Highway 111/Grapefruit Boulevard, just south of the intersection with 48th Street. Note Arco Gas station in upper right and Union Pacific Railroad line bordering the east side of the project ROW.

Photo 3. Looking north along the proposed bike path route north of 49th Street on the east side of Highway 111/Grapefruit Blvd. Highway 111 is on the other side of the oleander hedge. The Union Pacific Railroad line is visible on the upper right. This area appears to undergo regular vegetation clearing.

Photo 4. ROW looking north along Highway 111/Grapefruit Blvd. north of Avenue 54.

Photo 5. Eastern "end" of the proposed bike path on Avenue 54 near the Coachella Sanitary District facilities. The bike path will be a lane in the existing road.

Photo 6. Looking west from Polk Street along the north side of Avenue 54. Bike path should be in the road here.

Photo 7. View looking west from the intersection of Grapefruit/Hwy 111 and Avenue 54 showing lack of any native vegetation community (actually the case for almost the entire ROW).

Photo 8. .View of project route along Ave. 54 west of Highway 111/Grapefruit Blvd.

Photo 9. View along Ave. 54 west of Tyler Street, showing cleared road shoulder. Although the proposed bike path is supposed to be a lane in the existing road, if it were to include this area there would be no impact to any natural community..

Photo 10. Project route along Ave. 54 east of Shady Lane. Note residential development in background.

Photo 11. Project route along Ave. 54 west of Cesar Chavez Street.

Photo 12. "West end" of proposed project route on Avenue 54 at the intersection with Van Buren Street.

APPENDIX D

CVMSHCP Table 4-112:
Coachella Valley Native Plants Recommended for Landscaping

Coachella Valley Native Plants Recommended for Landscaping

BOTANICAL NAME	COMMON NAME
Trees	
Washingtonia filifera	California fan palm
Cercidium floridum	blue palo verde
Chilopsis linearis	desert willow
Olneya tesota	ironwood tree
Prosopis glandulosa var. *torreyana*	honey mesquite
Shrubs	
Acacia greggii	cat's claw acacia
Ambrosia dumosa	burro bush
Atriplex canescens	four wing saltbush
Atriplex lentiformis	quailbush
Atriplex polycarpa	cattle spinach
Baccharis sergiloides	squaw water-weed
Bebia juncea	sweet bush
Cassia (Senna) covesii	desert senna
Condalia parryi	crucilllo
Crossosoma bigelovii	crossosoma
Dalea emoryi	dye weed
Dalea (Psorothamnus) schottii	indigo bush
Datura meteloides	jimson weed
Encelia farinosa	brittle bush
Ephedra aspera	Mormon tea
Eriogonum fasciculatum	California buckwheat
Eriogonum wrightii membranaceum	Wright's buckwheat
Fagonia laevis	no common name
Gutierrezia sarothrae	matchweed
Haplopappus acradenius	goldenbush
Hibiscus denudatus	desert hibiscus
Hoffmannseggia microphylla	rush pea
Hymenoclea salsola	cheesebush
Hyptis emoryi	desert lavender
Isomeris arborea	bladder pod
Juniperus californica	California juniper
Krameria grayi	ratany
Krameria parvifolia	little-leaved ratany
Larrea tridentata	creosote bush
Lotus rigidus	desert rock pea
Lycium andersonii	box thorn
Petalonyx linearis	long-leaved sandpaper plant
Petalonyx thurberi	sandpaper plant
Peucephyllum schottii	pygmy cedar
Prunus fremontii	desert apricot
Rhus ovata	sugar-bush
Salazaria mexicana	paper-bag bush
Salvia apiana	white sage
Salvia eremostachya	Santa Rosa sage

Salvia vaseyi	wand sage
Simmondsia chinensis	jojoba
Sphaeralcia ambigua	globemallow (desert mallow)
Sphaeralcia ambigua rosacea	apricot mallow
Trixis californica	trixis
Zauschneria californica	California fuchsia

Groundcovers

Mirabilis bigelovii	wishbone bush (four o'clock)
Mirabilis tenuiloba	white four o'clock (thin-lobed)

Vines

Vitis girdiana	desert grape

Accent

Muhlenbergia rigens	deer grass

Herbaceous Perennials

Adiantum capillus-veneris	maiden-hair fern
Carex alma	sedge
Dalea parryi	Parry dalea
Eleocharis montevidensis	spike rush
Equisetum laevigatum	horsetail
Juncus bufonis	toad rush
Juncus effuses	juncus
Juncus macrophyllus	juncus
Juncus mexicanus	Mexican rush
Juncus xiphioides	juncus
Notholaena parryi	Parry cloak fern
Pallaea mucronata	bird-foot fern

Cacti and Succulents

Agave deserti	desert agave
Asclepias albicans	desert milkweed (buggy-whip)
Asclepias subulata	ajamete
Dudleya arizonica	live-forever
Dudleya saxosa	rock dudleya
Echinocereus engelmannii	calico hedgehog cactus
Ferocactus acanthodes	barrel cactus
Fouquieria splendens	ocotillo
Mamillaria dioica	nipple cactus
Mamillaria tetrancistra	corkseed cactus
Nolina parryi	Parry nolina
Opuntia acanthocarpa	stag-horn or deer-horn cholla
Opuntia bigelovii	teddy bear or jumping cholla
Opuntia basilaris	beavertail cactus
Opuntia echinocarpa	silver or golden cholla
Opuntia ramosissima	pencil cholla, darning needle cholla
Yucca schidigera	Mojave yucca, Spanish dagger
Yucca whipplei	Our Lord's candle

APPENDIX E

Prohibited Invasive Ornamental Plants

Prohibited Invasive Ornamental Plants

BOTANICAL NAME	COMMON NAME
Acacia spp. (all species except A. greggii)	(all species except native catclaw acacia)
Arundo donax	giant reed or arundo grass
Atriplex semibaccata	Australian saltbush
Avena barbata	slender wild oat
Avena fatua	wild oat
Brassica tournefortii	African or Saharan mustard
Bromus madritensis ssp. rubens	red brome
Bromus tectorum	cheat grass or downy brome
Cortaderia jubata [syn.C. atacamensis]	jubata grass or Andean pampas grass
Cortaderia dioica [syn. C. selloana]	pampas grass
Descurainia sophia	tansy mustard
Eichhornia crassipes	water hyacinth
Elaegnus angustifolia	Russian olive
Foeniculum vulgare	sweet fennel
Hirschfeldia incana	Mediterranean or short-pod mustard
Lepidium latifolium	perennial pepperweed
Lolium multiflorum	Italian ryegrass
Nerium oleander	oleander
Nicotiana glauca	tree tobacco
Oenothera berlandieri	Mexican evening primrose
Olea europea	European olive tree
Parkinsonia aculeata	Mexican palo verde
Pennisetum clandestinum	Kikuyu grass
Pennisetum setaceum	fountain grass
Phoenix canariensis	Canary Island date palm
Phoenix dactylifera	date palm
Ricinus communis	castorbean
Salsola tragus	Russian thistle
Schinus mole	Peruvian pepper tree
Schinus terebinthifolius	Brazilian pepper tree
Schismus arabicus	Mediterranean grass
Schismus barbatus	Saharan grass, Abu Mashi
Stipa capensis	no common name
Tamarix spp. (all species)	tamarisk or salt cedar
Taeniatherum caput-medusae	Medusa-head
Tribulus terrestris	puncturevine
Vinca major	periwinkle
Washingtonia robusta	Mexican fan palm
Yucca gloriosa	Spanish dagger

Sources: California Exotic Pest Plant Council, United States Department of Agriculture-Division of Plant Health and Pest Prevention Services, California Native Plant Society, Fremontia Vol. 26 No. 4, October 1998, The Jepson Manual; Higher Plants of California, and County of San Diego Department of Agriculture.

APPENDIX F

USFWS IPaC Report

Appendix C

Historical/Archaeological Resources Survey Report

HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY REPORT

CONNECT COACHELLA PROJECT

City of Coachella
Riverside County, California

For Submittal to:

City of Coachella
53990 Enterprise way
Coachella, CA 92236

Prepared for:

Terra Nova Planning and Research, Inc.
42635 Melanie Place, Suite 101
Palm Desert, CA 92211

Prepared by:

CRM TECH
1016 East Cooley Drive, Suite A/B
Colton, CA 92324

Bai "Tom" Tang, Principal Investigator
Michael Hogan, Principal Investigator

November 26, 2023
CRM TECH Project No. 4031A
City of Coachella Project No. ST-138

Title:	Historical/Archaeological Resources Survey Report: Connect Coachella Project, City of Coachella, Riverside County, California
Author(s):	Bai "Tom" Tang, Principal Investigator/Historian Breidy Q. Vilcahuaman, Archaeologist/Report Writer Daniel Ballester, Archaeologist/Field Director
Consulting Firm:	CRM TECH 1016 East Cooley Drive, Suite A/B Colton, CA 92324 (909) 824-6400
Date:	November 26, 2023
For Submittal to:	City of Coachella 53990 Enterprise way Coachella, CA 92236 (760) 398-3502
Prepared for:	Nicole Criste, Principal Terra Nova Planning and Research, Inc. 42635 Melanie place, Suite 101 Palm Desert, CA 92211 (760) 341-4800
Project Size:	Seven linear miles
USGS Quadrangle:	Indio, Calif., 7.5' quadrangle (Sections 30-32, T5S R8E, and Sections 5, 7-10, and 15-18, T6S R8E, San Bernardino Baseline and Meridian)
Keywords:	Coachella Valley region, western Colorado Desert; Phase I historical/archaeological resource survey; no "historical resources" impacted under CEQA

EXECUTIVE SUMMARY

Between July and November 2023, at the request of Terra Nova Planning and Research, Inc., CRM TECH performed a cultural resources survey for the proposed Connect Coachella Project in the City of Coachella, which seeks to establish Class I and Class II bicycle lanes along segments of Avenue 48, Grapefruit Boulevard, and Avenue 54. The project alignments lie within the existing right-of-way of Avenue 48 from Dillon Road to Grapefruit Boulevard, the Grapefruit Boulevard right-of-way from Avenue 48 to Leoco Lane and from 9th Street to Avenue 54, and the Avenue 54 right-of-way from Jackson Street to the Coachella Valley Stormwater Channel. Measuring approximately seven linear miles in total length, the project route extends across portions of Sections 30-32 of T5S R8E and Sections 5, 7-10, and 15-18 of T6S R8E, San Bernardino Baseline and Meridian.

The study is part of the environmental review process for the project. The City of Coachella, as the project proponent and the lead agency, required the study in compliance with the California Environmental Quality Act (CEQA). The purpose of the study is to provide the City with the necessary information and analysis to determine whether the project would cause substantial adverse changes to any "historical resources," as defined by CEQA, that may exist in or around the project area. In order to identify such resources, CRM TECH conducted a historical/ archaeological resources records search, contacted pertinent Native American representatives, pursued historical background research, and carried out a systematic field survey.

The results of these research procedures indicate that portions of two linear features of historical origin that were previously recorded into the California Historical Resources Inventory, namely Avenue 48 (Site 33-028164) and the former Southern Pacific Railroad (Site 33-009498; now the Union Pacific Railroad), are located within the project area, but neither of them meets the definition of a "historical resource" under CEQA provisions. Meanwhile, all of the other major roadways that coincide with or cross the project route, including Grapefruit Boulevard and Avenue 54, also trace their origins to the historic period. However, as working components of the modern transportation infrastructure that have been subject to repeated upgrading and constant maintenance, these roads do not demonstrate sufficient historical character to be considered potential "historical resources." Therefore, they require no further study or formal recordation into the inventory.

No other potential "historical resources" of prehistoric or historical origin were identified in the project area during the course of the study. The State of California Native American Heritage Commission stated that the Sacred Lands File maintained by the commission indicated the presence of unspecified Native American cultural resource(s) in the general vicinity of the project location and referred further inquiry to the Cabazon Band of Mission Indians. The tribe was contacted during this study, along with the nearby Augustine Band of Cahuilla Indians and Torres Martinez Desert Cahuilla Indians, but none of them provided any information pertaining to potential Native American cultural resources in the project vicinity. According to CEQA guidelines, the identification of potential "tribal cultural resources" is beyond the scope of this study and needs to be addressed through government-to-government consultations between the City of Coachella and the pertinent Native American groups pursuant to Assembly Bill (AB) 52.

Based on these findings, CRM TECH recommends to the City of Coachella a tentative conclusion of *No Impact* on cultural resources, pending completion of the AB 52 consultation process. No additional cultural resources investigation is recommended for the project unless project plans undergo such changes as to include areas not covered by this study. However, if buried cultural materials are encountered during any earth moving operations associated with the project, all work within 50 feet of the discovery should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

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INTRODUCTION

Between July and November 2023, at the request of Terra Nova Planning and Research, Inc., CRM TECH performed a cultural resources survey for the proposed Connect Coachella Project in the City of Coachella, which seeks to establish Class I and Class II bicycle lanes along segments of Avenue 48, Grapefruit Boulevard, and Avenue 54 (Figs. 1-3). The project alignments lie within the existing right-of-way of Avenue 48 from Dillon Road to Grapefruit Boulevard, the Grapefruit Boulevard right-of-way from Avenue 48 to Leoco Lane and from 9th Street to Avenue 54, and the Avenue 54 right-of-way from Jackson Street to the Coachella Valley Stormwater Channel (Figs. 2a, 2b, 3). Measuring approximately seven linear miles in total length, the project route extends across portions of Sections 30-32 of T5S R8E and Sections 5, 7-10, and 15-18 of T6S R8E, San Bernardino Baseline and Meridian (Figs. 2a, 2b).

The study is part of the environmental review process for the project. The City of Coachella, as the project proponent and the lead agency, required the study in compliance with the California Environmental Quality Act (CEQA; PRC §21000, et seq.). The purpose of the study is to provide the City with the necessary information and analysis to determine whether the project would cause substantial adverse changes to any "historical resources," as defined by CEQA, that may exist in or around the project area.

In order to identify such resources, CRM TECH conducted a historical/ archaeological resources records search, contacted pertinent Native American representatives, pursued historical background research, and carried out a systematic field survey. The following report is a complete account of the methods, results, and conclusion of the study. Personnel who participated in the study are named in the appropriate sections below, and their qualifications are provided in Appendix 1.

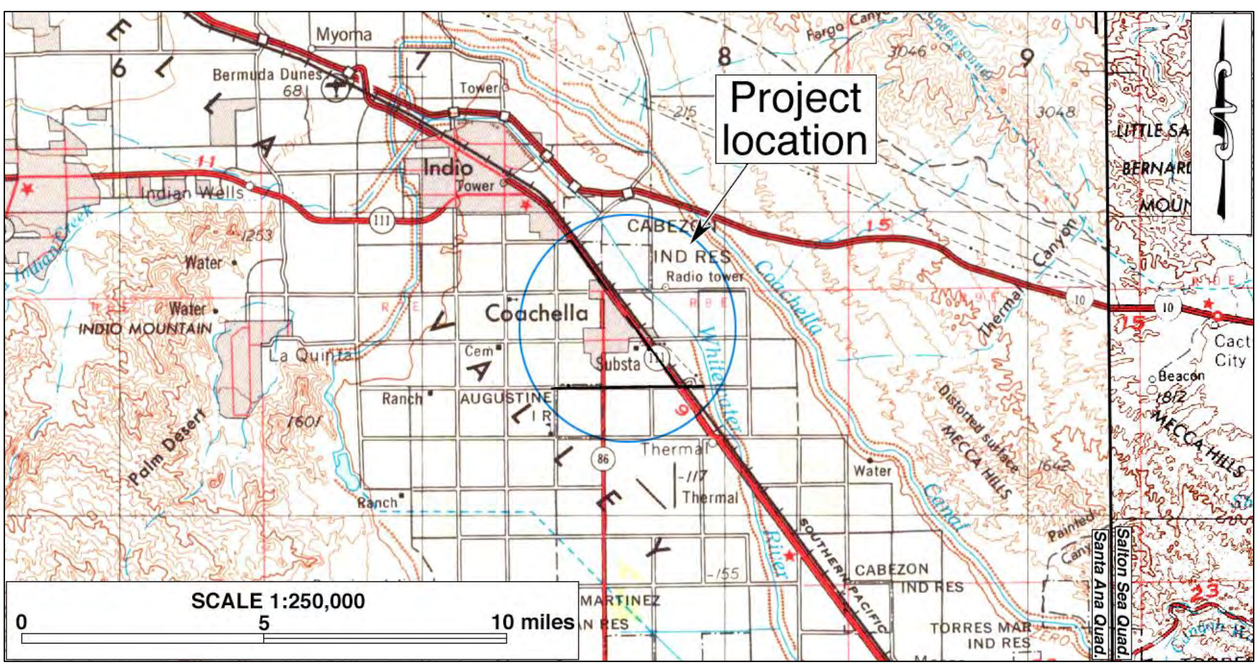

Figure 1. Project vicinity. (Based on USGS Salton Sea, Calif.-Ariz., and Santa Ana, Calif., 120'x60' quadrangles [USGS 1969; 1979])

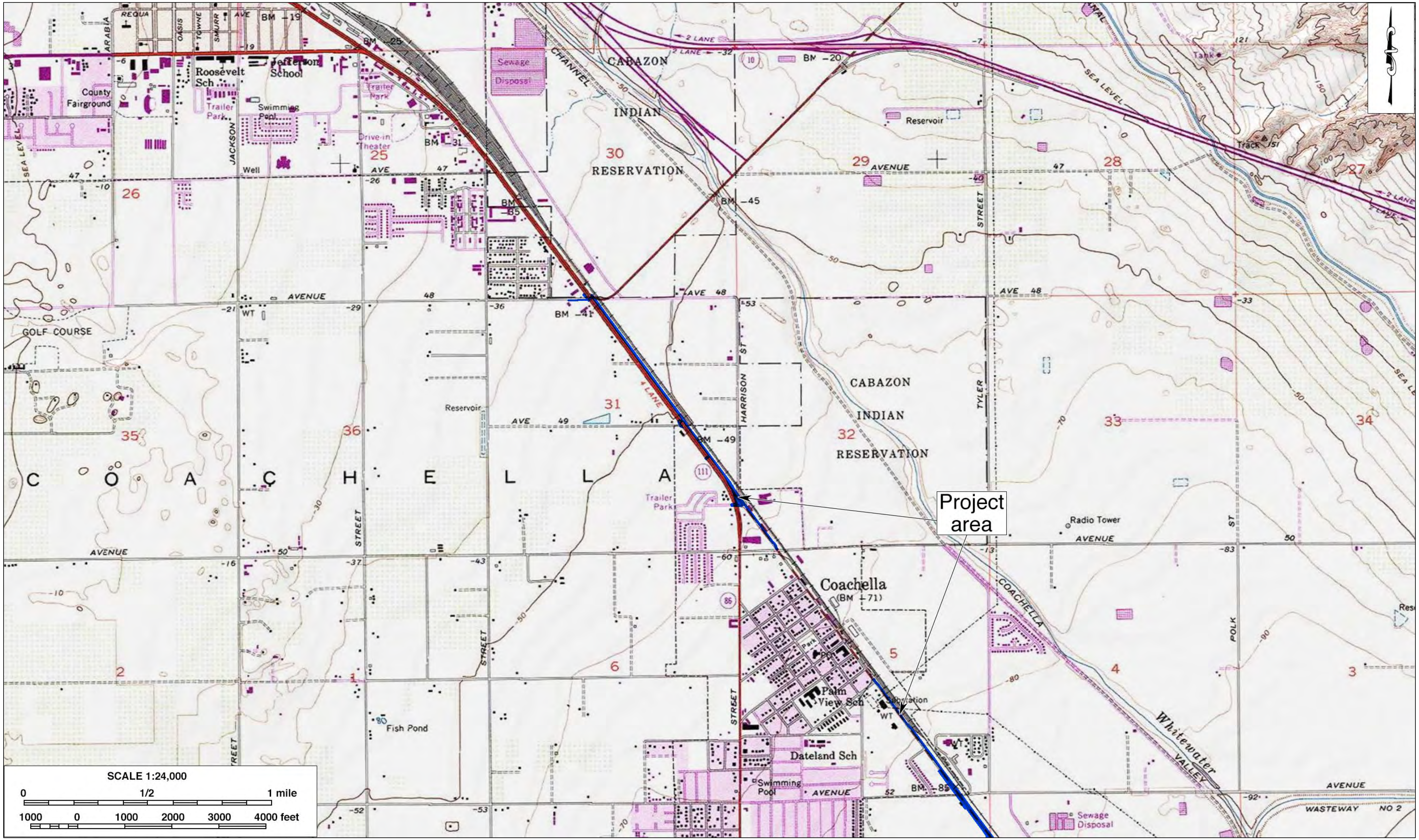

Figure 2a. Northern portion of the project area. (Based on USGS Indio, Calif., 7.5' quadrangle [USGS 1972a])

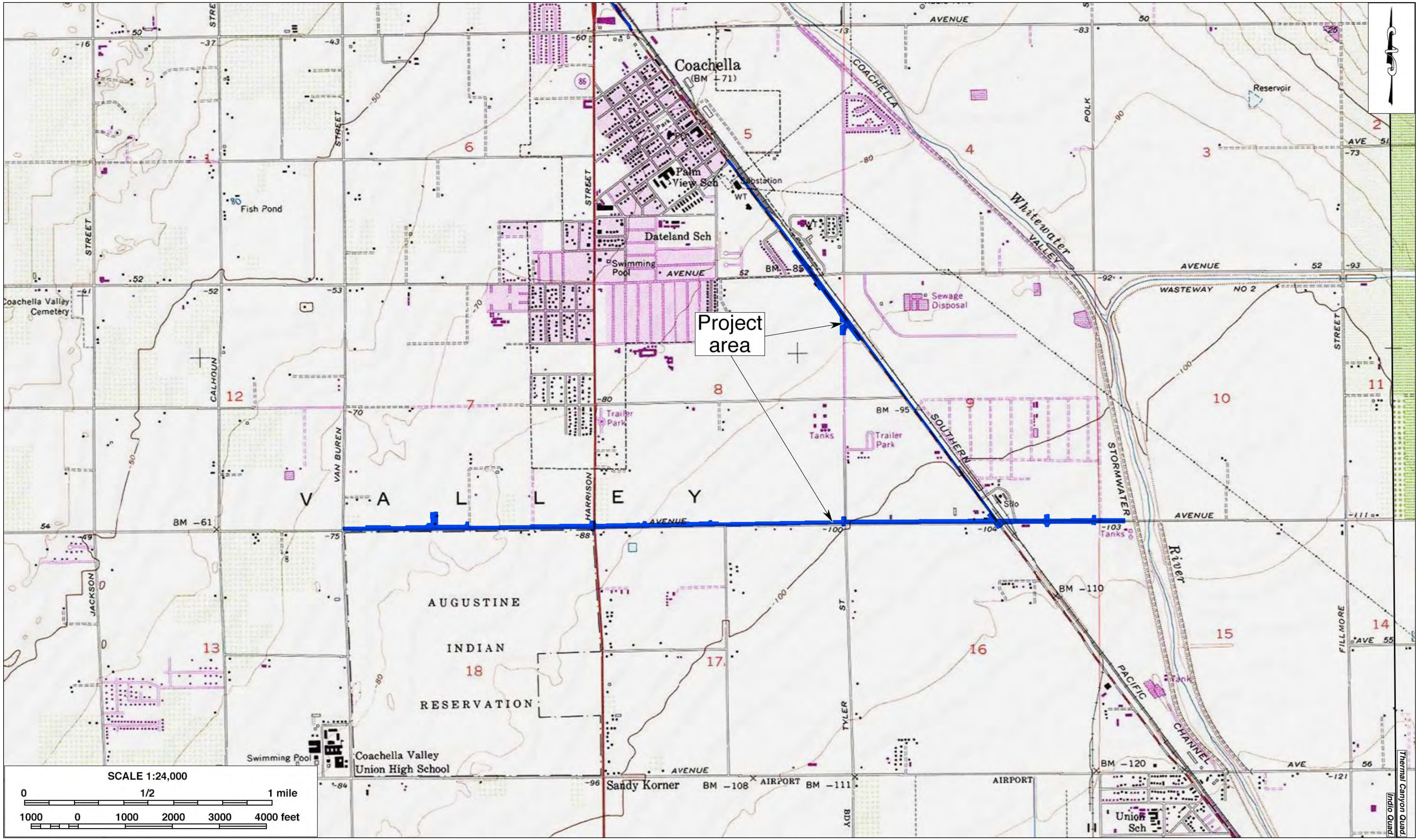

Figure 2b. Southern portion of the project area. (Based on USGS Indio and Thermal Canyon, Calif., 7.5' quadrangles [USGS 1972a; 1972b])

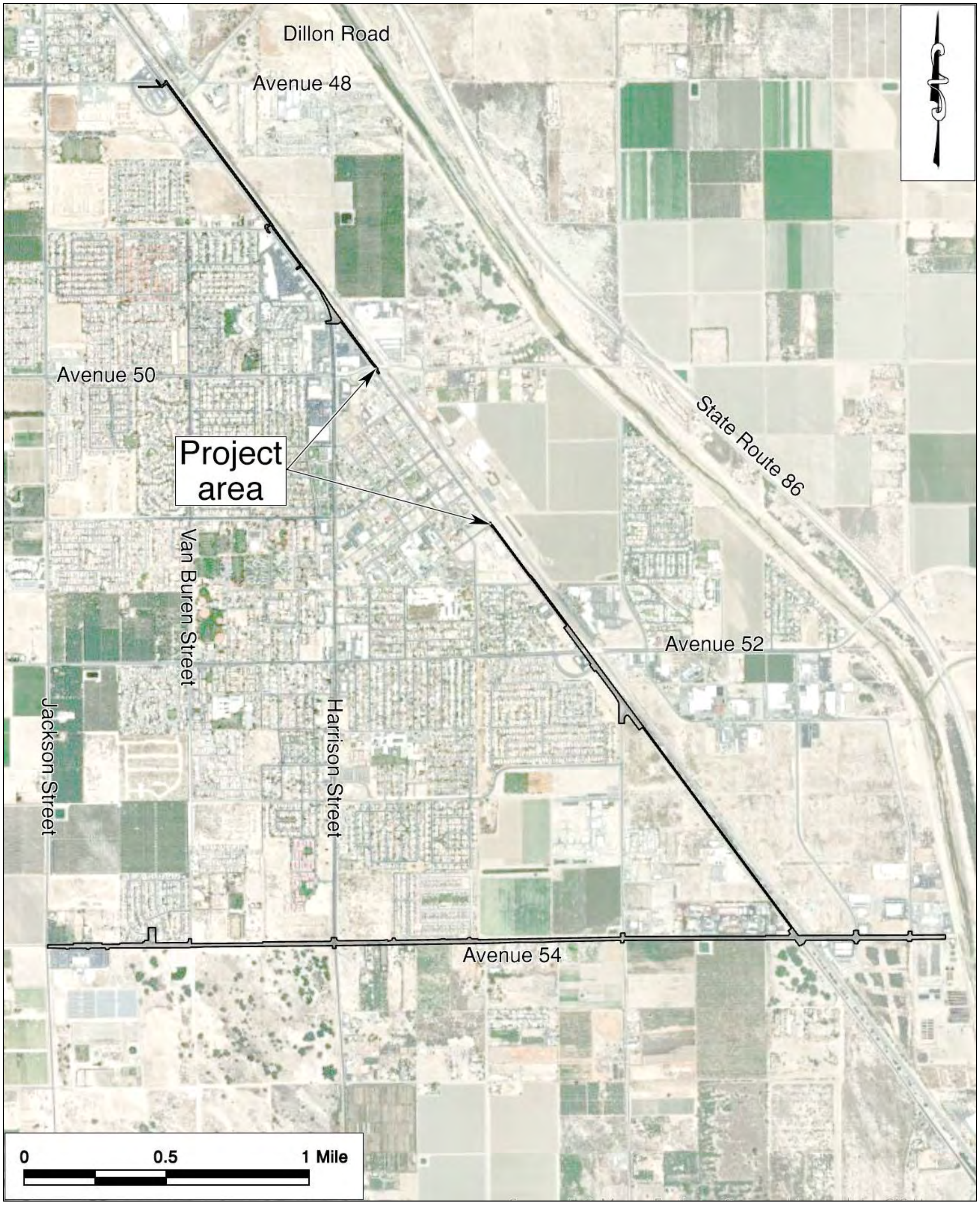

Figure 3. Recent satellite image of the project area. (Based on Google Earth imagery)

SETTING

CURRENT NATURAL SETTING

The City of Coachella is located in the Coachella Valley, a northwest-southeast trending desert valley that constitutes the western end of the Colorado Desert. Dictated by this geographic setting, the climate and environment of the region are typical of southern California's desert country, marked by extremes in temperature and aridity. Temperatures in the region reach over 120 degrees in summer, and dip to freezing in winter. Average annual precipitation is less than five inches, and the average annual evaporation rate exceeds three feet.

The project alignments extend across relatively level terrain on the valley floor, with a slight incline in elevation towards the north. Confined within the rights-of-way of three major public roadways in in the City of Coachella, the surface soils in the project area have been extensively disturbed in the past by road construction and maintenance as well as underground utility work. The project route along Grapefruit Boulevard is flanked by the Union Pacific Railroad on the east and mostly by commercial properties on the west. Elsewhere along the project route, the surrounding land features mainly residential properties and agricultural fields, along with some parcels of vacant desert land.

In its native state, vegetation common to the vicinity would be consistent with the Creosote Bush Scrub Plant Community, featuring creosote bush, prickly pear cactus, cholla, brittlebush, and globemallow. At the present time, however, very little vegetation remains within the project boundaries, while the surrounding land hosts various growths of agricultural crops, landscaping plants, rabbitbrush, tumbleweed, and other small desert shrubs and grasses (Fig. 4). Elevations

Figure 4. Typical landscape in the project area, view to the northwest along Grapefruit Boulevard. (Photograph taken on August 25, 2023)

along the project route range roughly between 110 feet and 40 feet below mean sea level. The surface soils are composed mainly of pale brown loam, light brownish gray very fine sandy loam, and light olive gray fine sand.

In past centuries, Native lifeways in the Coachella Valley were greatly influenced by the lacustral intervals—i.e., inundation and subsequent desiccation—of Holocene Lake Cahuilla, an ancient freshwater lake that repeatedly filled the Salton Basin over a period of at least 2,300 years before the 1730s A.D. (Rockwell et al. 2022). The shoreline of the lake during its last high stand around 1731-1733 coincided roughly with the present-day 42-foot contour (*ibid.*; Wilke 1978; Waters 1983). At its current range of elevations, the project area would have been submerged entirely by Lake Cahuilla prior to its final desiccation.

CULTURAL SETTING

Prehistoric Context

Numerous investigations on the history of cultural development in southern California have led researchers to propose a number of cultural chronologies for the desert regions. A specific cultural sequence for the Colorado Desert was offered by Schaefer (1994) on the basis of the many archaeological studies conducted in the area. The earliest time period identified is the Paleoindian (ca. 8,000 to 10,000-12,000 years ago), when "small, mobile bands" of hunters and gatherers, who relied on a variety of small and large game animals as well as wild plants for subsistence, roamed the region (*ibid.*:63). These small groups settled "on mesas and terraces overlooking larger washes" (*ibid.*:64). The artifact assemblage of that period typically consists of very simple stone tools, "cleared circles, rock rings, [and] some geoglyph types" (*ibid.*).

The Early Archaic Period follows and dates to ca. 8,000 to 4,000 years ago. It appears that a decrease in population density occurred at this time and that the indigenous groups of the area relied more on foraging than hunting. Very few archaeological remains have been identified to this time period. The ensuing Late Archaic Period (ca. 4,000 to 1,500 years ago) is characterized by continued low population densities and groups of "flexible" sizes that settled near available seasonal food resources and relied on "opportunistic" hunting of game animals. Groundstone artifacts for food processing were prominent during this time period.

The most recent period in Schaefer's scheme, the Late Prehistoric, dates from ca. 1,500 years ago to the time of the Spanish missions and saw the continuation of the seasonal settlement pattern. Peoples of the Late Prehistoric Period were associated with the Patayan cultural pattern and relied more heavily on the availability of seasonal "wild plants and animal resources" (Schaefer 1994:66). It was during this period that brown and buff ware ceramics were introduced into the region.

The shores of Holocene Lake Cahuilla, during times of its presence, attracted much settlement and resource procurement activities. In times of the lake's desiccation and absence, according to Schaefer (1994:66), the Native people moved away from its receding shores towards rivers, streams, and mountains. Numerous archaeological sites dating to the last high stand of Holocene Lake Cahuilla, roughly between 900 and 1700 A.D., have been identified along its former shoreline. Testing and mitigative excavations at these sites have recovered brown and buff ware ceramics, a variety of groundstone and projectile point types, ornaments, and cremation remains.

Ethnohistoric Context

The Coachella Valley is a historical center of Native American settlement, where U.S. surveyors noted large numbers of Indian villages and *rancherías*, occupied by the Cahuilla people, in the mid-19th century. The Takic-speaking Cahuilla are generally divided by anthropologists into three groups, according to their geographic setting: the Pass Cahuilla of the San Gorgonio Pass-Palm Springs area, the Mountain Cahuilla of the San Jacinto and Santa Rosa Mountains and the Cahuilla Valley, and the Desert Cahuilla of the eastern Coachella Valley. The basic written sources on Cahuilla culture and history include Kroeber (1925), Strong (1929), and Bean (1978). The following ethnohistoric discussion is based primarily on these sources.

The Cahuilla did not have a single name that referred to an all-inclusive tribal affiliation. Instead, membership was in terms of lineages or clans. Each lineage or clan belonged to one of two main divisions of the people, known as moieties. Members of clans in one moiety had to marry into clans from the other moiety. Individual clans had villages, or central places, and territories they called their own, for purposes of hunting game, gathering food, or utilizing other necessary resources. They interacted with other clans through trade, intermarriage, and ceremonies.

The Cahuilla were primarily hunters and gatherers who exploited nearly all of the resources available in a highly developed seasonal mobility system. They collected roots, fruits, and seeds, including acorns and mesquite beans, and hunted deer, antelope, big horn sheep, rabbits, wood rats and, when Holocene Lake Cahuilla was present, fish and waterfowls with throwing sticks, clubs, nets, traps, snares, as well as bows and arrow (Bean 1978). Common tools and utensils included manos and metates, mortars and pestles, hammerstones, fire drills, awls, arrow-straighteners, and stone knives and scrapers. These lithic tools were made from locally available material as well as exotic material procured through trade or travel. They also used wood, horn, and bone spoons and stirrers; baskets for winnowing, leaching, grinding, transporting, parching, storing, and cooking; and pottery vessels for carrying water, storage, cooking, and serving food and drink (*ibid.*).

Population data prior to European contact is almost impossible to obtain, but estimates range from 3,600 to as high as 10,000 persons. During the 19th century, however, the Cahuilla population was decimated as a result of European diseases, most notably smallpox, for which Native people had no immunity. Today, Native Americans of Pass or Desert Cahuilla heritage are mostly affiliated with one or more of the Indian reservations in and near the Coachella Valley, including Cabazon, Torres Martinez, Augustine, Agua Caliente, and Morongo.

Historic Context

In 1823-1825, José Romero, José Maria Estudillo, and Romualdo Pacheco became the first noted European explorers to travel through the Coachella Valley when they led a series of expeditions in search of a route to Yuma (Johnston 1987:92-95). Due to its harsh environment, few non-Indians ventured into the desert valley during the Mexican and early American periods, except those who traveled along the established trails. The most important of these trails was the Cocomaricopa Trail, an ancient Indian trading route that was "discovered" in 1862 by William David Bradshaw and known after that as the Bradshaw Trail (Gunther 1984:71; Ross 1992:25). In much of the Coachella Valley, this historic wagon road traversed a similar course to that of present-day State Route 111.

During the 1860s-1870s, the Bradshaw Trail served as the main thoroughfare between coastal southern California and the Colorado River, until the completion of the Southern Pacific Railroad in 1876-1877 brought an end to its heyday (Johnston 1987:185).

Non-Indian settlement in the Coachella Valley began in the 1870s with the establishment of railroad stations along the Southern Pacific Railroad, and spread further in the 1880s after public land was opened for claims under the Homestead Act, the Desert Land Act, and other federal land laws (Laflin 1998:35-36; Robinson 1948:169-171). Farming became the dominant economic activity in the valley thanks to the development of underground water sources, often in the form of artesian wells. Around the turn of the century, the date palm was introduced into the Coachella Valley, and by the late 1910s dates were the main agricultural crop and the tree an iconic image celebrating the region as the "Arabia of America" (Shields Date Gardens 1957). Then, starting in the 1920s, a new industry featuring equestrian camps, resorts, hotels, and eventually country clubs began to spread throughout the Coachella Valley, transforming it into southern California's premier winter retreat.

The City of Coachella traces its roots to a siding on the Southern Pacific Railroad, known originally as Woodspur. In 1901-1902, a townsite was developed around the siding, and a new name for the locale, Coachella, was coined from Coahuilla and Conchilla, two names that had been used alternatively for the Coachella Valley (Gunther 1984:121-122). The Coachella post office was established in late 1901, and the plat of the townsite was filed by the Coachella Land and Water Company the next year. The town was incorporated in 1946 as the 12th city in Riverside County, and since then has grown into a city of more than 29 square miles and an estimated population of more than 41,000 (City of Coachella n.d.).

RESEARCH METHODS

RECORDS SEARCH

On July 21 and August 7, 2023, CRM TECH archaeologist Nina Gallardo completed the records search at the Eastern Information Center (EIC), University of California, Riverside, which is the designated repository for Riverside County in the California Historical Resources Information System. During the records search, Gallardo examined maps and records on file at the EIC for previously identified cultural resources and existing cultural resources reports within a one-mile radius of the project location. Previously identified cultural resources include properties designated as California Historical Landmarks, Points of Historical Interest, or Riverside County Landmarks, as well as those listed in the National Register of Historic Places, the California Register of Historical Resources, or the California Historical Resources Inventory.

NATIVE AMERICAN PARTICIPATION

On July 3, 2023, CRM TECH submitted a written request to the State of California Native American Heritage Commission (NAHC) for a records search in the commission's Sacred Lands File. In the meantime, CRM TECH contacted the three nearest Native American groups, namely the Cabazon Band of Mission Indians, the Augustine Band of Cahuilla Indians, and the Torres Martinez Desert Cahuilla Indians, for additional information on potential Native American cultural resources in the project vicinity and to arrange for tribal participation in the upcoming archaeological field survey. The responses from the NAHC and the tribal organizations are summarized below and attached to this report in Appendix 2.

HISTORICAL BACKGROUND RESEARCH

Historical background research for this study was conducted by CRM TECH archaeologist Breidy Q. Vilcahuaman. Sources consulted during the research included published literature in local and regional history, U.S. General Land Office (GLO) land survey plat maps dated 1856, U.S. Geological Survey (USGS) topographic maps dated 1904-1979, and aerial/satellite photographs taken between 1996 and 2023. The historical maps are accessible at the websites of the U.S. Bureau of Land Management and the USGS, and the aerial/satellite photographs are available at the Nationwide Environmental Title Research (NETR) Online website and through the Google Earth software.

FIELD SURVEY

On August 25, 2023, CRM TECH field director Daniel Ballester carried out the field survey of the project area with the assistance of archaeological technician Paul Morales from the Torres Martinez Desert Cahuilla Indians. Most of the survey was conducted at an intensive level by walking along the side of the roadway where the proposed bicycle lane will be placed and closely inspecting the ground surface for any indication of potential cultural resources. In the portion of the project area along Avenue 54 and to the west of Grapefruit Boulevard, it was unclear at the time of the survey which side of the roadway the bicycle lane will be placed. Parts of that area were surveyed at a reconnaissance level from a slow-moving vehicle to facilitate efficient inspection of both sides of the street, while the other parts were surveyed on foot.

Using these methods, the entire project area was systematically examined for evidence of human activities dating to the prehistoric or historic period (i.e., 50 years or older). Other than the portions under road pavement, visibility of the native ground surface was excellent throughout the project area due to the sparsity of vegetation growth. In light of the extent of past ground disturbances along these major public roadways, the survey methods and ground visibility were deemed sufficient for the purpose of this study.

RESULTS AND FINDINGS

RECORDS SEARCH

Records of the EIC identified more than 140 previous cultural resources studies within the one-mile scope of the records search. Together, these studies covered almost all of the land within the scope. At least ten studies completed between 1979 and 2018 included various portions of the current project area, but none of them constituted a systematic survey of the project area in its entirety. As a result of the past survey efforts, nearly 150 cultural resources were recorded within the one-mile radius, including 51 prehistoric (i.e., Native American) sites, 66 historic-period sites, and 32 isolates (i.e., localities with fewer than three artifacts).

The prehistoric cultural resources within the records search scope, both sites and isolates, typically consisted of scattered flaked-stone, groundstone, ceramic, and/or faunal artifacts, some of them considered to be habitation debris, but also included cremation remains and a historic-period Native American cemetery. The historic-period cultural resources were mostly residences and buildings of other types, along with structural remains, infrastructure elements such as roads, irrigation and flood-control features such as the Coachella Canal and the Coachella Valley Stormwater Channel, and scattered refuse items.

Among these known cultural resources, two linear features of historical origin, designated Sites 33-009498 (CA-RIV-6381H) and 33-028164 in the California Historical Resources Inventory, were recorded as lying partially within the project area. Site 33-009498 represents the entire length of the former Southern Pacific (now Union Pacific) Railroad in Riverside County, which was constructed in 1876-1877 as a part of the Southern Pacific mainline between Los Angeles and Yuma, Arizona (see App. 3). In 2005, a segment of the rail line near the current project location was evaluated under the criteria of the National Register of Historic Places and the California Register of Historical Resources, and that segment was found not to meet of any of the criteria, nor to retain sufficient historic integrity or to contribute to the potential significance of the Southern Pacific Railroad system as a whole (see App. 3).

Site 33-028164 was recorded in 2017 as a half-mile segment of Avenue 48, which encompassed the segment in the project area. Although known to have been present at this location at least by the early 1940s, the recorded segment of Avenue 48 was described as being "modern in appearance" in 2017 due to alterations in recent years (see App. 3). The segment was evaluated under the criteria of the California Register of Historical Resources at the time and was found not to be eligible or to retain sufficient historic integrity (see App. 3). Except for Sites 33-009498 and 33-028164, none of the other known cultural resources has any potential to be impacted by the proposed project. Therefore, they require no further consideration during this study.

NATIVE AMERICAN PARTICIPATION

In response to CRM TECH's inquiry, the NAHC stated that the Sacred Lands File identified unspecified Native American cultural resource(s) in the project vicinity and referred further inquiry on such resources to the Cabazon Band of Mission Indians. In addition, the NAHC recommended that other local Native American representatives be contacted for pertinent information as well and provided a referral list of 20 individuals associated with 12 tribal organizations. The NAHC's reply is attached to this report in Appendix 2 for reference by the City of Coachella in future government-to-government consultations with the local Native American groups, if necessary.

As mentioned above, CRM TECH contacted the three nearest Native American groups during this study, including the Cabazon Band of Mission Indians. Among the three tribes, the Torres Martinez Desert Cahuilla Indians participated in the field survey but did not offer any information or comments. On August 8, 2023, Heather Haines, Tribal Operations Manager for the Augustine Band of Cahuilla Indians, replied by electronic mail, stating that the tribe would not be able to participate in the field survey and did not have any concerns or questions regarding the proposed project (see App. 2). To date, the Cabazon Band has not responded to the inquiry.

HISTORICAL BACKGROUND RESEARCH

Historical sources consulted for this study confirmed the prevalence of Native American activities in the Coachella area during the mid-1850s, when a number of settlements and related features, such as wells and a trail along the Whitewater River (now the Coachella Valley Stormwater Channel), were observed in the project vicinity (Fig. 5). None of these features, however, was located in the project area, although two *rancherías* were found in close proximity (Fig. 5). In 1901, shortly before the Coachella townsite was developed, the Southern Pacific Railroad and an accompanying web of winding roads were the only human-made features known to be located within or partially within the project boundaries (Fig. 6).

By the early 1940s, the town of Coachella had largely taken shape, surrounded by a regular grid of roads, including Avenue 48 and a segment of Avenue 54 (Fig. 7). Also noted in the project area at that time was present-day Grapefruit Boulevard, then a part of U.S. Highway 99 and State Route 111, which ran diagonally across the grid (Fig. 7). During the ensuing decade, Avenue 54 was completed through the project area as a paved road (Fig. 8; NETR Online 1953). Since then, the project area has remained an integral part of these local and regional thoroughfares to the present time (NETR Online 1953-2020; Google Earth 1996-2023).

Over the years, various improvements to the roadways were evident in the aerial and satellite images, such as raised medians, curbs, and sidewalks (NETR Online 1953-2020; Google Earth 1996-2023). Most notably, the intersection of Grapefruit Boulevard, Avenue 48, and Dillon Road was reconfigured in 2006-2009, and the segment of Avenue 48 was rebuilt during that project, with a median later added in 2018-2019 (Google Earth 2006-2019). The aerial and satellite images, thus, confirm the 2017 observation that that segment of Avenue 48 was essentially a modern feature (see App. 3).

FIELD SURVEY

The field survey did not encounter any buildings, structures, archaeological deposits, or other notable features of prehistoric or historical origin in the project area. The three public roadways containing the project alignments, the Union Pacific Railroad, and a number of other roads that cross the project route were found to be the only features more than 50 years of age that extend into the project boundaries. As with numerous other historical infrastructure elements that remain in service today, the current configuration and appearance of these features reflect the results of improvements and maintenance during the modern era, and none of them demonstrates any distinctively historical character.

DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

CEQA establishes that a project that may cause a substantial adverse change in the significance of a "historical resource" is a project that may have a significant effect on the environment (PRC §21084.1). "Substantial adverse change," according to PRC §5020.1(q), "means demolition, destruction, relocation, or alteration such that the significance of a historical resource would be impaired." As defined by PRC §5020.1(j), "'historical resource' includes, but is not limited to, any object, building, site, area, place, record, or manuscript which is historically or archaeologically

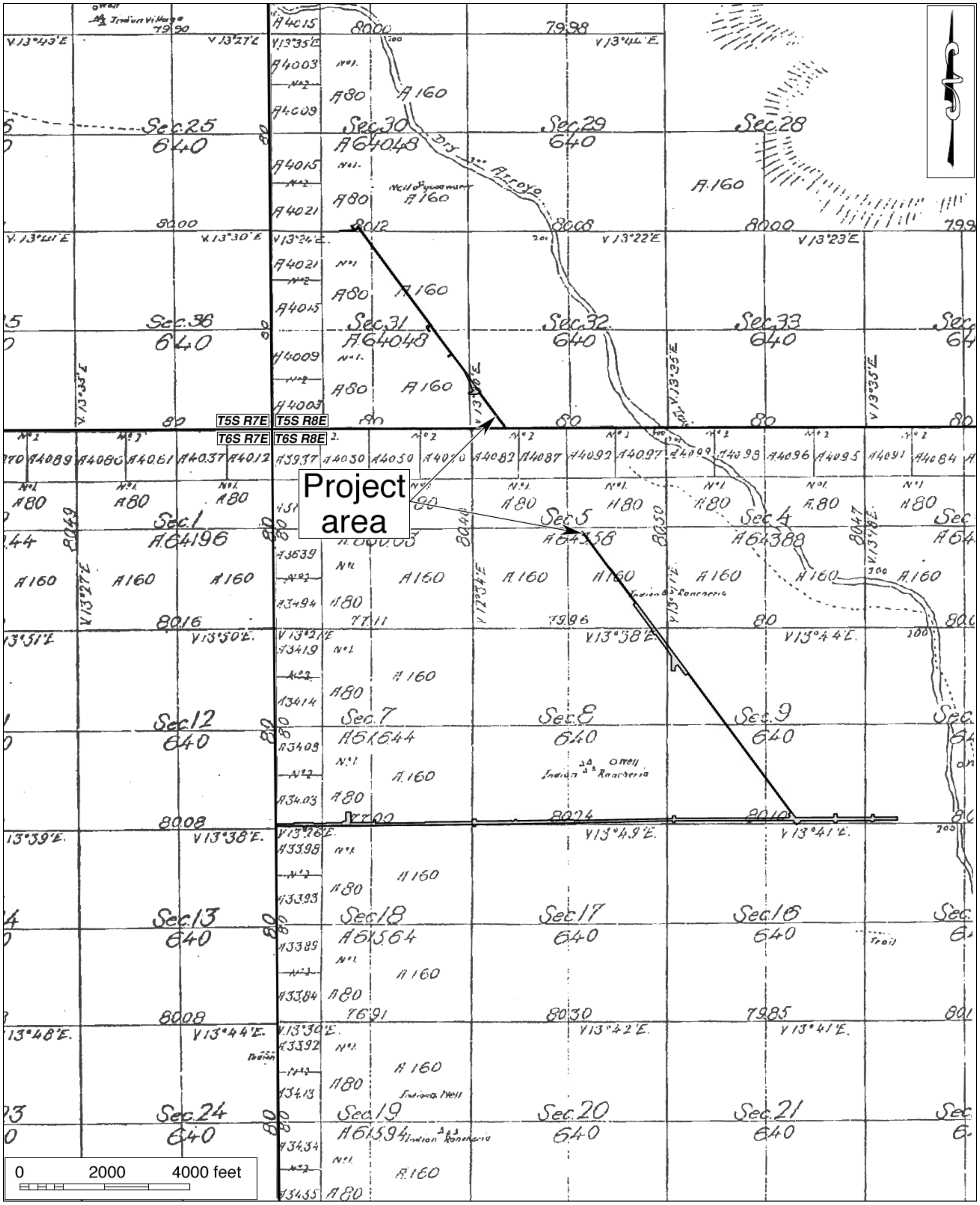

Figure 5. The project area and vicinity in 1853-1856. (Source: GLO 1856a-d)

significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California."

More specifically, CEQA guidelines state that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the lead agency (Title 14 CCR §15064.5(a)(1)-(3)). Regarding the proper criteria for the evaluation of historical significance, CEQA guidelines mandate that "generally a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources" (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

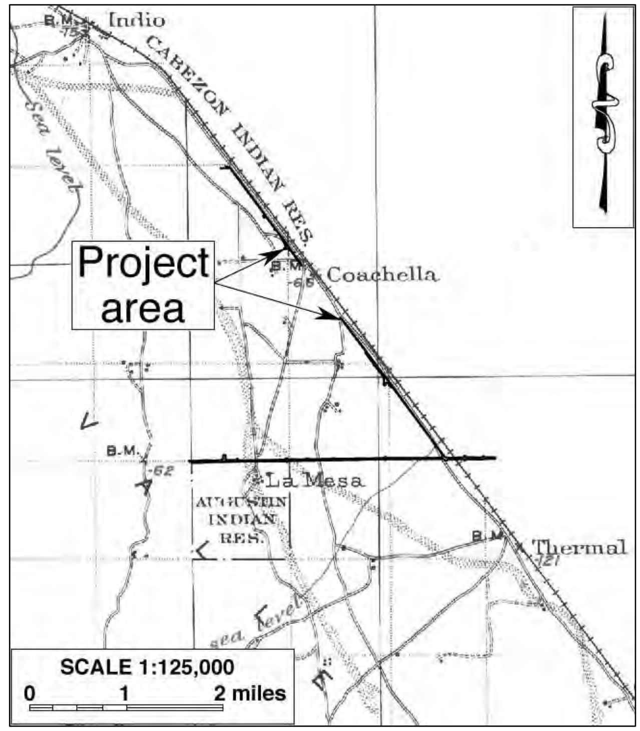

Figure 6. The project area and vicinity in 1901. (Source: USGS 1904)

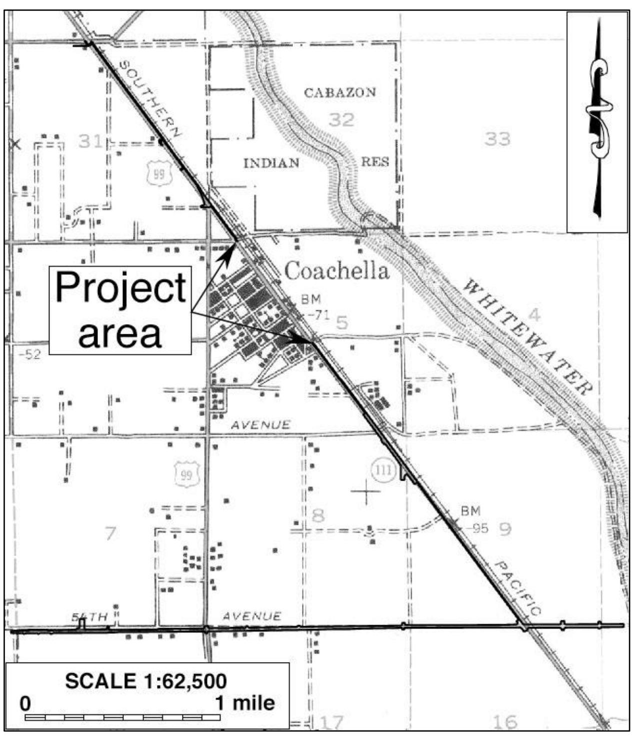

Figure 7. The project area and vicinity in 1941. (Source: USGS 1941)

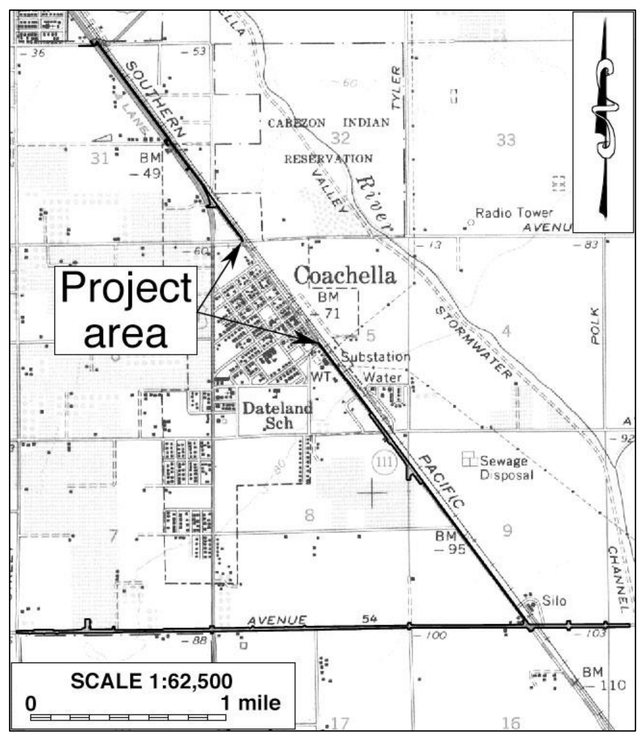

Figure 8. The project area and vicinity in 1951-1958. (Source: USGS 1958)

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(2) Is associated with the lives of persons important in our past.
(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
(4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

In summary of the research results presented above, two previously recorded linear features of historical origin, Avenue 48 (Site 33-028164) and the former Southern Pacific Railroad (Site 33-009498), are located partially within the project area. These two cultural resources were previously evaluated under the criteria of the California Register in 2017 and 2005, respectively, and both were determined not to be eligible (see App. 3). As infrastructure features of standard design and construction that have been continuously altered to maintain functionality over their entire history, neither of them was found to be closely associated with any persons or events of recognized historic significance, to represent an important example of its property type, or to hold a high archaeological data potential, nor did they retain sufficient historic integrity to relate to their periods of origin (see App. 3).

While the 2005 evaluation of the former Southern Pacific Railroad pertained specifically to the segment across Dillon Road near the northern end of the current project area, it is equally applicable to the segment lying across the project route along Avenue 54. Throughout the various avenues of research, the present study has not uncovered any new information that would warrant a reconsideration of the previous conclusions on the historic significance of Avenue 48 and the former Southern Pacific Railroad. Therefore, this study concurs with the previous conclusions and finds Sites 33-009498 and 33-028164 not to be eligible for the California Register of Historical Resources and thus not to qualify as "historical resources" under CEQA provisions.

Meanwhile, all of the other major roadways that coincide with or cross the project route, including Grapefruit Boulevard and Avenue 54, also trace their origins to the historic period. However, as working components of the modern transportation infrastructure that have been subject to repeated upgrading and constant maintenance, these roads do not demonstrate sufficient historical character to be considered potential "historical resources." Therefore, they require no further study or formal recordation into the California Historical Resources Inventory.

No other potential "historical resources" of prehistoric or historical origin were identified in the project area during the course of the study. As stated above, the Sacred Lands File search by the NAHC indicated the presence of unspecified Native American cultural resource(s) in the general vicinity of the project location, and the commission referred further inquiry to the Cabazon Band of Mission Indians. The tribe was contacted during this study, along with the nearby Augustine Band of Cahuilla Indians and Torres Martinez Desert Cahuilla Indians, but none of them provided any information pertaining to potential Native American cultural resources in the project vicinity. According to CEQA guidelines, the identification of potential "tribal cultural resources," as defined by PRC §21074, is beyond the scope of this study and needs to be addressed through government-to-government consultations between the City of Coachella and the pertinent Native American groups pursuant to Assembly Bill (AB) 52.

Based on these findings, CRM TECH presents the following recommendations to the City of Coachella:

- A tentative conclusion of *No Impact* on known cultural resources appears to be appropriate for this project, pending the completion of the AB 52 consultation process to ensure the proper identification of potential "tribal cultural resources."
- No additional cultural resources investigation is recommended for this project unless project plans undergo such changes as to include areas not covered by this study.
- If buried cultural materials are discovered during any earth-moving operations associated with the project, all work within 50 feet should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

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1856b Plat Map: Township No. 5 South Range No. 7 East, SBBM; surveyed in 1855-1856.
1856c Plat Map: Township No. 6 South Range No. 7 East, SBBM; surveyed in 1856.
1856d Plat Map: Township No. 6 South Range No. 8 East, SBBM; surveyed in 1856.

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1972a Map: Indio, Calif. (7.5', 1:24,000); 1956 edition photorevised in 1972.
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APPENDIX 1:
PERSONNEL QUALIFICATIONS

PRINCIPAL INVESTIGATOR, HISTORY/ARCHITECTURAL HISTORY
Bai "Tom" Tang, M.A.

Education

1988-1993	Graduate Program in Public History/Historic Preservation, University of California, Riverside.
1987	M.A., American History, Yale University, New Haven, Connecticut.
1982	B.A., History, Northwestern University, Xi'an, China.
2000	"Introduction to Section 106 Review," presented by the Advisory Council on Historic Preservation and the University of Nevada, Reno.
1994	"Assessing the Significance of Historic Archaeological Sites," presented by the Historic Preservation Program, University of Nevada, Reno.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1993-2002	Project Historian/Architectural Historian, CRM TECH, Riverside, California.
1993-1997	Project Historian, Greenwood and Associates, Pacific Palisades, California.
1991-1993	Project Historian, Archaeological Research Unit, University of California, Riverside.
1990	Intern Researcher, California State Office of Historic Preservation, Sacramento.
1990-1992	Teaching Assistant, History of Modern World, University of California, Riverside.
1988-1993	Research Assistant, American Social History, University of California, Riverside.
1985-1988	Research Assistant, Modern Chinese History, Yale University.
1985-1986	Teaching Assistant, Modern Chinese History, Yale University.
1982-1985	Lecturer, History, Xi'an Foreign Languages Institute, Xi'an, China.

Cultural Resources Management Reports

Preliminary Analyses and Recommendations Regarding California's Cultural Resources Inventory System (with Special Reference to Condition 14 of NPS 1990 Program Review Report). California State Office of Historic Preservation working paper, Sacramento, September 1990.

Numerous cultural resources management reports with the Archaeological Research Unit, Greenwood and Associates, and CRM TECH, since October 1991.

PRINCIPAL INVESTIGATOR, ARCHAEOLOGY
Michael Hogan, Ph.D., RPA (Registered Professional Archaeologist)

Education

1991	Ph.D., Anthropology, University of California, Riverside.
1981	B.S., Anthropology, University of California, Riverside; with honors.
1980-1981	Education Abroad Program, Lima, Peru.

2002	"Section 106—National Historic Preservation Act: Federal Law at the Local Level," UCLA Extension Course #888.
2002	"Recognizing Historic Artifacts," workshop presented by Richard Norwood, Historical Archaeologist.
2002	"Wending Your Way through the Regulatory Maze," symposium presented by the Association of Environmental Professionals.
1992	"Southern California Ceramics Workshop," presented by Jerry Schaefer.
1992	"Historic Artifact Workshop," presented by Anne Duffield-Stoll.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1999-2002	Project Archaeologist/Field Director, CRM TECH, Riverside, California.
1996-1998	Project Director and Ethnographer, Statistical Research, Inc., Redlands, California.
1992-1998	Assistant Research Anthropologist, University of California, Riverside.
1992-1995	Project Director, Archaeological Research Unit, U.C. Riverside.
1993-1994	Adjunct Professor, Riverside Community College, Mt. San Jacinto College, U.C. Riverside, Chapman University, and San Bernardino Valley College.
1991-1992	Crew Chief, Archaeological Research Unit, U.C. Riverside.
1984-1998	Project Director, Field Director, Crew Chief, and Archaeological Technician for various southern California cultural resources management firms.

Research Interests

Cultural Resource Management, Southern Californian Archaeology, Settlement and Exchange Patterns, Specialization and Stratification, Culture Change, Native American Culture, Cultural Diversity.

Cultural Resources Management Reports

Principal investigator for, author or co-author of, and contributor to numerous cultural resources management study reports since 1986.

Memberships

Society for American Archaeology; Society for California Archaeology; Pacific Coast Archaeological Society; Coachella Valley Archaeological Society.

PROJECT ARCHAEOLOGIST/REPORT WRITER
Breidy Q. Vilcahuaman, M.A., RPA (Registered Professional Archaeologist)

Education

2018	M.A., Anthropology, Georgia State University, Atlanta, Georgia.
2005	B.A., Anthropology, University Nacional del Centro del Peru.

Professional Experience

2022-	Project Archaeologist, CRM TECH, Colton, California.
2021-2022	Archaeological Technician, Applied Earthwork, Inc., Hemet, California.
2021	Archaeologist/Crew Chief, Historical Research Associates, Inc., Portland, Oregon.
2020-2021	Archaeological Technician, Cogstone Resource Management, Orange, California.
2020	Archaeological Technician, McKenna et al., Whittier, California.

PROJECT ARCHAEOLOGIST/FIELD DIRECTOR
Daniel Ballester, M.S.

Education

2013	M.S., Geographic Information System (GIS), University of Redlands, California.
1998	B.A., Anthropology, California State University, San Bernardino.
1997	Archaeological Field School, University of Las Vegas and University of California, Riverside.
1994	University of Puerto Rico, Rio Piedras, Puerto Rico.
2007	Certificate in Geographic Information Systems (GIS), California State University, San Bernardino.
2002	"Historic Archaeology Workshop," presented by Richard Norwood, Base Archaeologist, Edwards Air Force Base; presented at CRM TECH, Riverside, California.

Professional Experience

2002-	Field Director/GIS Specialist, CRM TECH, Riverside/Colton, California.
1999-2002	Project Archaeologist, CRM TECH, Riverside, California.
1998-1999	Field Crew, K.E.A. Environmental, San Diego, California.
1998	Field Crew, A.S.M. Affiliates, Encinitas, California.
1998	Field Crew, Archaeological Research Unit, University of California, Riverside.

PROJECT ARCHAEOLOGIST/NATIVE AMERICAN LIAISON
Nina Gallardo, B.A.

Education

2004 B.A., Anthropology/Law and Society, University of California, Riverside.

Professional Experience

2004- Project Archaeologist, CRM TECH, Riverside/Colton, California.

Cultural Resources Management Reports

Co-author of and contributor to numerous cultural resources management reports since 2004.

APPENDIX 2

NATIVE AMERICAN RESPONSES

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

August 2, 2023

Nina Gallardo
CRM TECH

Via Email to: ngallardo@crmtech.us

Re: Proposed Connect Coachella City Project, Riverside County

Dear Ms. Gallardo:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information submitted for the above referenced project. The results were positive. Please contact the Cabazon Band of Mission Indians on the attached list for information. Please note that tribes do not always record their sacred sites in the SLF, nor are they required to do so. A SLF search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with a project's geographic area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites, such as the appropriate regional California Historical Research Information System (CHRIS) archaeological Information Center for the presence of recorded archaeological sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. Please contact all of those listed; if they cannot supply information, they may recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Riverside County
8/2/2023

Tribe Name	Fed (F) Non-Fed (N)	Contact Person	Contact Address	Phone #	Fax #	Email Address	Cultural Affiliation	Counties
Agua Caliente Band of Cahuilla Indians	F	Patricia Garcia, Director of Historic Preservation	5401 Dinah Shore Drive Palm Springs, CA, 92264	(760) 699-6907	(760) 699-6919	pagarcia@aguacaliente.net	Cahuilla	Imperial,Riverside,San Bernardino, San Diego
Augustine Band of Cahuilla Mission Indians	F	Amanda Vance, Chairperson	84-001 Avenue 54 Coachella, CA, 92236	(760) 398-4722	(760) 369-7161	hhaines@augustinetribe.com	Cahuilla	Imperial,Riverside,San Bernardino, San Diego
Cabazon Band of Mission Indians	F	Doug Welmas, Chairperson	84-245 Indio Springs Parkway Indio, CA, 92203	(760) 342-2593	(760) 347-7880	jstapp@cabazonindians-nsn.gov	Cahuilla	Imperial,Riverside,San Bernardino, San Diego
Cahuilla Band of Indians	F	Anthony Madrigal, Tribal Historic Preservation Officer	52701 CA Highway 371 Anza, CA, 92539	(951) 763-5549		anthonymad2002@gmail.com	Cahuilla	Imperial,Riverside,San Bernardino, San Diego
Cahuilla Band of Indians	F	Daniel Salgado, Chairperson	52701 CA Highway 371 Anza, CA, 92539	(951) 972-2568	(951) 763-2808	chairman@cahuilla-nsn.gov	Cahuilla	Imperial,Riverside,San Bernardino, San Diego
Cahuilla Band of Indians	F	BobbyRay Esaprza, Cultural Director	52701 CA Highway 371 Anza, CA, 92539	(951) 763-5549		besparza@cahuilla-nsn.gov	Cahuilla	Imperial,Riverside,San Bernardino, San Diego
Los Coyotes Band of Cahuilla and Cupeño Indians	F	Ray Chapparosa, Chairperson	P.O. Box 189 Warner Springs, CA, 92086-0189	(760) 782-0711	(760) 782-0712		Cahuilla	Imperial,Riverside,San Bernardino, San Diego
Morongo Band of Mission Indians	F	Ann Brierty, THPO	12700 Pumarra Road Banning, CA, 92220	(951) 755-5259	(951) 572-6004	abrierty@morongo-nsn.gov	Cahuilla Serrano	Imperial,Los Angeles,Riverside,San Bernardino,San Diego
Morongo Band of Mission Indians	F	Robert Martin, Chairperson	12700 Pumarra Road Banning, CA, 92220	(951) 755-5110	(951) 755-5177	abrierty@morongo-nsn.gov	Cahuilla Serrano	Imperial,Los Angeles,Riverside,San Bernardino,San Diego
Quechan Tribe of the Fort Yuma Reservation	F	Jordan Joaquin, President, Quechan Tribal Council	P.O.Box 1899 Yuma, AZ, 85366	(760) 919-3600		executivesecretary@quechantribe.com	Quechan	Imperial,Kern,Los Angeles,Riverside, San Bernardino,San Diego
Quechan Tribe of the Fort Yuma Reservation	F	Jill McCormick, Historic Preservation Officer	P.O. Box 1899 Yuma, AZ, 85366	(928) 261-0254		historicpreservation@quechantribe.com	Quechan	Imperial,Kern,Los Angeles,Riverside, San Bernardino,San Diego
Quechan Tribe of the Fort Yuma Reservation	F	Manfred Scott, Acting Chairman - Kw'ts'an Cultural Committee	P.O. Box 1899 Yuma, AZ, 85366	(928) 210-8739		culturalcommittee@quechantribe.com	Quechan	Imperial,Kern,Los Angeles,Riverside, San Bernardino,San Diego
Ramona Band of Cahuilla	F	Joseph Hamilton, Chairperson	P.O. Box 391670 Anza, CA, 92539	(951) 763-4105	(951) 763-4325	admin@ramona-nsn.gov	Cahuilla	Imperial,Riverside,San Bernardino, San Diego
Ramona Band of Cahuilla	F	John Gomez, Environmental Coordinator	P. O. Box 391670 Anza, CA, 92539	(951) 763-4105	(951) 763-4325	jgomez@ramona-nsn.gov	Cahuilla	Imperial,Riverside,San Bernardino, San Diego
Santa Rosa Band of Cahuilla Indians	F	Lovina Redner, Tribal Chair	P.O. Box 391820 Anza, CA, 92539	(951) 659-2700	(951) 659-2228	lsaul@santarosa-nsn.gov	Cahuilla	Imperial,Los Angeles,Orange, Riverside,San Bernardino,San Diego
Soboba Band of Luiseno Indians	F	Joseph Ontiveros, Tribal Historic Preservation Officer	P.O. Box 487 San Jacinto, CA, 92581	(951) 663-5279	(951) 654-4198	jontiveros@soboba-nsn.gov	Cahuilla Luiseno	Imperial,Los Angeles,Orange, Riverside,San Bernardino,San Diego
Soboba Band of Luiseno Indians	F	Jessica Valdez, Cultural Resource Specialist	P.O. Box 487 San Jacinto, CA, 92581	(951) 663-6261	(951) 654-4198	jvaldez@soboba-nsn.gov	Cahuilla Luiseno	Imperial,Los Angeles,Orange, Riverside,San Bernardino,San Diego
Torres-Martinez Desert Cahuilla Indians	F	Cultural Committee,	P.O. Box 1160 Thermal, CA, 92274	(760) 397-0300	(760) 397-8146	Cultural-Committee@torresmartinez-nsn.gov	Cahuilla	Imperial,Riverside,San Bernardino, San Diego
Twenty-Nine Palms Band of Mission Indians	F	Anthony Madrigal, Tribal Historic Preservation Officer	46-200 Harrison Place Coachella, CA, 92236	(760) 775-3259		amadrigal@29palmsbomi-nsn.gov	Chemehuevi	Imperial,Inyo,Riverside,San Bernardino
Twenty-Nine Palms Band of Mission Indians	F	Darrell Mike, Chairperson	46-200 Harrison Place Coachella, CA, 92236	(760) 863-2444	(760) 863-2449	29chairman@29palmsbomi-nsn.gov	Chemehuevi	Imperial,Inyo,Riverside,San Bernardino

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Connect Coachella Project, Riverside County.

Record: PROJ-2023-003841
Report Type: List of Tribes
Counties: Riverside
NAHC Group: All

From: Heather Haines <hhaines@augustinetribe.com>
Sent: Monday, August 21, 2023 11:23 AM
To: ngallardo@crmtech.us
Subject: RE: Participation in Field Survey and Information Request for Connect Coachella Project in the City of Coachella (CRM TECH #4031A)

Good Morning Nina-

Thank you for your email. Unfortunately, the Tribe will not be able to participate in this event.

At this time, I do not have any concerns or questions.

Best,

Heather Haines, MPA
Tribal Operations Manager
Augustine Band of Cahuilla Indians

Office: (760) 398-4722 Ext 7497
Cell: (760)574-6444
Email: hhaines@augustinetribe.com
Website: augustinetribe-nsn.gov

APPENDIX 3

CULTURAL RESOURCES IN THE PROJECT AREA

Available to qualified professionals upon request

Appendix D

Paleontological Resources Assessment Report

PALEONTOLOGICAL RESOURCES ASSESSMENT REPORT

CONNECT COACHELLA PROJECT

City of Coachella
Riverside County, California

For Submittal to:

City of Coachella
53990 Enterprise way
Coachella, CA 92236

Prepared for:

Terra Nova Planning and Research, Inc.
42635 Melanie Place, Suite 101
Palm Desert, CA 92211

Submitted by:

Ron C. Schmidtling, Paleontologist
Breidy Q. Vilcahuaman, Report Writer
CRM TECH
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

Michael Hogan, Principal Investigator
Bai Tang, Principal Investigator

November 27, 2023

Approximately seven linear miles
USGS Indio, Calif., 7.5' Quadrangle
Sections 30-32, T5S R8E, and Sections 5, 7-10, and 15-18, T6S R8E, SBBM
City of Coachella Project No. ST-138; CRM TECH Project No. 4031P

EXECUTIVE SUMMARY

Between July and November 2023, at the request of Terra Nova Planning and Research, Inc., CRM TECH performed a paleontological resource assessment for the proposed Connect Coachella Project in the City of Coachella, which seeks to establish Class I and Class II bicycle lanes along segments of Avenue 48, Grapefruit Boulevard, and Avenue 54. The project alignments lie within the existing right-of-way of Avenue 48 from Dillon Road to Grapefruit Boulevard, the Grapefruit Boulevard right-of-way from Avenue 48 to Leoco Lane and from 9th Street to Avenue 54, and the Avenue 54 right-of-way from Jackson Street to the Coachella Valley Stormwater Channel. Measuring approximately seven linear miles in total length, the project route extends across portions of Sections 30-32 of T5S R8E and Sections 5, 7-10, and 15-18 of T6S R8E, San Bernardino Baseline and Meridian.

The study is part of the environmental review process for the project. The City of Coachella, as the project proponent and the lead agency, required the study in compliance with the California Environmental Quality Act (CEQA). The purpose of the study is to provide the City with the necessary information and analysis to determine whether the proposed project would adversely affect any significant, nonrenewable paleontological resources, as required by CEQA. In order to identify any paleontological resource localities that may exist in or near the project area and to assess the probability for such resources to be encountered during the project, CRM TECH initiated a paleontological records search, conducted a literature review, and carried out a systematic field survey of the project area, in accordance with the guidelines of the Society of Vertebrate Paleontology.

The results of these research procedures indicate that the project's potential to impact significant paleontological resources appears to be low in the extensively disturbed surface and near-surface soils of Holocene age but high in the subsurface Pleistocene alluvial sediments that may be present at unknown depths. Therefore, CRM TECH recommends that a mitigation program be developed and implemented for the proposed project to prevent impact on paleontological resources or reduce such impact to a level less than significant. As the primary component of the mitigation program, all earth-moving operations impacting relatively undisturbed native soils below the depth of three feet should be monitored periodically by a qualified paleontological monitor to ensure the timely identification of potentially fossil-bearing sediments. If such sediments are exposed, continuous monitoring will become necessary. Under this condition, CRM TECH further recommends that the proposed project may be cleared to proceed in compliance with CEQA provisions on paleontological resources.

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INTRODUCTION

Between July and November 2023, at the request of Terra Nova Planning and Research, Inc., CRM TECH performed a paleontological resource assessment for the proposed Connect Coachella Project in the City of Coachella, which seeks to establish Class I and Class II bicycle lanes along segments of Avenue 48, Grapefruit Boulevard, and Avenue 54 (Figs. 1-3). The project alignments lie within the existing right-of-way of Avenue 48 from Dillon Road to Grapefruit Boulevard, the Grapefruit Boulevard right-of-way from Avenue 48 to Leoco Lane and from 9th Street to Avenue 54, and the Avenue 54 right-of-way from Jackson Street to the Coachella Valley Stormwater Channel (Figs. 2a, 2b, 3). Measuring approximately seven linear miles in total length, the project route extends across portions of Sections 30-32 of T5S R8E and Sections 5, 7-10, and 15-18 of T6S R8E, San Bernardino Baseline and Meridian (Figs. 2a, 2b).

The study is part of the environmental review process for the project. The City of Coachella, as the project proponent and the lead agency, required the study in compliance with the California Environmental Quality Act (CEQA; PRC §21000, et seq.). The purpose of the study is to provide the City with the necessary information and analysis to determine whether the proposed project would adversely affect any significant, nonrenewable paleontological resources, as required by CEQA.

In order to identify any paleontological resource localities that may exist in or near the project area and to assess the probability for such resources to be encountered during the project, CRM TECH initiated a paleontological records search, conducted a literature review, and carried out a systematic field survey of the project area, in accordance with the guidelines of the Society of Vertebrate Paleontology. The following report is a complete account of the methods, results, and final

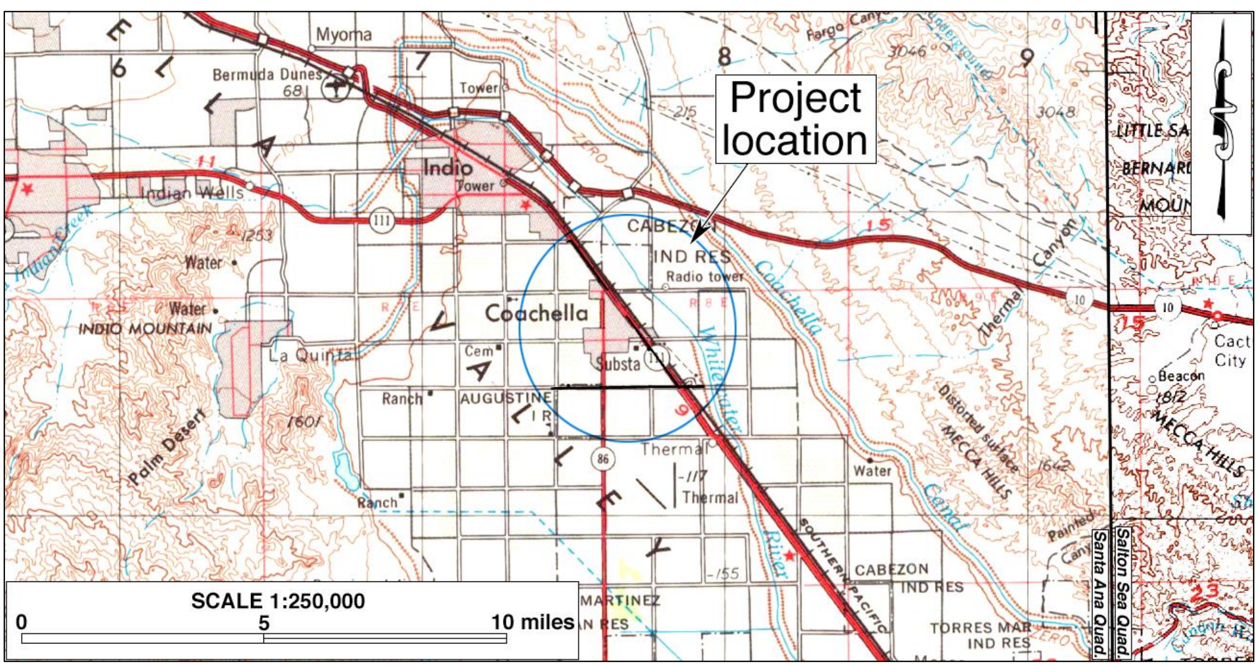

Figure 1. Project vicinity. (Based on USGS Salton Sea, Calif.-Ariz., and Santa Ana, Calif., 120'x60' quadrangles [USGS 1969; 1979])

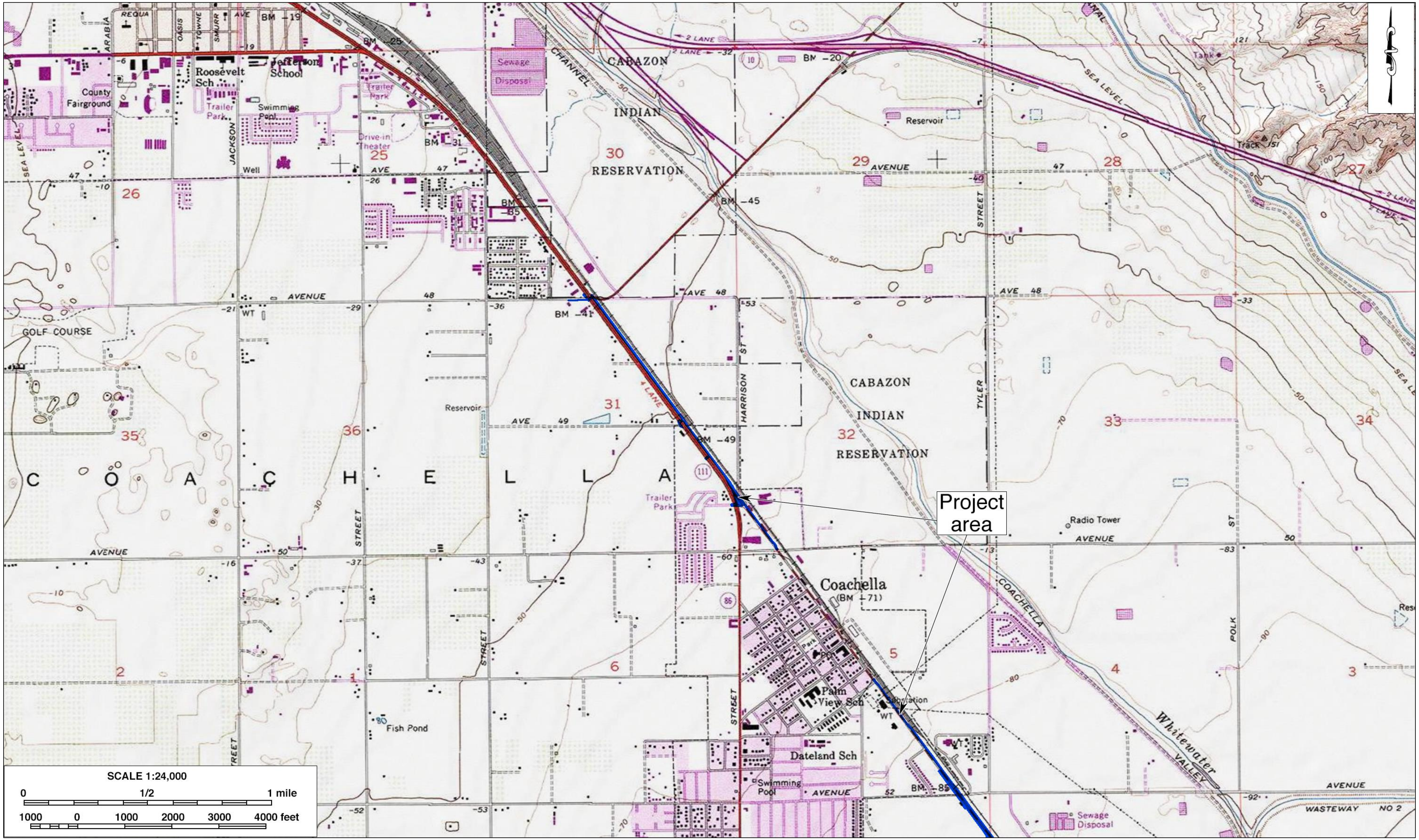

Figure 2a. Northern portion of the project area. (Based on USGS Indio, Calif., 7.5' quadrangle [USGS 1972a])

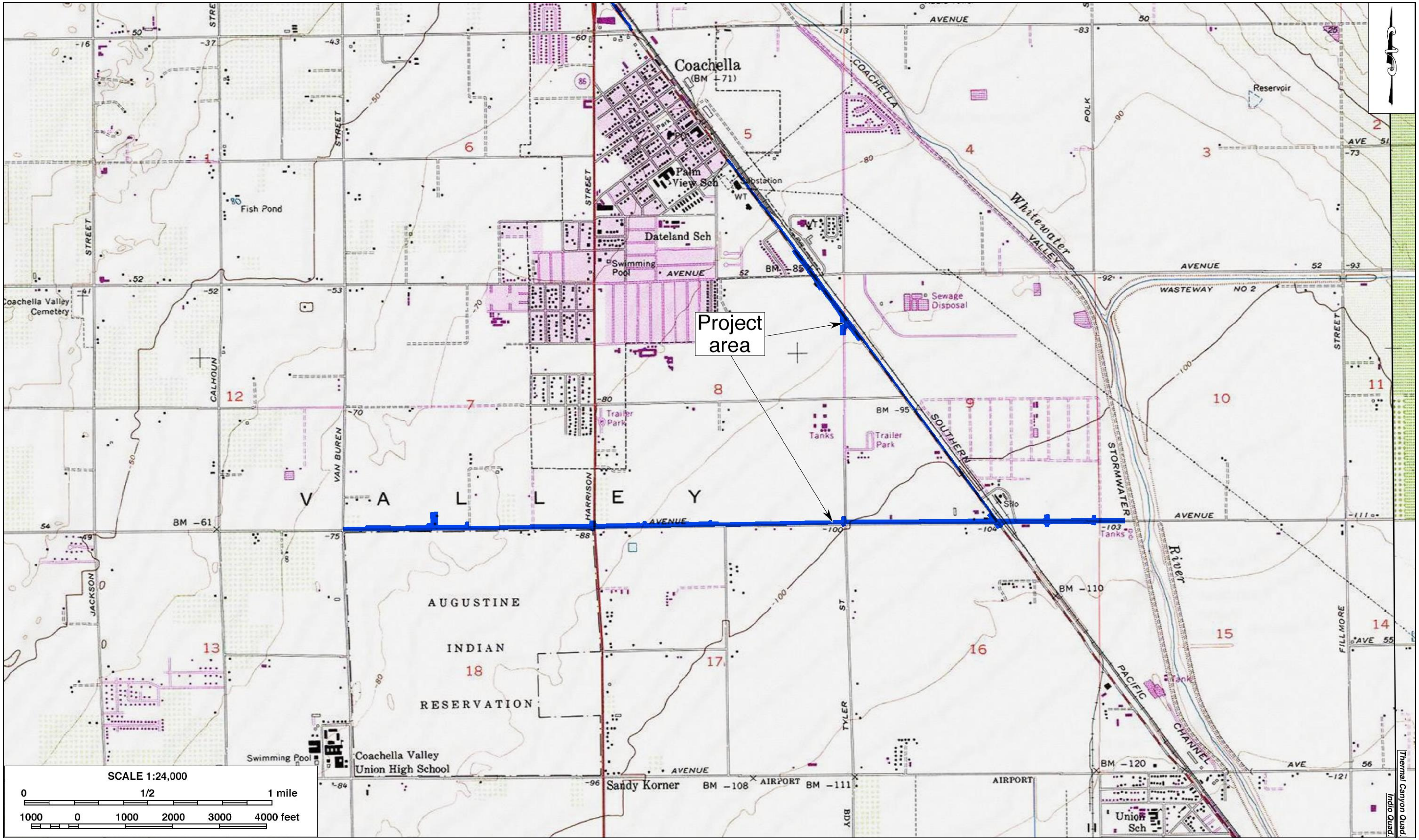

Figure 2b. Southern portion of the project area. (Based on USGS Indio and Thermal Canyon, Calif., 7.5' quadrangles [USGS 1972a; 1972b])

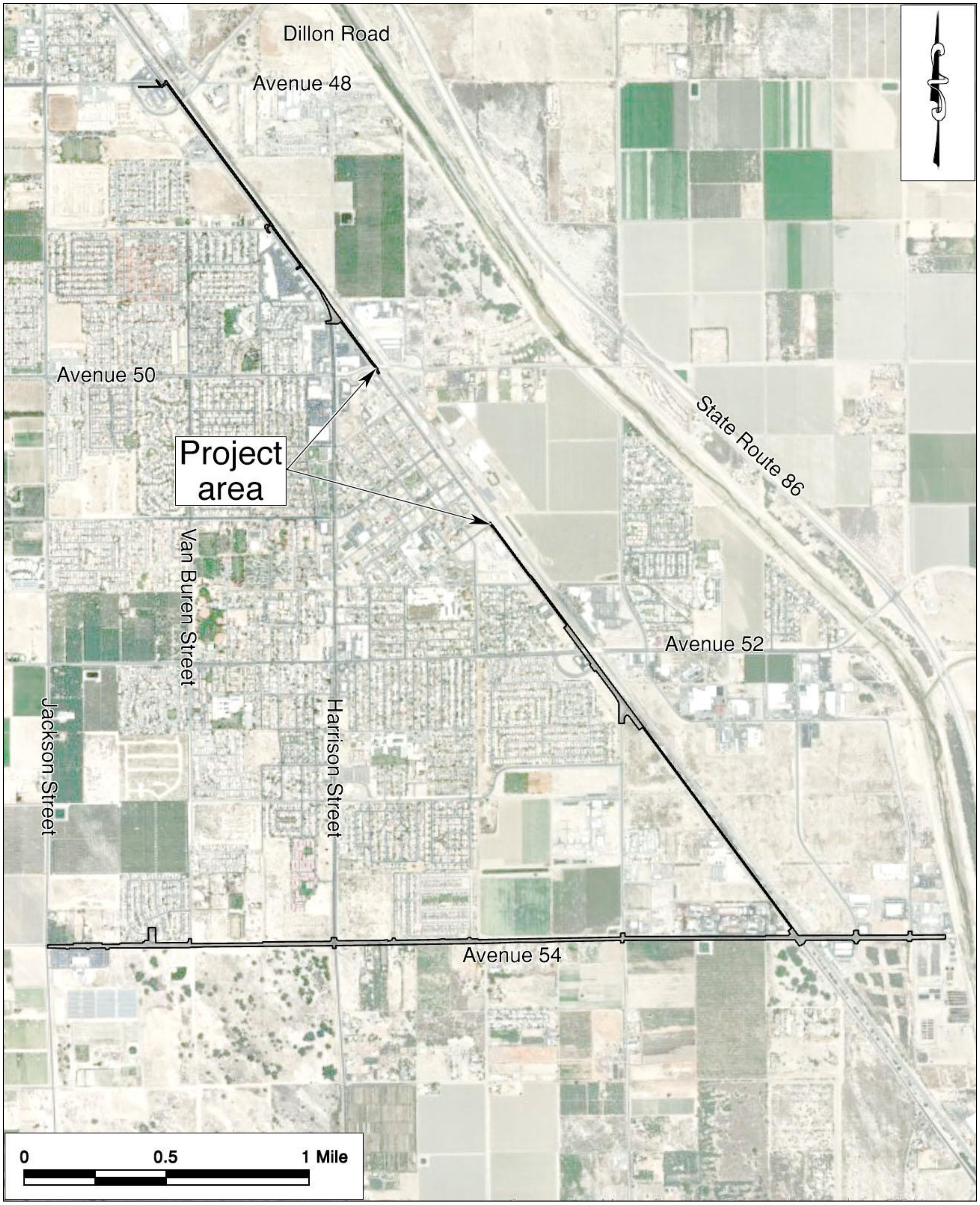

Figure 3. Recent satellite image of the project area.

conclusion of this study. Personnel who participated in the study are named in the appropriate sections below, and their qualifications are provided in Appendix 1.

PALEONTOLOGICAL RESOURCES

DEFINITION

Paleontological resources represent the remains of prehistoric life, exclusive of any human remains, and include the localities where fossils were collected as well as the sedimentary rock formations in which they were found. The defining character of fossils or fossil deposits is their geologic age, typically older than recorded human history and/or older than the middle Holocene Epoch, which dates to circa 5,000 radiocarbon years (Society of Vertebrate Paleontology 2010:11).

Common fossil remains include marine and freshwater mollusk shells; the bones and teeth of fish, amphibians, reptiles, and mammals; leaf imprint assemblages; and petrified wood. Fossil traces, another type of paleontological resource, include internal and external molds (impressions) and casts created by these organisms. These items can serve as important guides to the age of the rocks and sediments in which they are contained, and may prove useful in determining the temporal relationships between rock deposits from one area and those from another as well as the timing of geologic events. They can also provide information regarding evolutionary relationships, development trends, and environmental conditions.

Fossil resources generally occur only in areas of sedimentary rock (e.g., sandstone, siltstone, mudstone, claystone, or shale). Because of the infrequency of fossil preservation, fossils, particularly vertebrate fossils, are considered nonrenewable paleontological resources. Occasionally fossils may be exposed at the surface through the process of natural erosion or because of human disturbances; however, they generally lay buried beneath the surficial soils. Thus, the absence of fossils on the surface does not preclude the possibility of their being present within subsurface deposits, while the presence of fossils at the surface is often a good indication that more remains may be found in the subsurface.

SIGNIFICANCE CRITERIA

According to guidelines proposed by Eric Scott and Kathleen Springer (2003:6) of the San Bernardino County Museum, paleontological resources can be considered to be of significant scientific interest if they meet one or more of the following criteria:

1. The fossils provide information on the evolutionary relationships and developmental trends exhibited among organisms, living or extinct;
2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or the interactions between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life; and/or

5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

PALEONTOLOGICAL SENSITIVITY

The fossil record is unpredictable, and the preservation of organic remains is rare, requiring a particular sequence of events involving physical and biological factors. Skeletal tissue with a high percentage of mineral matter is the most readily preserved within the fossil record; soft tissues not intimately connected with the skeletal parts, however, are the least likely to be preserved (Raup and Stanley 1978). For this reason, the fossil record contains a biased selection not only of the types of organisms preserved but also of certain parts of the organisms themselves. As a consequence, paleontologists are unable to know with certainty, the quantity of fossils or the quality of their preservation that might be present within any given geologic unit.

Sedimentary units that are paleontologically sensitive are those geologic units (mappable rock formations) with a high potential to contain significant nonrenewable paleontological resources. More specifically, these are geologic units within which vertebrate fossils or significant invertebrate fossils have been determined by previous studies to be present or are likely to be present. These units include, but are not limited to, sedimentary formations that contain significant paleontological resources anywhere within their geographical extent as well as sedimentary rock units temporally or lithologically amenable to the preservation of fossils.

A geologic formation is defined as a stratigraphic unit identified by its lithic characteristics (e.g., grain size, texture, color, and mineral content) and stratigraphic position. There is a direct relationship between fossils and the geologic formations within which they are enclosed and, with sufficient knowledge of the geology and stratigraphy of a particular area, it is possible for paleontologists to reasonably determine the formation’s potential to contain significant nonrenewable vertebrate, invertebrate, marine, or plant fossil remains.

The paleontological sensitivity for a geologic formation is determined by the potential for that formation to produce significant nonrenewable fossils. This determination is based on what fossil resources the particular geologic formation has produced in the past at other nearby locations. Determinations of paleontologic sensitivity must consider not only the potential to yield a large collection of fossil remains but also the potential to yield a few fossils that can provide new and significant taxonomic, phylogenetic, and/or stratigraphic data.

The Society of Vertebrate Paleontology issued a set of standard guidelines intended to assist paleontologists to assess and mitigate any adverse effects/impacts to nonrenewable paleontological resources. The guidelines defined four categories of paleontological sensitivity for geologic units that might be impacted by a proposed project, as listed below (Society of Vertebrate Paleontology 2010:1-2):

- **High Potential**: Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered.
- **Undetermined Potential**: Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment.

- **Low Potential**: Rock units that are poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances.
- **No Potential**: Rock units that have no potential to contain significant paleontological resources, such as high-grade metamorphic rocks and plutonic igneous rocks.

SETTING

REGIONAL GEOLOGY

The City of Coachella lies in the heart of the Coachella Valley, which occupies the northwestern portion of the Colorado Desert geomorphic province (Jenkins 1980:40-41; Harms 1996:iii; Harden 2004:63-64). The Colorado Desert province, one of 11 in the state of California, is bounded by the Peninsular Ranges province on the southwest, the eastern portion of the Transverse Ranges province on the north, and the southern portion of the Mojave Desert province on the northeast (*ibid*.). The province widens to the southeast as it extends through the Imperial Valley and into Mexico.

One of the major features within the Colorado Desert province is the Salton Trough, a 290-kilometer-long (approximately 180 miles) structural depression containing the present-day Salton Sea. Historically, the Salton Trough was the site of Holocene Lake Cahuilla, which was in fact a series of lakes that once filled portions of the depression, including much of the Coachella Valley. Some 4.5 million years ago, the Salton Trough was a northward extension of the Gulf of California (Powell 1995). At that time the gulf extended as far north as the Painted Hills area, just northeast of where the Whitewater River intersects the Interstate 10 today. Rocks containing marine fossils that were deposited during this period can be found outcropping at Painted Hill, Garnet Hill, and at least two places in the Indio Hills (Proctor 1968:Plate 1).

The Salton Trough was eventually cut off from the Gulf of California by the delta built up at the mouth of the Colorado River. Containing materials eroded from the Grand Canyon, this delta extended across the gulf from one end to the other, creating a barrier between the gulf and the trough. While much of the Salton Trough is below sea level, the delta prevents any gulf waters from reaching the trough. Conversely, the delta prevents any water in the trough from flowing to the gulf except when the trough is full and the water level rises over the delta.

The delta determined the direction of flow for the Colorado River. When the flow was to the north, it went into the Salton Basin and over time filled it to the spill point of the delta. Once the spill point was reached, the water forming a Holocene Lake Cahuilla would flow over the western portion of the delta and south through Baja California to the Gulf of California. When the flow of the river switched to the south, the Colorado River would flow directly to the gulf and the waters filling the Salton Basin would evaporate, leaving behind a salt-encrusted basin at the lowest point. As floods occurred on the Colorado River, the flow of water switched directions many times, resulting in the development of a series of lakes filling the Salton Basin, and probably many more that partially filled the basin.

Along the western shoreline of the lake, tufa was deposited on some of the rocks. At Travertine Point, the tufa is in some places over a foot thick and has been deposited in layers, forming bands somewhat like the rings in a tree. The rings in these tufa bands developed from weathering of the tufa when the lake was absent and the tufa deposits between the rings represent times when the lake waters were present. Based on one tufa coated boulder near the northeast portion of Travertine Point, there have been at least five lake fillings, and the changes in tufa thickness between the erosion rings indicate that these different fillings had varied duration.

Another localized feature to be found within the Coachella Valley is the Whitewater River Delta/Dune Complex, an area along the Whitewater River drainage from near Point Happy eastward to just past Jefferson Street (Quinn 1999). When Holocene Lake Cahuilla was present and the Whitewater River had flowing water, the river developed a delta in this area that prograded into the lake. This same area is the terminus of a large sand dune high, or ridge, that extends east-southeast from the San Gorgonio Pass area. This sand dune ridge can still be seen today as a high area separating the low regions along the north and south sides of the valley.

During its last high stand, Holocene Lake Cahuilla reached the present-day 42-foot contour line before desiccating around 1730 A.D. (Rockwell et al. 2022). An earlier high stand of ancient Lake Cahuilla, however, reached the elevation of approximately 160 feet above mean sea level during the Pleistocene Epoch (Stokes et al. 1997). The current elevations in the project area range approximately from 110 feet and 40 feet below mean sea level. These elevations place the location inside the lakebed of Holocene Lake Cahuilla, within that of its Pleistocene predecessor, within the Whitewater Delta/Dune Complex (Quinn 1999), and a short distance to the east of the former delta itself (Rogers 1965).

CURRENT NATURAL SETTING

Dictated by its geographic setting in the vast Colorado Desert, the climate and environment of the Coachella Valley region are typical of southern California’s desert country, marked by extremes in temperature and aridity. Temperatures in the region reach over 120 degrees in summer, and dip to freezing in winter. Average annual precipitation is less than five inches, and the average annual evaporation rate exceeds three feet.

The project alignments extend across relatively level terrain on the valley floor, with a slight incline in elevation towards the north. Confined within the rights-of-way of three major public roadways in in the City of Coachella, the surface soils in the project area have been extensively disturbed in the past by road construction and maintenance as well as underground utility work. The project route along Grapefruit Boulevard is flanked by the Union Pacific Railroad on the east and mostly by commercial properties on the west. Elsewhere along the project route, the surrounding land features mainly residential properties and agricultural fields, along with some parcels of vacant desert land.

In its native state, vegetation common to the vicinity would be consistent with the Creosote Bush Scrub Plant Community, featuring creosote bush, prickly pear cactus, cholla, brittlebush, and globemallow. At the present time, however, very little vegetation remains within the project boundaries, while the surrounding land hosts various growths of agricultural crops, landscaping plants, rabbitbrush, tumbleweed, and other small desert shrubs and grasses (Fig. 4). The surface soils are composed mainly of pale brown loam, light brownish gray very fine sandy loam, and light olive gray fine sand.

Figure 4. Typical landscape in the project area, view to the northwest along Grapefruit Boulevard. (Photograph taken on August 25, 2023)

METHODS AND PROCEDURES

RECORDS SEARCHES

The paleontological records search service for this study was provided by the Western Science Center (WSC) in Hemet, which maintains files of regional paleontological localities as well as supporting maps and documents. The records search results were used to identify known previously performed paleontological resource assessments as well as known paleontological localities within a one-mile radius of the project area. A copy of the records search results is attached to this report in Appendix 2.

LITERATURE REVIEW

In conjunction with the records search, CRM TECH report writer Breidy Q. Vilcahuaman reviewed geological literature pertaining to the project vicinity under the direction of principal paleontologist Ron C. Schmidtling. Sources consulted during the review include primarily topographic, geologic, and soil maps of the Coachella Valley region, published geologic literature pertaining to the project location, aerial and satellite images available at the Nationwide Environmental Title Research (NETR) Online website and through the Google Earth software, and other materials in the CRM TECH library, including unpublished reports produced during similar surveys in the vicinity.

FIELD SURVEY

CRM TECH field director Daniel Ballester carried out the field survey of the project area on August 25, 2023. Most of the survey was conducted at an intensive level by walking along the side of the roadway where the proposed bicycle lane will be placed and closely inspecting the ground surface for any indication of potential cultural resources. In the portion of the project area along Avenue 54 and to the west of Grapefruit Boulevard, it was unclear at the time of the survey which side of the roadway the bicycle lane will be placed. Parts of that area were surveyed at a reconnaissance level from a slow-moving vehicle to facilitate efficient inspection of both sides of the street, while the other parts were surveyed on foot.

Using these methods, the entire project area was systematically examined to determine soil types, verify the geological formations, and search for indications of paleontological remains. Other than the portions under road pavement, visibility of the native ground surface was excellent throughout the project area due to the sparsity of vegetation growth. In light of the extent of past ground disturbances along these major public roadways, the survey methods and ground visibility were deemed sufficient for the purpose of this study.

RESULTS AND FINDINGS

RECORDS SEARCHES

The records search by the WSC identified no known paleontological localities within or adjacent to the project area (Stoneburn 2023; see App. 2). In the surrounding area, a paleontological locality has been reported roughly 1.5 miles west of the northern portion of the project area, where fossil remains such as bivalves and gastropods were collected during the Imagine Coachella Project (*ibid.*). According to the WSC, the geological formation in the project area consists of Holocene-age deposits of alluvial sand, clay, and silt. These younger Quaternary deposits typically do not contain fossilized materials due to their relatively recent age. However, deeper excavations could potentially reach paleontologically sensitive Pleistocene alluvial deposits (*ibid.*). Based on this assessment, the WSC recommends that a paleontological resource mitigation program be implemented.

LITERATURE REVIEW

The surface geology in the project area was mapped by Rogers (1965) as *Qal-Ql*, or Quaternary lake deposits and alluvium of recent age. Dibblee and Minch (2008) mapped the surface geology in the project area as *Qa/Qc* (Figure 5). *Qa* was described as "alluvial sand and clay of valley areas" and *Qc* as "clay of playa lakes, light gray, generally alkaline, with some micaceous silt," both of them Holocene in age (*ibid*.). Lancaster et al. (2012) mapped the surface sediments in this area as *Qw and Qya*. *Qw*, or alluvial wash deposits of Holocene age, was described as "unconsolidated sandy and gravelly sediment deposited in recently active channels of streams and rivers," while *Qya*, or young alluvial valley deposits, was described as "unconsolidated to slightly consolidated, undissected to slightly dissected clay, silt, sand, and gravel along stream valleys and alluvial flats of larger rivers" (*ibid*.). None of these geologic maps shows older sediments on the surface in the immediate vicinity of the project area.

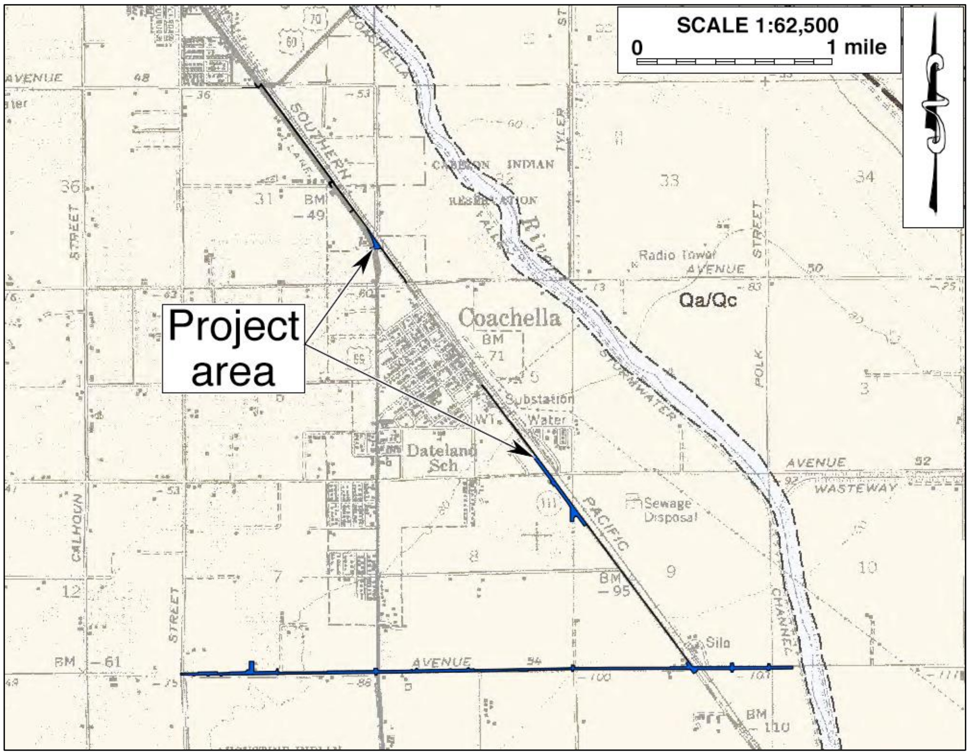

Figure 5. Geologic map of the project area. (Based on Dibblee and Minch 2008)

The surface soils in the northern portion of the project area were mapped by Knecht (1980:Map Sheet 12) as *Is* (Indio very fine sandy loam), *GeA* (Gilman silt loam, 0 to 2 percent slope), and *CrA* (Coachella Fine Sand, west, 0 to 2 percent slopes), while the southern portion was mapped as *GcA* (Gilman fine sandy loam, wet, 0 to 2 percent slope), *GfA* (Gilman silt loam, wet, 0 to 2 percent slope), *Ir* (Indio fine sandy loam, wet), and *It* (Indio very fine sandy loam, wet). The *GcA*-, *GfA*-, and *GeA*-type soils belong to the Gilman series and consist of well drained soils that formed in stratified stream alluvium (*ibid.*:17). The *It*-, *Ir*-, and *Is*-type soils belong to the Indio series and consist of well- or moderately well-drained soils formed in alluvium (*ibid.*:20). The *CrA*-type soils, wet, 0 to 2 percent slopes, belong to the Coachella series, a well-drained soil formed in alluvium (*ibid.*:15).

FIELD SURVEY

No notable surface manifestation of any paleontological remains was found within the project area during the field survey. Although some freshwater gastropod (snail) and pelycopod (bivalve) shells were observed on the surface, these are relatively recent in age. The field inspection confirmed that the ground surface in essentially the entire project area has been extensively disturbed in the past by construction, maintenance, and landscaping activities associated with the existing roadways and underground utility lines.

CONCLUSION AND RECOMMENDATIONS

CEQA guidelines (Title 14 CCR App. G, Sec. V(c)) require that public agencies in the State of California determine whether a proposed project would "directly or indirectly destroy a unique paleontological resource" during the environmental review process. The present study, conducted in compliance with this provision, is designed to identify any significant, non-renewable paleontological resources that may exist within or adjacent to the project area, and to assess the possibility for such resources to be encountered in future excavation and construction activities.

Based on the study results presented above, the proposed project's potential to impact significant paleontological resources appears to be low in the extensively disturbed surface and near-surface soils of Holocene age but high in the subsurface Pleistocene alluvial sediments that may be present at unknown depths. Because of the extensive past disturbances, no paleontological monitoring will be necessary for earth-moving operations within the surface and near surface soils, generally around 3-5 feet in depth. Once the earth-moving operations reach beyond that depth, however, it is recommended that a mitigation program be developed and implemented to prevent potential impact on paleontological resources or reduce such impact to a level less than significant. The mitigation program should be developed in accordance with the provisions of CEQA (Scott and Springer 2003) as well as the proposed guidelines of the Society of Vertebrate Paleontology (2010), and should include but not be limited to the following:

- Ground disturbances reaching more than three feet in depth should be monitored periodically by a qualified paleontological monitor to ensure the timely identification of potentially fossil-bearing sediments. Monitoring should be restricted to undisturbed Lake Cahuilla beds and any older, undisturbed subsurface alluvium that may be present below the surface.
- If potentially fossil-bearing sediments are exposed, continuous monitoring will become necessary. The monitor should be prepared to quickly salvage fossils, if they are unearthed, to avoid construction delays, but must have the power to temporarily halt or divert construction equipment to allow for removal of abundant or large specimens.
- Samples of sediments should be collected and processed to recover small fossil remains.
- Recovered specimens should be identified and curated at a repository with permanent retrievable storage that would allow for further research in the future.
- A report of findings, including an itemized inventory of recovered specimens and a discussion of their significance when appropriate, should be prepared upon completion of the research procedures outlined above. The approval of the report and the inventory by the City of Coachella would signify completion of the mitigation program.

Under this condition, CRM TECH further recommends that the proposed project may be cleared to proceed in compliance with CEQA provisions on paleontological resources.

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1972b Map: Thermal Canyon, Calif. (7.5', 1:24,000); 1956 edition photorevised in 1972.
1979 Map: Santa Ana, Calif. (120'x60', 1:250,000); 1959 edition revised.

APPENDIX 1:
PERSONNEL QUALIFICATIONS

PROJECT PALEONTOLOGIST
Ron Schmidtling, M.S.

Education

1995	M.S., Geology, University of California, Los Angeles.
1991	Pasadena City College, Pasadena, California.
1985	B.A., Archaeology, Paleontology, Ancient Folklore, and Art History, University of Southern Mississippi, Hattiesburg.

Professional Experience:

2020-	Principal Paleontologist, CRM TECH, Colton, California.
2014-	Instructor of Earth Science, History of Life, Ecology, and Evolutionary Biology, Columbia College Hollywood, Reseda, California.
2013, 2015	Volunteer, excavation of a camarasaur and a diplodocid in southern Utah, Natural History Museum of Los Angeles County, California.
1993-2014	Consultant, Getty Conservation Institute, Brentwood, California. • Geological Consultant on the Renaissance Bronze Project, characterizing constituents of bronze core material; • Paleontological Consultant for Antiquities/Conservation, identifying the foraminifera and mineral constituents of a limestone torso of Aphrodite; • Scientific Consultant on the Brentwood Site Building Project, testing building materials for their suitability in the museum galleries.
1999-2001	Archaeological and Paleontological Monitor, Michael Brandman Associates, Irvine, California.
1997	Department of Archaeology, University of California, Los Angeles.
1994	Scientific Illustrator and Teaching Assistant, Department of Earth and Space Sciences and Department of Biological Sciences, University of California, Los Angeles.

Memberships

AAPS (Association of Applied Paleontological Sciences), USA; CSEOL (Center for the Study of Evolution and the Origin of Life), Department of Earth Sciences, University of California, Los Angeles.

Publications and Reports

Author, co-author, and contributor on numerous paleontological publications and paleontological resource management reports.

REPORT WRITER
Breidy Q. Vilcahuaman, M.A., RPA (Registered Professional Archaeologist)

Education

2018	M.A., Anthropology, Georgia State University, Atlanta, Georgia.
2005	B.A., Anthropology, University Nacional del Centro del Peru.

Professional Experience

2022-	Project Archaeologist, CRM TECH, Colton, California.
2021-2022	Archaeological Technician, Applied Earthwork, Inc., Hemet, California.
2021	Archaeologist/Crew Chief, Historical Research Associates, Inc., Portland, Oregon.
2020-2021	Archaeological/Paleontological Technician, Cogstone Resource Management, Orange, California.
2020	Archaeological Technician, McKenna et al., Whittier, California.

FIELD DIRECTOR/PALENTOLOGICAL SURVEYOR
Daniel Ballester, M.S.

Education

2013	M.S., Geographic Information System (GIS), University of Redlands, California.
1998	B.A., Anthropology, California State University, San Bernardino.
1997	Archaeological Field School, University of Las Vegas and University of California, Riverside.
1994	University of Puerto Rico, Rio Piedras, Puerto Rico.

- Cross-trained in paleontological field procedures and identifications by CRM TECH Geologist/Paleontologist Harry M. Quinn.

Professional Experience

2002-	Field Director/GIS Specialist, CRM TECH, Riverside/Colton, California.
2011-2012	GIS Specialist for Caltrans District 8 Project, Garcia and Associates, San Anselmo, California.
2009-2010	Field Crew Chief, Garcia and Associates, San Anselmo, California.
2009-2010	Field Crew, ECorp, Redlands.
1999-2002	Project Paleontologist/Archaeologist, CRM TECH, Riverside, California.
1998-1999	Field Crew, K.E.A. Environmental, San Diego, California.
1998	Field Crew, A.S.M. Affiliates, Encinitas, California.
1998	Field Crew, Archaeological Research Unit, University of California, Riverside.

APPENDIX 2

RECORDS SEARCH RESULTS

WESTERN SCIENCE CENTER

August 9th, 20223

CRM Tech
Nina Gallardo
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

Dear Ms. Gallardo,

This letter presents the results of a record search conducted for the Proposed Connect Coachella City Project in the community of Coachella, Riverside County, CA. The project area is along Grapefruit Blvd between Avenue 48 and Avenue 54, and along Avenue 54 between Van Buren Blvd and Polk Street, on Township 5 South, Range 8 East, Sections 30-32, and on Township 6 South, Range 8 East, Sections 5, 7-10 on the *Palm Desert* and *Coachella, CA* USGS 15 minute quadrangles.

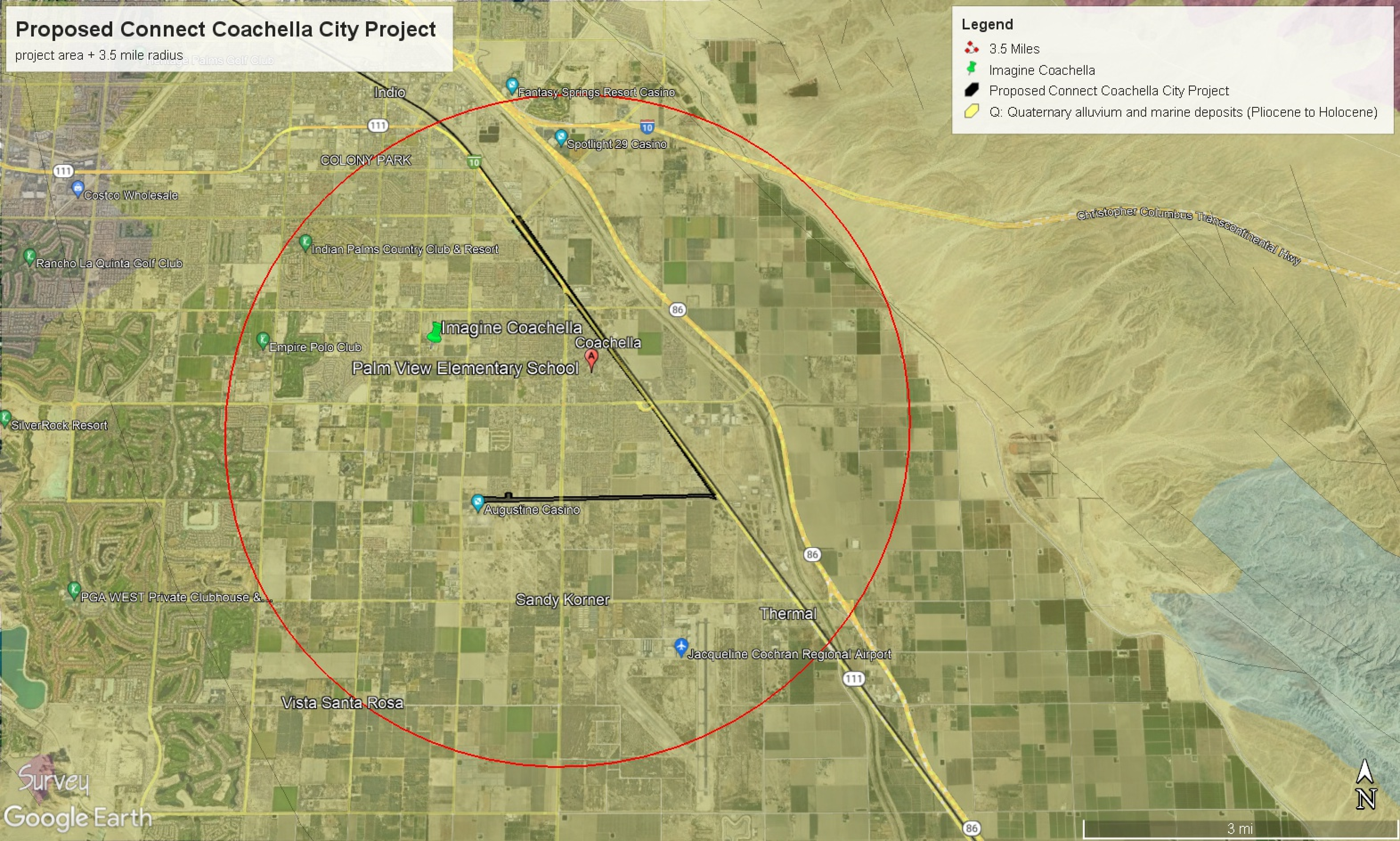
The geologic units underlying this project are mapped primarily as Holocene aged deposits of alluvial sand, clay, and silt (Dibblee and Minch 2008). Holocene alluvial units are considered to be of high preservation value, but material found is unlikely to be fossil material due to the relatively modern associated dates of the deposits. However, if development requires any substantial depth of disturbance, the likelihood of reaching Pleistocene alluvial sediments would increase. The Western Science Center does have a locality within a 3.5 mile radius of the project area (which was chosen to accommodate the size of the project): the Imagine Coachella Project, which lies just over 1.5 miles from the project area. The Imagine Coachella Project resulted in a collection of bivalves, gastropods, and more.

Any fossils recovered from the Proposed Connect Coachella City Project area would be scientifically significant. Despite the report of Holocene deposits, due to the proximity of the Imagine Coachella Project, it is the recommendation of the Western Science Center that a paleontological resource mitigation program be put in place to monitor, salvage, and curate any recovered fossils associated with the current study area.

If you have any questions, or would like further information, please feel free to contact me at bstoneburg@westerncentermuseum.org.

Sincerely,

Brittney Elizabeth Stoneburg, MSc
Collections Manager



Proposed Connect Coachella City Project
project area + 3.5 mile radius
Legend
3.5 Miles
Imagine Coachella
Proposed Connect Coachella City Project
Q: Quaternary alluvium and marine deposits (Pliocene to Holocene)
Indio
Fantasy Springs Resort Casino
Spotlight 29 Casino
COLONY PARK
Costco Wholesale
Indian Palms Country Club & Resort
Rancho La Quinta Golf Club
Christopher Columbus Transcontinental Hwy
Imagine Coachella
Coachella
Empire Polo Club
Palm View Elementary School
SilverRock Resort
Augustine Casino
PGA WEST Private Clubhouse &...
Sandy Korner
Thermal
Jacqueline Cochran Regional Airport
Vista Santa Rosa
Google Earth
3 mi
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Appendix E

Hydrology Memorandum

To:	Andrew Simmons | City Engineer | City of Coachella
From:	Alta Planning + Design
Date:	January 16, 2024
Re:	Connecting Coachella Hydrology Memorandum

Abbreviations and Acronyms

Throughout the content of this memo and for the project duration, there are several acronyms and abbreviations that are used. They are as follows:

ADA	Americans with Disabilities Act
A_S	Minimum permeable pavement surface area required
A_{IMP}	Impervious Area
A_T	Tributary Area
BMPs	Best Management Practices
b_{TH}	Minimum reservoir layer depth
City	City of Coachella
CV	Coachella Valley
CWA	Clean Water Act
I_f	Effective Impervious Fraction
LID	Low Impact Development
LID Design Handbook	Riverside County Flood Control Water Conservation District Whitewater River Region Stormwater Quality Best Management Practice Design Handbook for Low Impact Development (2014)
MS4	Municipal Separate Storm Sewer System
POC	Pollutants of Concern
PPOC	Potential Project Pollutants of Concern
SRA	Self-Retaining Areas
STA	Self-Treating Areas
V_{BMP}	Design Capture Volume (or water quality stormwater volume)
WQMP	Water Quality Management Plan
WWR WQMP	Whitewater River Region Water Quality Management Plan Guidance Document (2014, Revised 2015)

Introduction and Project Goals

Connecting Coachella is a 7.6-mile project located in the city of Coachella in Riverside County and is funded by the California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access for Act of 2018 - Proposition 68 Grant Program. This project aims to enhance the surrounding communities and tribal areas, by providing safer non-motorized opportunities for users to circulate withing the city. The project will create 3.6 miles of a Class I multi-modal path, 2.6 miles (5.2 lane miles) of Class II bike lanes, 1.4 miles of concrete sidewalk, as well as connect the CV Link path users from the Avenue 54/Whitewater River Trailhead through the City to the proposed Arts and Music Line Path. Safety enhancements include:

- ADA curb ramp upgrades

- Enhanced traffic signals
- High visibility crosswalks
- Landscape buffers
- Lighted bollards
- Shade trees
- Shade Structures

Additional corridor amenities that will be incorporated include benches, drinking fountains, bicycle repair kiosks, waste receptacles, and artistic installations along the new pathway.

The purpose of this memorandum is to identify mitigation opportunities for water quality impacts of the proposed Class I multimodal path along Grapefruit Boulevard and to make recommendations for BMP implementation.

Existing Conditions

Topography & Hydrology

The project vicinity is an urbanized area with a population of approximately forty-two thousand. Although the area is urbanized, a significant portion of the land on which the corridor is being built is undeveloped. The remaining segment of the corridor runs adjacent to a mixture of industrial and commercial facilities.

This project is located within the Whitewater River watershed which consists of mountains, desert, and agricultural lands, with urbanized areas spanning the valley from Palm Springs to Coachella and Banning to Indio along State Highway 111 and Interstate 10, respectively. The Whitewater River runs from Mount San Gorgonio to the Salton Sea and is fed by several tributaries. These tributaries are San Gorgonio River and the Snow, Chino Canyon, Tahquitz, Palm Canyon, Deep Canyon, Mission, Big Morongo, and Little Morongo Creeks.

The general lay of the land in Coachella is relatively flat and slopes southeast towards the Salton Sea. The project corridor, Grapefruit Boulevard from Avenue 48 to Avenue 54, runs parallel to the Whitewater River before it crosses State Highway 111 and eventually discharges into the Salton Sea. Contours from survey shows that runoff from rainfall generally flows from the center of the roadway to the east into adjacent ditches that lead to shallow drainage culverts that run parallel to Grapefruit Boulevard. In some instances, the runoff sheet flows into depressed areas of the undeveloped land between Grapefruit Boulevard and the railroad tracks. Other sections of the corridor convey runoff via concrete curb and gutter and eventually discharges into the undeveloped land. There are no visible catch basins along the east side of the corridor to catch concentrated runoff flow.

The project area generally experiences low precipitation. However, heavy single event storms and prolonged precipitation during the spring months can cause flooding when heavy rains combine with the melting of the snowpack. In addition, thunderstorms that generally occur during the warmer months can produce short bursts of precipitation resulting in flooding.

Project Analysis

Project Design Standards and Guidelines

Located in the Whitewater Watershed, this project utilizes the 2014 *River County Stormwater Quality Best Management Practice Design Handbook for Low Impact Development (LID Design Handbook)*. The purpose of the LID Design Handbook is to provide guidance for selecting and designing stormwater Best Manage Practices (BMPs) for Priority Development Projects (PDPs) and is to be used in conjunction with the *Whitewater River Region Water Quality Management Plan Guidance Document (2014, Revised 2015)* (WWR WQMP) and the 2013 MS4 Permit. However, this project is not categorized as a PDP in the WWR WQMP and is therefore, exempt from PDP requirements, including but not limited to the preparation of a project-specific WQMP. For the purpose of this memorandum, this project will be regarded and treated as a PDP throughout the entirety of this document.

Per Table 4 in section 6.1 of the LID Design Handbook, our project's location is subject to a local onsite retention requirement, which would require 100% retention of 100-yr, 24-hr storm event and no additional LID/site design or treatment control BMPs would be required. However, per section 3.5.1.2 of the WWR WQMP, our project is exempt from said onsite retention of urban runoff, because the project is located adjacent to an existing MS4 facility. Hence, the project will adhere to the LID Design Handbook guidance for selecting and designing the appropriate BMPs to address Potential Project Pollutants of Concern (PPOC).

BMP Selection

The selection of BMPs for this project were based on the potential pollutants generated from the project site, how impactful the potential pollutants are to the receiving waters and the BMPs' effectiveness in addressing the potential pollutants. Table 1 in Appendix A was used to identify the potential pollutants generated by land use. Although this project does not fit the land use categories listed in the table, given the nature of the project, all potential pollutants were considered.

The WWR WQMP identifies this project's receiving water as the Coachella Valley Stormwater Channel as seen in Appendix B and C. Section 3.3 of the LID Design Handbook states that where the Potential Project Pollutants of Concern (PPPOC) is the same as a Pollutant Impairing Receiving Waters, then the pollutant must be addressed with an LID/site design BMP that has a medium to high removal efficiency. This was determined using the BMP selection Matrix in Table 2 of section 3.4 of the LID Design Handbook (see Appendix D). The infiltration BMPs Bioretention Filtration and Permeable Pavement BMPs were determined to be the appropriate BMPs to implement along the project's class I multimodal path.

Permeable Pavement BMP (STA. 10+34 to STA. 76+75)

Permeable pavements are surfaces that are made up of porous material (permeable concrete, asphalt, or modular block) that allows water to infiltrate into a stone reservoir layer below. This reservoir temporarily stores the water quality stormwater volume or design capture volume (V_{BMP}), allowing it to slowly infiltrate into the underlying soil, provided that the soil can accept infiltration. For optimal functionality, permeable pavement surfaces are best suited for flat or gently sloping areas, generally with profile grades less than 3% in accordance with the LID Design Handbook. If the multi-modal path profile grades exceed the recommended standards and the native soil has poor infiltration capacity, as determined by a geotechnical engineer, then permeable pavements should not be used. Below is a list of considerations for choosing a permeable pavement BMP for this location:

- It addresses Potential Project Pollutants of Concern (PPOC) with high removal efficiency (except for Trash & Debris)
- The existing gently sloped
- Soil groups in project area are high in infiltration
- Impervious surface is designed to sheet flow runoff directly off site and not into a landscaped buffer

This BMP is a suitable BMP for treating the runoff from the impervious surface. However, portions of the multi-modal path are designed to be placed on newly compacted fill soil, therefore a professional geotechnical engineer should be consulted before being implemented.

Bioretention BMP (STA. 111+83 to STA. 206+18)

Bioretention facilities are shallow landscaped basins with engineered soil media beneath. The bottom of a bioretention facility is usually unlined, which allows for infiltration to the extent that the underlying soil can accommodate. If the infiltration rate of the underlying soil is exceeded, then the excess runoff is drained out through underdrains. The soil type in the project location is of hydraulic soil groups A and B (see Appendix E). These soil groups have high infiltration rates which is best for infiltration facilities. This BMP will be implemented in areas where landscape was scheduled to be incorporated into the project. Below is a list of considerations for choosing a Bioretention BMP for this location:

- It addresses all Potential Project Pollutants of Concern (PPOC)
- The Removal Efficiency is medium to high for all PPOC
- The project area is relatively flat
- Soil groups in project area are high in infiltration
- Landscape buffer is incorporated into this section of the project design
- Impervious surface (multi-modal path) is designed to drain runoff directly into the landscape area
- Majority of the landscape area is wide enough to accommodate the minimum width of the BMP

BMP Design

The project's BMPs should be designed to manage runoff consistent with the design sizing requirements, QBMP and/or VBMP, as specified in 2013 MS4 Permit Sections F.1.c.v.4.b.i and F.1.c.v.4.a.ii (See table 3 below), and as described in the LID Design Handbook. The design criteria described in the Table 1 below is incorporated in the LID Design Handbook worksheets used to size the bioretention facility. The WWR WQMP recommends using a volume design basis for bioretention and permeable pavement facilities. This information can be found in Table 7 of section 3.5.1.5 (see Appendix F).

Table 1. 2013 MS4 Permit Design Sizing Requirements for $V_{BMP\ and}$ Q_{BMP} (sourced NPDES Permit No. CAS617002)

2013 MS4 Permit Sections		
Section	Design Basis	Design Criteria
F.1.c.v.4.b.i	Flow-Based BMP	The maximum flow rate of runoff produced from a rainfall intensity of 0.2 inch of rainfall per hour, for each hour of a storm event.
F.1.c.v.4.a.ii	Volume Treatment Control BMP	The volume of annual runoff based on unit basin storage water quality volume, to achieve 80% or more volume treatment by the method recommended in California Stormwater Best Management Practices Handbook – Industrial/Commercial (2003).

This project utilizes a flow-based design basis. The sizing and design of the BMPs are a function of the tributary drainage area. If the project BMP is determined to be a Self-Retaining Areas (SRA) or a Self-Treating Areas (STA), the LID Design Handbook recommends removing those areas from the total tributary area used to size the BMPs. However, the areas removed is still accounted for as project area and is counted towards the LID/site design measurable goal as described in Section 3.5.1. of the WWR WQMP.

Sections 2.1 and 2.2 of the LID Design Handbook describes an SRA as an "area within a PDP that has been designed to capture and retain the volume of runoff requiring treatment from that area" and an STA as an "area within a PDP site that does not drain to a BMP, but drains directly offsite or to the MS4, rather than having its runoff comingle with runoff from the project's impervious surfaces." By these definitions, the project bioretention facility is considered a Self-Retaining Area and the permeable pavement facility is considered a Self-Treating Area.

Permeable Pavement BMP Design

The most critical parameters for sizing a permeable pavement reservoir are drawdown times and infiltration rates. As shown in Table 4., the maximum drawdown time for permeable pavement is 48 hours, which is sufficient time for treatment without creating vector issues. Per section 4.2.1 of the LID Design Handbook, "the infiltration rate will govern depth in which the BMP can still drawdown within 48 hours. This is calculated by applying a safety factor to the infiltration rate to achieve the design infiltration rate. The safety factor applied is based on the type of information known about the soils and the type of infiltration testing performed." Since no infiltration tests have been performed, a factor of safety was determined from the infiltration testing requirements in the Infiltration Testing Guidelines section of the LID Design Handbook. It states that, "the final report shall present a recommended design infiltration rate that includes a factor of safety that is no less than the factor of safety shown in Table 1," the Infiltration Testing Requirements table in Appendix G. The final WQMP shows a minimum factor of safety of 3. This yields the design factor of safety as shown below,

$$\text{Design Infiltration Rate} = \frac{\text{Infiltration Rate}}{3\ (\text{factor of safety})}$$

Therefore,

*Max. Reservoir Depth (inches) = Design Infiltration Rate * Max. Drawdown Time 48 hrs*

A feasibility assessment of utilizing permeable pavement will need to be conducted for infiltration rate, groundwater, underground utility conflicts, etc. The existing slope of the land is relatively flat, and the natural soil as identified earlier in this memo, is high in infiltration which is ideal for permeable pavements.

Table 4 illustrates the various design parameters for permeable pavement design identified from the Design Handbook for LID BMPs. These parameters are inputted into the design worksheets provided by the LID Design Handbook (see Appendix H).

Table 4. Requirements for Permeable Pavement (sourced from the Design Handbook for LID BMPs Section A.6)

Design Parameters	Permeable Pavement
Maximum slope of permeable pavement	3%
Maximum contributing area slope	5%
Maximum reservoir layer depth	12”
Drawdown time	48-hr
Vertical separation	5’ min. above impermeable layer 10’ above historic high groundwater mark
Maximum Drainage Area	10 ac.

Other recommendations, requirements and considerations for permeable pavement can be found in Section A.6 of the LID Design Handbook.

Bioretention BMP Design

Bioretention facilities provides the opportunity for rainfall to infiltrate into the ground. Impervious surfaces do not provide any infiltration for rainfall, therefore the imperviousness of the tributary area to a BMP is critical in determining how big the BMP needs to be. Determining the imperviousness of the tributary area of the BMP is as follows:

$$\boldsymbol{I_f} = \frac{A_{IMP}\ (\text{Impervious Area})}{A_T\ (\text{Total Tributary Area})}$$

where I_f is the Impervious Ratio. Sections 4.1 of the LID Design Handbook recommends removing the SRA from the total tributary drainage area used to size the BMP, before calculating the impervious ratio. Table 2 illustrates the various design parameters for bioretention facility design. These parameters are then inputted into the design worksheets provided by the LID Design Handbook (see Appendix I).

Table 2. Bioretention Facility Design Criteria (sourced from the LID Design Handbook Section A.3.3)

Design Parameters	Bioretention Basin
Design Flow	V_{BMP} cfs
Max. Tributary Area	10 acres
Min. Width	6 ft
Max. Side Slope	4:1
Max. Ponding Depth	6 inches
Minimum Side-Slope Width (Maximum Ponding Depth X Maximum Side-slope)	2 ft
Minimum Depth of Engineered Soil Media	18 inches
Minimum Depth of Gravel Layer	12 inches
Vegetation	Desert appropriate landscaping suitable for this BMP with 2-3-inch layer of mulch
Engineered Soil Media	85% mineral and 15% organic by volume. The mineral component must meet the range specified in Table 3 below, the organic component must be nitrogen stabilized compost

Table 3. Mineral Component Range Requirements (sourced from the LID Deign Handbook Section A.3.3)

Percent Range	Component
70-80	Sand
15-20	Silt
5-10	Clay

The recommended cross-section necessary for a bioretention facility is below *(source: LID Design Handbook Section A.3.3)*:

- Landscaped area
- 18” minimum depth of engineered soil media
- 12” minimum gravel layer depth with 6' perforated pipes (added flow control features such as orifice plates may be required to mitigate for HCOC conditions)

Other recommendations, requirements and considerations for Bioretention Facilities can be found in Section A.3 of the LID Design Handbook.

Conclusion and Recommendations

It is recommended that permeable pavement be used for the Class I multi-modal path from station 10+34 to station 76+75. One of the concerns with using this BMP is that the fill slopes may present a challenge to the infiltration surface. Where the infiltration surface of the BMP extends into the natural soil, the soil should be tested at the design elevation before the fill is placed. In some cases, it may not be feasible to extend the BMP down to natural soil. In such situations, another BMP should be chosen instead. A landscaped swale (or vegetative swales) could be a viable alternative for this segment. The LID Design Handbook defines a landscaped swale as a “wide, shallow, landscaped channel that treats stormwater runoff as it is slowly conveyed into a downstream system.” Treatment occurs through plant uptake of pollutants, sediment removal and infiltration. This BMP has one of the lowest removal efficiencies of all the BMP options provided in the LID Design Handbook, and as such, is recommended to be used in combination with other BMPs. One of the factors that makes this a viable option, is that the existing topography is flat, which means that high-flow velocity is unlikely to occur. Other factors that need to be considered for a properly functioning landscape swales are vegetative cover and the proximity to natural channels.

A bioretention infiltration basin is recommended for use between station 111+83 to station 206+18, where feasible and should be used where landscaping was scheduled to be incorporated into the design. The bioretention infiltration basin requires a minimum width of 6 feet. The landscape buffer areas that cannot accommodate the 6-foot width requirement can be utilized as a standard landscape buffer with the appropriate plant palette. It is also recommended that side slopes be used for the bioretention basin as a pedestrian safety measure. At this time underdrain pipes for the bioretention basin does not seem necessary given the soil type in the project area and the flatness of the existing profile slope. However, this decision should not be determined until a geotechnical professional has done an assessment.

Additional project information such as tributary drainage areas, impervious areas, etc., that were used in the design worksheets can be found in Appendix J.

Appendix A: Table 1 – Potential Pollutants Generated by Land Use Type

Table 1: Potential Pollutants Generated by Land Use Type

Type of Development (Land Use)	General Pollutant Categories						
	Sediment/ Turbidity	Nutrients	Toxic Organic Compounds	Trash & Debris	Bacteria & Viruses (also: Pathogens)	Oil & Grease	Heavy Metals
Detached Residential Development	P	P	N	P	P	P	N
Attached Residential Development	P	P	N	P	P	P(2)	N
Commercial/ Industrial Development	P	P(1)	P(5)	P	P(3)	P	P(6)
Automotive Repair Shops	N	N	P(4,5)	P	N	P	P
Restaurants	N	N	N	P	P	P	N
Hillside Development	P	P	N	P	P	P	N
Parking Lots	P	P(1)	P(4)	P	P	P	P
Retail Gasoline Outlets	N	N	P(4)	P	N	P	P

Abbreviations: P = Potential N = Not potential

Notes:

(1) A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected.
(2) A potential Pollutant if the project includes uncovered parking areas; otherwise not expected.
(3) A potential Pollutant if land use involves food or animal waste products.
(4) Specifically, petroleum hydrocarbons.
(5) Specifically, solvents; however, this Pollutant is not expected at commercial office or commercial retail sites, unless said retail is vehicle related.
(6) A potential Pollutant if the project includes outdoor storage or metal roofs; otherwise not expected.

Appendix B: Table 2 – List of Receiving Waters

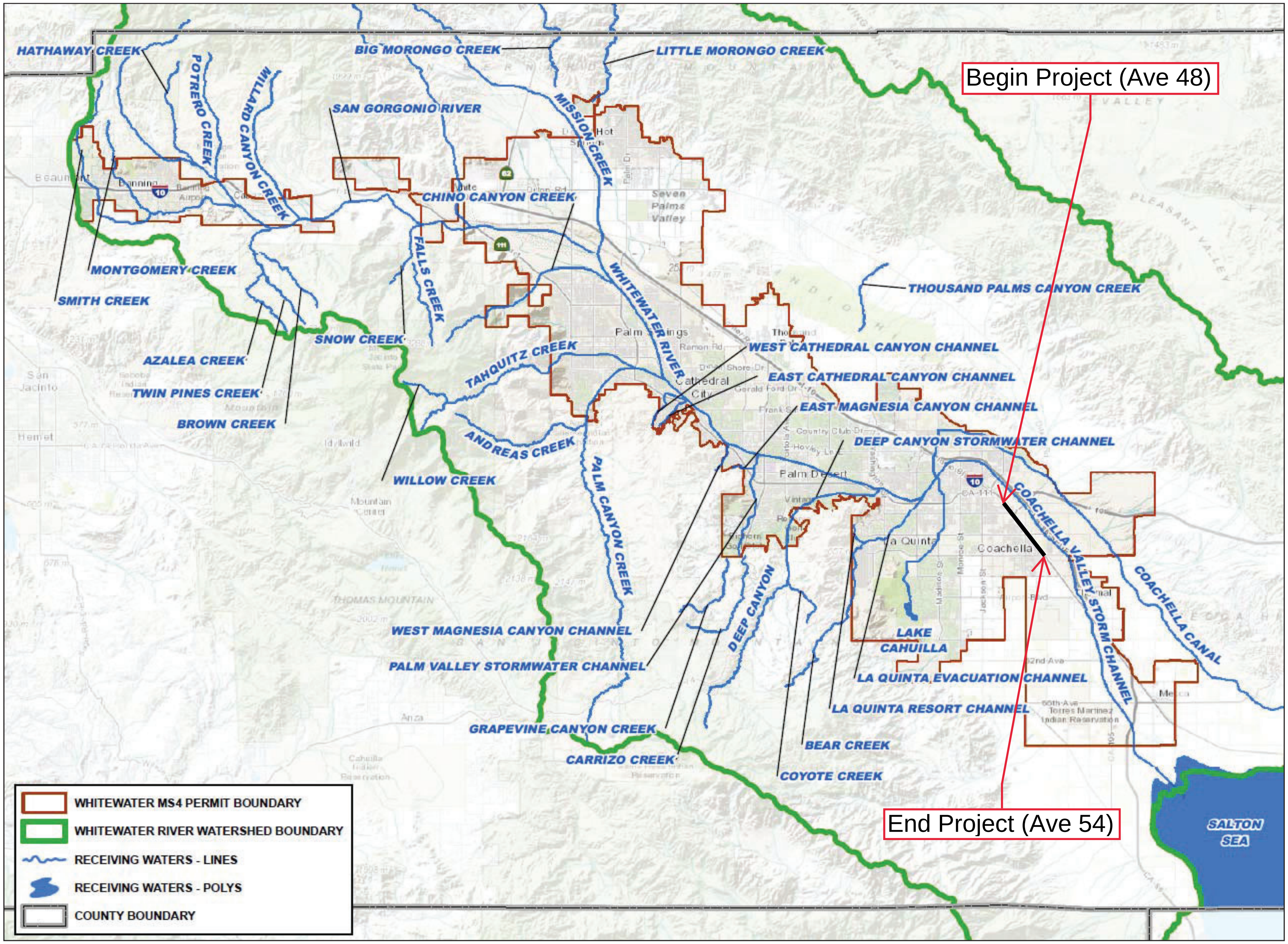
Table 2. List of Sub-Watersheds/Receiving Waters in Whitewater River Watershed

Drains or Streams [a]	**Washes** [b]
Coachella Valley Stormwater Channel	Bear Creek
Little Morongo Creek	Deep Canyon Stormwater Channel
Mission Creek	East Cathedral Canyon Channel
Palm Canyon Creek	East Magnesia Canyon Channel
San Gorgonio River	La Quinta Evacuation Channel
Tahquitz Creek	La Quinta Resort Channel
Whitewater River	Montgomery Creek
	Palm Valley Stormwater Channel
	Smith Creek
	West Cathedral Canyon Channel
	West Magnesia Canyon Channel
	Whitewater River from recharge basins to the Coachella Valley Stormwater Channel

Notes: a. Colorado River Basin Regional Water Quality Control Board Order No. R7-2013-0011, Finding 33.
b. Colorado River Basin Regional Water Quality Control Board Order No. R7-2013-0011, Finding 32.

Appendix C: Figure 2 – Receiving Waters

Figure 2. Whitewater River Region Receiving Waters Map



Appendix D: Table 2 – BMP Selection Matrix Based on POC Removal Efficiency

Table 2: BMP Selection Matrix Based Upon Pollutant of Concern Removal Efficiency [(1)]

(Sources: Riverside County Flood Control & Water Conservation District's *Design Handbook for Low Impact Development Best Management Practices* (September 2011), the Orange County *Technical Guidance Document for Water Quality Management Plans* (May 19, 2011), and the Caltrans *Treatment BMP Technology Reports* (April 2010 and April 2008)

Pollutant of Concern	Landscape Swale[2]	Landscape Strip[2]	Biofiltration (with Underdrain)[2, 3]	Extended Detention Basin[2]	Sand Filter Basin[2]	Infiltration Basin[2]	Infiltration Trench[2]	Permeable Pavement[2]	Bioretention (w/o Underdrain)[2, 3]	Other BMPs Including Proprietary BMPs[4, 6]
Sediment & Turbidity	M	M	H	M	H	H	H	H	H	Varies by Product[5]
Nutrients	L/M	L/M	M	L/M	L/M	H	H	H	H	
Toxic Organic Compounds	M/H	M/H	M/H	L	L/M	H	H	H	H	
Trash & Debris	L	L	H	H	H	H	H	L	H	
Bacteria & Viruses (also: Pathogens)	L	M	H	L	M	H	H	H	H	
Oil & Grease	M	M	H	M	H	H	H	H	H	
Heavy Metals	M	M/H	M/H	L/M	M	H	H	H	H	

Abbreviations:

L: Low removal efficiency   M: Medium removal efficiency   H: High removal efficiency

Notes:

(1) Periodic performance assessment and updating of the guidance provided by this table may be necessary.

(2) Expected performance when designed in accordance with the most current edition of the document, *Riverside County, Whitewater River Region Stormwater Quality Best Management Practice Design Handbook for Low Impact Development*.

(3) Performance dependent upon design which includes implementation of thick vegetative cover. Local water conservation and/or landscaping requirements should be considered; approval is based on the discretion of the local land use authority.

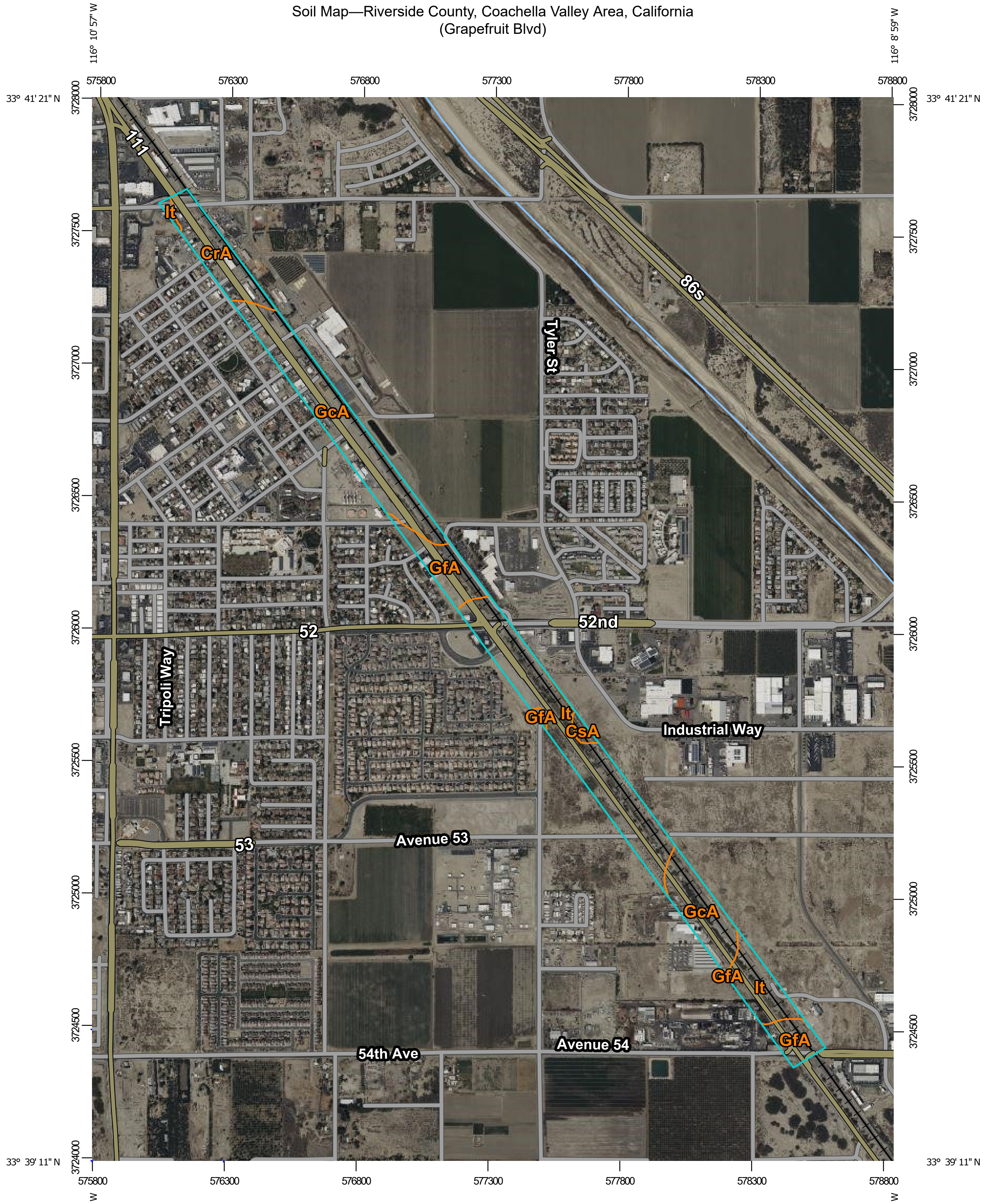
(4) Includes proprietary stormwater treatment devices as listed in the CASQA Stormwater Best Management Practices Handbooks, other stormwater treatment BMPs not specifically listed in this WQMP (including proprietary filters, hydrodynamic separators, inserts, etc.), or newly developed/emerging stormwater treatment technologies.

(5) Expected performance should be based on evaluation of the unit processes used by the BMP and available BMP testing data. Approval is based on the discretion of the local land use authority.

(6) When used for primary treatment as opposed to pre-treatment, requires site-specific approval by the local land use authority.

Appendix E: Soil Map

Soil Map—Riverside County, Coachella Valley Area, California
(Grapefruit Blvd)



Map Scale: 1:19,600 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0, 250, 500, 1000, 1500

Feet: 0, 500, 1000, 2000, 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Riverside County, Coachella Valley Area, California
Survey Area Data: Version 15, Aug 30, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 15, 2022—May 28, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CrA	Coachella fine sand, wet, 0 to 2 percent slopes	14.1	10.8%
CsA	Coachella fine sandy loam, 0 to 2 percent slopes	1.4	1.1%
GcA	Gilman fine sandy loam, wet, 0 to 2 percent slopes	47.5	36.4%
GfA	Gilman silt loam, wet, 0 to 2 percent slopes	16.6	12.7%
It	Indio very fine sandy loam, wet	50.6	38.8%
Totals for Area of Interest		**130.3**	**100.0%**

Riverside County, Coachella Valley Area, California

CrA—Coachella fine sand, wet, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hkvf
Elevation: 40 feet
Mean annual precipitation: 2 to 4 inches
Mean annual air temperature: 72 degrees F
Frost-free period: 270 to 320 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

Coachella and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Coachella

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous rock

Typical profile

H1 - 0 to 11 inches: fine sand
H2 - 11 to 60 inches: stratified sand to loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A

Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Minor Components

Myoma
Percent of map unit: 5 percent
Hydric soil rating: No

Gilman
Percent of map unit: 5 percent
Hydric soil rating: No

Indio
Percent of map unit: 5 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Riverside County, Coachella Valley Area, California
Survey Area Data: Version 15, Aug 30, 2023

Riverside County, Coachella Valley Area, California

CsA—Coachella fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hkvg
Elevation: 40 feet
Mean annual precipitation: 2 to 4 inches
Mean annual air temperature: 72 degrees F
Frost-free period: 270 to 320 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Coachella and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Coachella

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous rock

Typical profile

H1 - 0 to 10 inches: fine sandy loam
H2 - 10 to 40 inches: sand
H3 - 40 to 60 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A

Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Minor Components

Gilman
Percent of map unit: 5 percent
Hydric soil rating: No

Myoma
Percent of map unit: 5 percent
Hydric soil rating: No

Indio
Percent of map unit: 5 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Riverside County, Coachella Valley Area, California
Survey Area Data: Version 15, Aug 30, 2023

Riverside County, Coachella Valley Area, California

GcA—Gilman fine sandy loam, wet, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hkvn
Elevation: 400 feet
Mean annual precipitation: 4 inches
Mean annual air temperature: 72 degrees F
Frost-free period: 250 to 350 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

Gilman and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gilman

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 60 inches: stratified loamy sand to silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B

Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Minor Components

Coachella
Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed, sandy surface
Percent of map unit: 5 percent
Hydric soil rating: No

Indio
Percent of map unit: 3 percent
Hydric soil rating: No

Salton
Percent of map unit: 2 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Riverside County, Coachella Valley Area, California
Survey Area Data: Version 15, Aug 30, 2023

Riverside County, Coachella Valley Area, California

GfA—Gilman silt loam, wet, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hkvr
Elevation: 400 feet
Mean annual precipitation: 4 inches
Mean annual air temperature: 72 degrees F
Frost-free period: 250 to 350 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

Gilman and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gilman

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 60 inches: stratified loamy sand to silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B

Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Minor Components

Indio
Percent of map unit: 8 percent
Hydric soil rating: No

Salton
Percent of map unit: 4 percent
Hydric soil rating: No

Coachella
Percent of map unit: 3 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Riverside County, Coachella Valley Area, California
Survey Area Data: Version 15, Aug 30, 2023

Riverside County, Coachella Valley Area, California

It—Indio very fine sandy loam, wet

Map Unit Setting

National map unit symbol: hkw1
Elevation: 300 feet
Mean annual precipitation: 4 inches
Mean annual air temperature: 72 degrees F
Frost-free period: 270 to 320 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

Indio and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Indio

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 10 inches: very fine sandy loam
H2 - 10 to 60 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B

Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Minor Components

Gilman
Percent of map unit: 5 percent
Hydric soil rating: No

Salton
Percent of map unit: 5 percent
Hydric soil rating: No

Coachella
Percent of map unit: 5 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Riverside County, Coachella Valley Area, California
Survey Area Data: Version 15, Aug 30, 2023

Appendix F: Table 7 – Design Basis for BMPs

LID/Site Design or Treatment Control BMP	Design Basis
Landscaped Filter Strips	Q_{BMP}
Landscaped Swales	
Biofiltration (with underdrain)	V_{BMP}
Bioretention (w/o underdrain)	
Extended Detention Basin	
Sand Filter Basin	
Permeable Pavement	
Infiltration Basin	
Infiltration Trench	
Other BMPs	Q_{BMP} or V_{BMP} on case-specific basis, as approved by the local land use authority

Appendix G: Table 7 – Table 1 – Infiltration Testing Requirements

Table 1 - Infiltration Testing Requirements							
WQMP Stage	Testing Options	Ring Infiltrometer Tests[1]	Percolation Test[2]	Test Pits or Boring Logs[3]	Final Report[4]	Hydrology Manual[5]	Factor of Safety
Preliminary WQMP	Option 1▶	two tests minimum with at least one per BMP location[6]	-	one boring or test pit per BMP location	Required	-	FS ≥ 3
	Option 2▶	-	four tests min. with at least two per BMP location[6]	one boring or test pit per BMP location	Required	-	FS ≥ 3
	Option 3[7]▶	-	-	one boring or test pit per BMP location	Required	-	FS ≥ 6
	Option 4[7]▶	-	-	one *representative* boring or test pit per site	-	Only	FS ≥ 10
Final WQMP	Option 1▶	two tests minimum with at least one per BMP location[6]	-	one boring or test pit per BMP location	Required	-	FS ≥ 3
	Option 2▶	-	four tests minimum with at least two per BMP location[6]	one boring or test pit per BMP location	Required	-	FS ≥ 3

Table Footnotes:

(1) Ring infiltrometer tests per Section 2.2

(2) Percolation tests per Section 2.3 and well permeameter test per Section 2.4

(3) Test pits or boring logs per Section 2.5

(4) Final Report per Section 1.6

(5) See Plate E-6.2 of the District's Hydrology Manual

(6) For BMPs with a wetted footprint in excess of 10,000 ft^2, provide one (1) ring infiltrometer test or two (2) percolation tests for each additional 10,000 ft^2

(7) This option is limited to BMPs with a tributary drainage area ≤ five acres.

Appendix H: Permeable Pavement – Design Volume (V_{BMP}) Calculations & Design Procedure (A1 thru A4)

Whitewater Watershed

BMP Design Volume, V_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	Alta Planning + Design	Date	1/12/2024
Designed by	Racquel Lee	County/City Case No	Riverside
Company Project Number/Name	2023-072/Connecting Coachella		
Drainage Area Number/Name	A1 (STA. 10+34 TO STA. 42+83)		

Enter the Area Tributary to this Feature (A_{TRIB}) A_{TRIB} = 4.4 acres

Determine the Impervious Area Ratio

Determine the Impervious Area within A_{TRIB} (A_{IMP}) A_{IMP} = 0.70 acres

Calculate Impervious Area Ratio (I_f) I_f = 0.16

$I_f = A_{IMP}/A_{TRIB}$

Calculate the composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ C_{BMP} = 0.15

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ V_u = 0.06 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}.

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12\ (in/ft)}$$

V_{BMP} = 958 ft^3

Notes:

Whitewater Watershed

BMP Design Volume, V_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	Alta Planning + Design	Date	1/12/2024
Designed by	Racquel Lee	County/City Case No	Riverside
Company Project Number/Name	2023-072/Connecting Coachella		
Drainage Area Number/Name	A2 (STA. 42+83 TO STA. 52+36)		

Enter the Area Tributary to this Feature (A_{TRIB}) A_{TRIB} = 1.2 acres

Determine the Impervious Area Ratio

Determine the Impervious Area within A_{TRIB} (A_{IMP}) A_{IMP} = 0.20 acres

Calculate Impervious Area Ratio (I_f) I_f = 0.17

$I_f = A_{IMP}/A_{TRIB}$

Calculate the composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ C_{BMP} = 0.15

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ V_u = 0.06 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}.

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12\ (in/ft)}$$

V_{BMP} = 261 ft^3

Notes:

Whitewater Watershed

BMP Design Volume, V_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	Alta Planning + Design	Date	1/12/2024
Designed by	Racquel Lee	County/City Case No	Riverside
Company Project Number/Name	2023-072/Connecting Coachella		
Drainage Area Number/Name	A3 (STA. 52+36 TO STA. 65+59)		

Enter the Area Tributary to this Feature (A_{TRIB}) A_{TRIB} = 1.6 acres

Determine the Impervious Area Ratio

Determine the Impervious Area within A_{TRIB} (A_{IMP}) A_{IMP} = 0.40 acres

Calculate Impervious Area Ratio (I_f) I_f = 0.25

$I_f = A_{IMP}/A_{TRIB}$

Calculate the composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ C_{BMP} = 0.20

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ V_u = 0.08 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}.

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12\ (in/ft)}$$

V_{BMP} = 465 ft^3

Notes:

Whitewater Watershed

BMP Design Volume, V_{BMP} (Rev. 06-2014)

Legend: Required Entries; Calculated Cells

Company Name	Alta Planning + Design	Date	1/12/2024
Designed by	Racquel Lee	County/City Case No	Riverside
Company Project Number/Name	2023-072/Connecting Coachella		
Drainage Area Number/Name	A4 (STA. 65+59 TO STA. 76+75)		

Enter the Area Tributary to this Feature (A_{TRIB}) A_{TRIB} = 3.5 acres

Determine the Impervious Area Ratio

Determine the Impervious Area within A_{TRIB} (A_{IMP}) A_{IMP} = 0.30 acres

Calculate Impervious Area Ratio (I_f) I_f = 0.09

$I_f = A_{IMP}/A_{TRIB}$

Calculate the composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ C_{BMP} = 0.10

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ V_u = 0.04 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}.

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12\ (in/ft)}$$

V_{BMP} = 508 ft^3

Notes:

Permeable Pavement - Design Procedure (Rev. 06-2014)	BMP ID	Legend:	Required Entries
	A1		Calculated Cells

Company Name:	Alta Planning + Design	Date:	1/12/2024
Designed by:	Racquel Lee	County/City Case No.:	Riverside

Design Volume

Enter the area tributary to this feature A_{TRIB}= 4.4 acres

Enter V_{BMP} determines from Section 4.3 of this Handbook V_{BMP}= 958 ft^3

Permeable Pavement Surface Area

Reservoir Layer Depth, b_{TH} b_{TH}= 9 inches

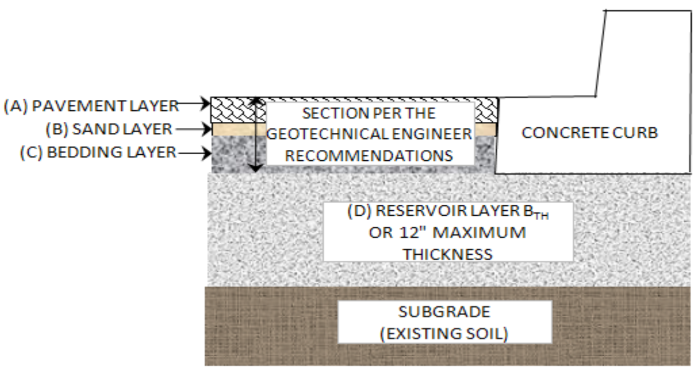
Minimum Surface Area Required, A_S

$$A_S\,(ft) = \frac{V_{BMP}\,(ft^3)}{(0.4 \times b_{TH}\,(in)) / 12(in/ft)}$$

A_S= 3,194 ft^2

Proposed Surface Area = 32,661 ft^2

Permeable Pavement Cross Section



Per the Geotechnical	(A)		in
Engineer's	(B)		in
Recommendations	(C)		in
Reservoir Layer	(D)	9	in
Total Permeable Pavement Section			in
Slope of Permeable Pavement		0	%

Sediment Control Provided? (Use pulldown)

Geotechnical report attached? (Use pulldown)

Describe Surrounding Landscaping:

Notes: ATRIB is overall total tributary drainage area minus the self-treating area. Permeable pavement slope is (

If the Permeable Pavement has been designed correctly, there should be no error messages on the spreadsheet.

Permeable Pavement - Design Procedure (Rev. 06-2014)	BMP ID	Legend:	Required Entries
	A2		Calculated Cells

Company Name:	Alta Planning + Design	Date:	1/12/2024
Designed by:	Racquel Lee	County/City Case No.:	Riverside

Design Volume

Enter the area tributary to this feature — A_{TRIB}= 1.2 acres

Enter V_{BMP} determines from Section 4.3 of this Handbook — V_{BMP}= 261 ft^3

Permeable Pavement Surface Area

Reservoir Layer Depth, b_{TH} — b_{TH}= 9 inches

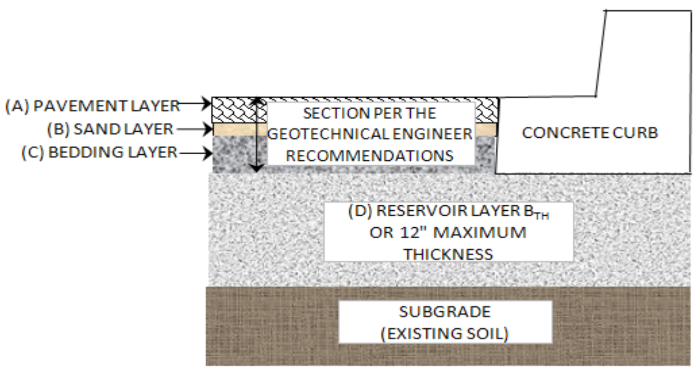
Minimum Surface Area Required, A_S

$$A_S\,(ft) = \frac{V_{BMP}\,(ft^3)}{(0.4 \times b_{TH}\,(in))\,/\,12(in/ft)}$$

A_S= 871 ft^2

Proposed Surface Area = 9,722 ft^2

Permeable Pavement Cross Section



Per the Geotechnical	(A)		in
Engineer's	(B)		in
Recommendations	(C)		in
Reservoir Layer	(D)	9	in
Total Permeable Pavement Section			in
Slope of Permeable Pavement		0	%

Sediment Control Provided? (Use pulldown)

Geotechnical report attached? (Use pulldown)

Describe Surrounding Landscaping:

Notes: ATRIB is overall total tributary drainage area minus the self-treating area. Permeable pavement slope is (

If the Permeable Pavement has been designed correctly, there should be no error messages on the spreadsheet.

Permeable Pavement - Design Procedure (Rev. 06-2014)	BMP ID	Legend:	Required Entries
	A3		Calculated Cells

Company Name:	Alta Planning + Design	Date:	1/12/2024
Designed by:	Racquel Lee	County/City Case No.:	Riverside

Design Volume

Enter the area tributary to this feature A_{TRIB}= 1.6 acres

Enter V_{BMP} determines from Section 4.3 of this Handbook V_{BMP}= 465 ft^3

Permeable Pavement Surface Area

Reservoir Layer Depth, b_{TH} b_{TH}= 9 inches

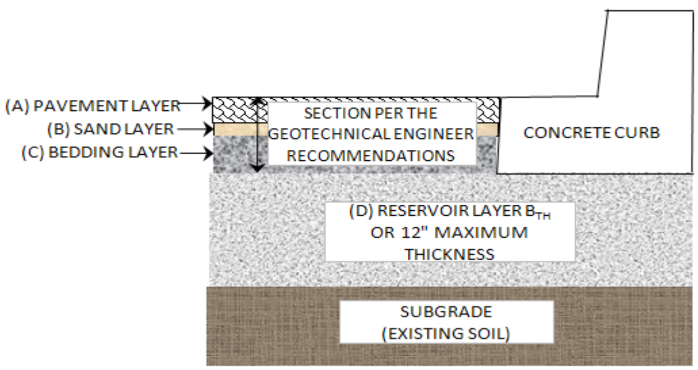
Minimum Surface Area Required, A_S

$$A_S\,(ft) = \frac{V_{BMP}\,(ft^3)}{(0.4 \times b_{TH}\,(in)) / 12(in/ft)}$$

A_S= 1,549 ft^2

Proposed Surface Area = 13,433 ft^2

Permeable Pavement Cross Section



Per the Geotechnical	(A)		in
Engineer's	(B)		in
Recommendations	(C)		in
Reservoir Layer	(D)	9	in
Total Permeable Pavement Section			in
Slope of Permeable Pavement		0	%

Sediment Control Provided? (Use pulldown)

Geotechnical report attached? (Use pulldown)

Describe Surrounding Landscaping:

Notes: ATRIB is overall total tributary drainage area minus the self-treating area. Permeable pavement slope is (

If the Permeable Pavement has been designed correctly, there should be no error messages on the spreadsheet.

Permeable Pavement - Design Procedure (Rev. 06-2014)	BMP ID	Legend:	Required Entries
	A4		Calculated Cells

Company Name:	Alta Planning + Design	Date:	1/12/2024
Designed by:	Racquel Lee	County/City Case No.:	Riverside

Design Volume

Enter the area tributary to this feature A_{TRIB}= 3.5 acres

Enter V_{BMP} determines from Section 4.3 of this Handbook V_{BMP}= 508 ft^3

Permeable Pavement Surface Area

Reservoir Layer Depth, b_{TH} b_{TH}= 9 inches

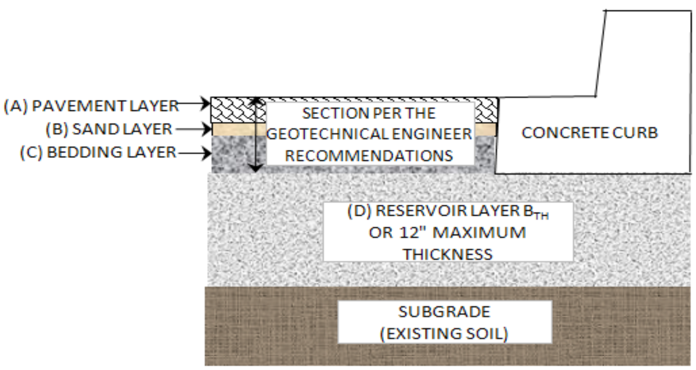
Minimum Surface Area Required, A_S

$$A_S\,(ft) = \frac{V_{BMP}\,(ft^3)}{(0.4 \times b_{TH}\,(in)) / 12(in/ft)}$$

A_S= 1,694 ft^2

Proposed Surface Area = 11,190 ft^2

Permeable Pavement Cross Section



Per the Geotechnical	(A)		in
Engineer's	(B)		in
Recommendations	(C)		in
Reservoir Layer	(D)	9	in
Total Permeable Pavement Section			in
Slope of Permeable Pavement		0	%

Sediment Control Provided? (Use pulldown)

Geotechnical report attached? (Use pulldown)

Describe Surrounding Landscaping:

Notes: ATRIB is overall total tributary drainage area minus the self-treating area. Permeable pavement slope is (

If the Permeable Pavement has been designed correctly, there should be no error messages on the spreadsheet.

Appendix I: Bioretention Infiltration Basin – Design Volume (V_{BMP}) Calculations & Design Procedure (B1 thru B5)

Whitewater Watershed

BMP Design Volume, V_{BMP} (Rev. 06-2014)

Legend: Required Entries; Calculated Cells

Company Name	Alta Planning + Design	Date	1/12/2024
Designed by	Racquel Lee	County/City Case No	Riverside
Company Project Number/Name	2023-072/Connecting Coachella		
Drainage Area Number/Name	B1 (STA. 111+83 TO STA. 119+29)		

Enter the Area Tributary to this Feature (A_{TRIB}) A_{TRIB} = 0.9 acres

Determine the Impervious Area Ratio

Determine the Impervious Area within A_{TRIB} (A_{IMP}) A_{IMP} = 0.20 acres

Calculate Impervious Area Ratio (I_f) I_f = 0.22

$I_f = A_{IMP}/A_{TRIB}$

Calculate the composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ C_{BMP} = 0.18

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ V_u = 0.07 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}.

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12\ (in/ft)}$$

V_{BMP} = 229 ft^3

Notes:

Whitewater Watershed

BMP Design Volume, V_{BMP} (Rev. 06-2014)

Legend: Required Entries; Calculated Cells

Company Name	Alta Planning + Design	Date	1/12/2024
Designed by	Racquel Lee	County/City Case No	Riverside
Company Project Number/Name	2023-072/Connecting Coachella		
Drainage Area Number/Name	B2 (STA. 119+29 TO STA. 143+67)		

Enter the Area Tributary to this Feature (A_{TRIB}) A_{TRIB} = 2.1 acres

Determine the Impervious Area Ratio

Determine the Impervious Area within A_{TRIB} (A_{IMP}) A_{IMP} = 0.70 acres

Calculate Impervious Area Ratio (I_f) I_f = 0.33

$I_f = A_{IMP}/A_{TRIB}$

Calculate the composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ C_{BMP} = 0.24

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ V_u = 0.10 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}.

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12\ (in/ft)}$$

V_{BMP} = 762 ft^3

Notes:

Whitewater Watershed

BMP Design Volume, V_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	Alta Planning + Design	Date	1/12/2024
Designed by	Racquel Lee	County/City Case No	Riverside
Company Project Number/Name	2023-072/Connecting Coachella		
Drainage Area Number/Name	B3 (STA. 143+67 TO STA. 156+72)		

Enter the Area Tributary to this Feature (A_{TRIB}) A_{TRIB} = 1.1 acres

Determine the Impervious Area Ratio

Determine the Impervious Area within A_{TRIB} (A_{IMP}) A_{IMP} = 0.40 acres

Calculate Impervious Area Ratio (I_f) I_f = 0.36

$I_f = A_{IMP}/A_{TRIB}$

Calculate the composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ C_{BMP} = 0.26

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ V_u = 0.10 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}.

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12\ (in/ft)}$$

V_{BMP} = 399 ft^3

Notes:

Whitewater Watershed

BMP Design Volume, V_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	Alta Planning + Design	Date	1/12/2024
Designed by	Racquel Lee	County/City Case No	Riverside
Company Project Number/Name	2023-072/Connecting Coachella		
Drainage Area Number/Name	B4 (STA. 156+72 TO STA. 205+18)		

Enter the Area Tributary to this Feature (A_{TRIB}) A_{TRIB} = 2.9 acres

Determine the Impervious Area Ratio

Determine the Impervious Area within A_{TRIB} (A_{IMP}) A_{IMP} = 1.10 acres

Calculate Impervious Area Ratio (I_f) I_f = 0.38

$I_f = A_{IMP}/A_{TRIB}$

Calculate the composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ C_{BMP} = 0.27

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ V_u = 0.11 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}.

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12\ (in/ft)}$$

V_{BMP} = 1,158 ft^3

Notes:

Whitewater Watershed

BMP Design Volume, V_{BMP} (Rev. 06-2014)

Legend: Required Entries / Calculated Cells

Company Name	Alta Planning + Design	Date	1/12/2024
Designed by	Racquel Lee	County/City Case No	Riverside
Company Project Number/Name	2023-072/Connecting Coachella		
Drainage Area Number/Name	B5 (STA. 208+18 TO STA. 206+18)		

Enter the Area Tributary to this Feature (A_{TRIB}) A_{TRIB} = 0.2 acres

Determine the Impervious Area Ratio

Determine the Impervious Area within A_{TRIB} (A_{IMP}) A_{IMP} = 0.00 acres

Calculate Impervious Area Ratio (I_f) I_f = 0.00

$I_f = A_{IMP}/A_{TRIB}$

Calculate the composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C_{BMP} = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ C_{BMP} = 0.04

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 80% Unit Storage Volume $V_U = 0.40 \times C_{BMP}$ V_u = 0.02 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}.

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12\ (in/ft)}$$

V_{BMP} = 15 ft^3

Notes:

Bioretention Facility - Design Procedure (Rev. 06-2014)	BMP ID	Legend:	Required Entries
	B1		Calculated Cells

Company Name:	Alta Planning + Design	Date:	1/12/2024
Designed by:	Racquel Lee	County/City Case No.:	Riverside

Design Volume

Enter the area tributary to this feature	A_{TRIB}=	0.9	acres
Enter V_{BMP} determined from Section 4.3 of this Handbook	V_{BMP}=	229	ft^3

Type of Bioretention Facility Design

◉ Side slopes required (parallel to parking spaces or adjacent to walkways)

○ No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer	d_S =	3.0	ft
Top Width of Bioretention Facility, excluding curb	w_T =	6.0	ft
Total Effective Depth, d_E $d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$	d_E =	1.68	ft
Minimum Surface Area, A_m $A_M\,(ft^2) = \dfrac{V_{BMP}\,(ft^3)}{d_E\,(ft)}$	A_M =	136	ft^2
Proposed Surface Area	A=	3,564	ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility	z =	4	:1
Diameter of Underdrain			inches
Longitudinal Slope of Site (3% maximum)			%
6" Check Dam Spacing			feet
Describe Landscaping:			

Notes:

Bioretention Facility - Design Procedure (Rev. 06-2014)	BMP ID	Legend:	Required Entries
	B2		Calculated Cells

Company Name:	Alta Planning + Design	Date:	1/12/2024
Designed by:	Racquel Lee	County/City Case No.:	Riverside

Design Volume

Enter the area tributary to this feature	A_{TRIB}=	0.9	acres
Enter V_{BMP} determined from Section 4.3 of this Handbook	V_{BMP}=	762	ft^3

Type of Bioretention Facility Design

◉ Side slopes required (parallel to parking spaces or adjacent to walkways)

○ No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer	d_S =	3.0	ft
Top Width of Bioretention Facility, excluding curb	w_T =	10.0	ft

Total Effective Depth, d_E

$d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$ — d_E = 1.73 ft

Minimum Surface Area, A_m

$$A_M\,(ft^2) = \frac{V_{BMP}\,(ft^3)}{d_E\,(ft)}$$

A_M = 441 ft^2

Proposed Surface Area — A= 16,210 ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility	z =	4	:1
Diameter of Underdrain			inches
Longitudinal Slope of Site (3% maximum)			%
6" Check Dam Spacing			feet

Describe Landscaping:

Notes:

Bioretention Facility - Design Procedure (Rev. 06-2014)	BMP ID	Legend:	Required Entries
	B3		Calculated Cells

Company Name:	Alta Planning + Design	Date:	1/12/2024
Designed by:	Racquel Lee	County/City Case No.:	Riverside

Design Volume

Enter the area tributary to this feature	A_{TRIB}=	1.1	acres
Enter V_{BMP} determined from Section 4.3 of this Handbook	V_{BMP}=	958	ft^3

Type of Bioretention Facility Design

◉ Side slopes required (parallel to parking spaces or adjacent to walkways)

○ No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer	d_S =	3.0	ft
Top Width of Bioretention Facility, excluding curb	w_T =	8.0	ft
Total Effective Depth, d_E $d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$	d_E =	1.71	ft
Minimum Surface Area, A_m $A_M\ (ft^2) = \frac{V_{BMP}\ (ft^3)}{d_E\ (ft)}$	A_M =	560	ft^2
Proposed Surface Area	A=	10,440	ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility	z =	4	:1
Diameter of Underdrain			inches
Longitudinal Slope of Site (3% maximum)			%
6" Check Dam Spacing			feet
Describe Landscaping:			

Notes:

Bioretention Facility - Design Procedure (Rev. 06-2014)	BMP ID	Legend:	Required Entries
	B4		Calculated Cells

Company Name:	Alta Planning + Design	Date:	1/12/2024
Designed by:	Racquel Lee	County/City Case No.:	Riverside

Design Volume

Enter the area tributary to this feature	A_{TRIB}=	2.9	acres
Enter V_{BMP} determined from Section 4.3 of this Handbook	V_{BMP}=	229	ft^3

Type of Bioretention Facility Design

◉ Side slopes required (parallel to parking spaces or adjacent to walkways)

○ No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer	d_S =	3.0	ft
Top Width of Bioretention Facility, excluding curb	w_T =	20.0	ft

Total Effective Depth, d_E

$d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$ — d_E = 1.77 ft

Minimum Surface Area, A_m

$$A_M\,(ft^2) = \frac{V_{BMP}\,(ft^3)}{d_E\,(ft)}$$

A_M = 130 ft^2

Proposed Surface Area — A= 96,960 ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility	z =	4	:1
Diameter of Underdrain			inches
Longitudinal Slope of Site (3% maximum)			%
6" Check Dam Spacing			feet

Describe Landscaping:

Notes:

Bioretention Facility - Design Procedure (Rev. 06-2014)	BMP ID	Legend:	Required Entries
	B5		Calculated Cells

Company Name:	Alta Planning + Design	Date:	1/12/2024
Designed by:	Racquel Lee	County/City Case No.:	Riverside

Design Volume

Enter the area tributary to this feature	A_{TRIB}=	0.2	acres
Enter V_{BMP} determined from Section 4.3 of this Handbook	V_{BMP}=	762	ft^3

Type of Bioretention Facility Design

◉ Side slopes required (parallel to parking spaces or adjacent to walkways)

○ No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer	d_S =	3.0	ft
Top Width of Bioretention Facility, excluding curb	w_T =	14.0	ft

Total Effective Depth, d_E

$d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$ $\quad d_E$ = 1.75 ft

Minimum Surface Area, A_m

$$A_M\,(ft^2) = \frac{V_{BMP}\,(ft^3)}{d_E\,(ft)}$$

A_M = 436 ft^2

Proposed Surface Area $\quad$ A= 1,316 ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility	z =	4	:1
Diameter of Underdrain			inches
Longitudinal Slope of Site (3% maximum)			%
6" Check Dam Spacing			feet

Describe Landscaping:

Notes:

Appendix J: Drainage Area Summary for BMPs

Permeable Pavement Data Summary

Areas	Size of Overall Drainage Areas (A_T) (ac)	Impervious Areas within (A_T) (ac)	Self-Treating Areas (ac)	Size of Drainage Areas (A_T) without STAs (ac)	Design Volume Storage (V_{BMP}) (ft^3)	Reservoir Layer Depth b_{TH} (in)	Minimum Surface Area Required (A_M) (ft^2)	Slope of Permeable Pavement (%)	Proposed Permeable Surface Area (ft^2)	Pavement Section (in.)	Notes
A1 (STA. 10+34 TO STA. 42+83)	5.1	0.7	0.7	4.4	958	9	3,194	0.3	32,661	6" Pervious Concrete 9" #57 Stone over Prepared Subgrade	In areas where permeable pavement is placed on a fill soil, a professional geotechnical engineer should test if the compacted soil will be stable when saturated.
A2 (STA. 42+83 TO STA. 52+36)	1.4	0.2	0.2	1.2	261	9	871	0.3	9,722	6" Pervious Concrete 9" #57 Stone over Prepared Subgrade	In areas where permeable pavement is placed on a fill soil, a professional geotechnical engineer should test if the compacted soil will be stable when saturated.
A3 (STA. 52+36 TO STA. 65+59)	1.9	0.4	0.3	1.6	465	9	1,549	0.4	13,433	6" Pervious Concrete 9" #57 Stone over Prepared Subgrade	In areas where permeable pavement is placed on a fill soil, a professional geotechnical engineer should test if the compacted soil will be stable when saturated.
A4 (STA. 65+59 TO STA. 76+75)	3.8	0.3	0.3	3.5	508	9	1,694	0.3	11,190	6" Pervious Concrete 9" #57 Stone over Prepared Subgrade	In areas where permeable pavement is placed on a fill soil, a professional geotechnical engineer should test if the compacted soil will be stable when saturated.

Bioretention Facility Summary

Areas	Size of Overall Drainage Areas (A_T) (ac)	Impervious Areas within (A_T) (ac)	Self-Retaining Areas (ac)	Size of Drainage Areas (A_T) without SRAs (ac)	Design Volume Storage (V_{BMP}) (ft^3)	Engineered Soil Media Depth d_s (ft)	Minimum Surface Area Required (A_M) (ft^2)	Proposed Length of Bioretention Facility (ft)	Proposed Width of Bioretention Facility (ft)	Proposed Bioretention Facility Surface Area (ft^2)	Pavement Section (in.)	Constraints Prohibiting the Use of Bioretention Facility
B1 (STA. 111+83 TO STA. 119+29)	1	0.2	0.1	0.9	229	3	136	594	6	3,564	Landscape Area 36" Engineered Soil Media 12" Gravel Layer	None
B2 (STA. 119+29 TO STA. 143+67)	2.5	0.7	0.4	2.1	762	3	441	1621	10	16,210	Landscape Area 36" Engineered Soil Media 12" Gravel Layer	None
B3 (STA. 143+67 TO STA. 156+72)	1.5	0.4	0.4	1.1	399	3	560	1305	8	10,440	Landscape Area 36" Engineered Soil Media 12" Gravel Layer	None
B4 (STA. 156+72 TO STA. 205+18)	5.3	1.1	2.4	2.9	1,158	3	136	4848	20	96,960	Landscape Area 36" Engineered Soil Media 12" Gravel Layer	None
B5 (STA. 208+18 TO STA. 206+18)	0.2	0	0	0.2	15	3	136	94	14	1,316	Landscape Area 36" Engineered Soil Media 12" Gravel Layer	None