APPENDIX C
CALIFORNIA LAND EVALUATION AND SITE ASSESSMENT (LESA) MODEL

CALIFORNIA LAND EVALUATION AND SITE ASSESSMENT (LESA) MODEL FOR THE SANTA ANA RIVER PARKWAY EXTENSION PROJECT

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EXECUTIVE SUMMARY

The Land Evaluation and Site Assessment (LESA) Model is an approach for rating the relative quality of land resources based upon specific measurable features. The formulation of the California LESA Model is intended to provide lead agencies, under the California Environmental Quality Act (CEQA), with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process.

The following LESA analysis has been prepared to assess the agricultural significance of lands within the Santa Ana River Parkway Extension Project (proposed project). The proposed project is located within a 2-mile stretch along the Santa Ana River (SAR) in northeastern Orange County. For the purposes of this analysis, the project site is defined as the area that would be disturbed by construction of the new Class I Bikeway, Riding and Hiking Trail, and associated amenities on the north and south banks of the SAR. Specifically, the proposed project is located between Gypsum Canyon Road on the west and the Orange/Riverside/San Bernardino County boundaries on the east, and between the Burlington Northern Santa Fe railroad and La Palma Avenue on the north and State Route 91 on the south. The majority of the proposed project is located within the City of Yorba Linda, with the easternmost portion of the proposed project located within unincorporated Orange County.

The total limits of disturbance for the proposed project encompass approximately 35.5 acres; however, there is an existing approximate 0.6-acre, paved service road on the northern bank of the SAR that is within these limits. As such, for the purposes of this LESA model, the project site is defined as the proposed project disturbance limits, excluding the existing paved service road, resulting in approximately 34.9 acres of land. A total of 23.0 acres of active agricultural land occurs within and adjacent to the proposed Class I Bikeway, Riding and Hiking Trail, and associated amenities. The proposed project would result in some temporary impacts (i.e., disturbance associated with construction staging/laydown, access, and work area) and permanent impacts (i.e., permanent loss) on this agricultural land that supports the cultivation of citrus crops by a private party.

The California LESA Model is created by defining and measuring two separate sets of factors: the Land Evaluation factor measures the inherent soil-based qualities of land as they relate to agricultural suitability on a project site and the Site Assessment factor measures social, economic, and geographic attributes that also contribute to the overall value of agricultural land. As concluded in the LESA analysis, the final LESA score for the proposed project is 36.2. A final LESA score of 0 to 39 points is not considered significant. Therefore, the proposed project is not considered to have a significant impact on agricultural resources.

1.0 INTRODUCTION

The California LESA Model is an approach for rating the relative quality of land resources based upon specific measurable features. The LESA Model was first developed by the Federal Natural Resources Conservation Service (NRCS) in 1981. It was subsequently adapted in 1990 by the California Department of Conservation to evaluate land use decisions that affect the conversion of agriculture lands in California. The formulation of the California LESA Model is intended to provide lead agencies, under CEQA, with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process.

For determining the potential CEQA significance resulting from the conversion of agricultural lands to some other purpose, the California LESA Model includes scoring thresholds comprised of two Land Evaluation (LE) factors (Land Capability Classification [LCC] Rating and Storie Index Rating) and four Site Assessment (SA) factors (Project Size Rating, Water Resource Availability Rating, Surrounding Agricultural Land Rating, and Surrounding Protected Land Rating). For a given project, each of these factors is separately rated on a 100-point scale, and the total points determine whether agricultural land is significant. These LESA Scores do not take into consideration any proposed mitigation measures or other factors that might affect a lead agency's determination of the significance of the agricultural lands conversion impact under CEQA.

This LESA assessment is based on information obtained from the United States Department of Agriculture (USDA) NRCS Geospatial Data Gateway and Web Soil Survey (USDA-NRCS 2015), the *California Agricultural Land Evaluation and Site Assessment Handbook* (California Department of Conservation 1997).

This LESA analysis is organized according to the following sections:

- Section 1.0, "Introduction," provides an overview of the LESA Model and describes the methodology used in the LESA analysis.
- Section 2.0, "Project Description," identifies the project location and background, describes the existing conditions, and describes the proposed project features.
- Section 3.0, "Agricultural Resources Setting," section discusses agricultural resource trends throughout Orange County and agricultural land uses within the project site.
- Section 4.0, "Land Evaluation and Site Assessment Evaluation," describes the two Land Evaluation factors (Land Capability Classification [LCC] Rating and Storie Index Rating) and four Site Assessment (SA) factors used in determining the significance of agricultural lands. This section defines the LCC system and Storie Index Ratings, identifies the soil conditions on the project site based on soil data obtained from the USDA-NRCS Geospatial Data Gateway and Web Soil Survey and provides the LCC Ratings and Subclass Ratings associated with soils on the project site. In addition, this section defines these four SA factors (Project Size Rating, Water Resource Availability Rating, Surrounding Agricultural Land Rating, and Surrounding Protected Land Rating) and provides the project site scores for these factors.
- Section 5.0, "Conclusions," defines the California LESA Model scoring thresholds, presents the final LESA scores for the proposed project, and determines the agricultural significance of lands within the project site based on the California LESA Model scoring thresholds.

2.0 PROJECT DESCRIPTION

2.1 PROJECT BACKGROUND AND LOCATION

The Santa Ana River Riding and Hiking Trail and Santa Ana River Class I (off-road, paved) Bikeway (SAR Parkway) is a landscaped corridor with recreational facilities that is intended to provide a recreational and commuter link from the Pacific Ocean to the San Bernardino Mountains for walkers, joggers, runners, hikers, bicyclists, and equestrians.

The proposed project is located within a 2-mile stretch of the SAR Parkway. Specifically, the proposed project is located between Gypsum Canyon Road on the west and the Orange/Riverside/San Bernardino County boundaries on the east, and between the Burlington Northern Santa Fe (BNSF) railroad and La Palma Avenue on the north and State Route (SR) 91 on the south (refer to Figure 1, Project Site Location Map).

2.2 ENVIRONMENTAL SETTING AND EXISTING CONDITIONS

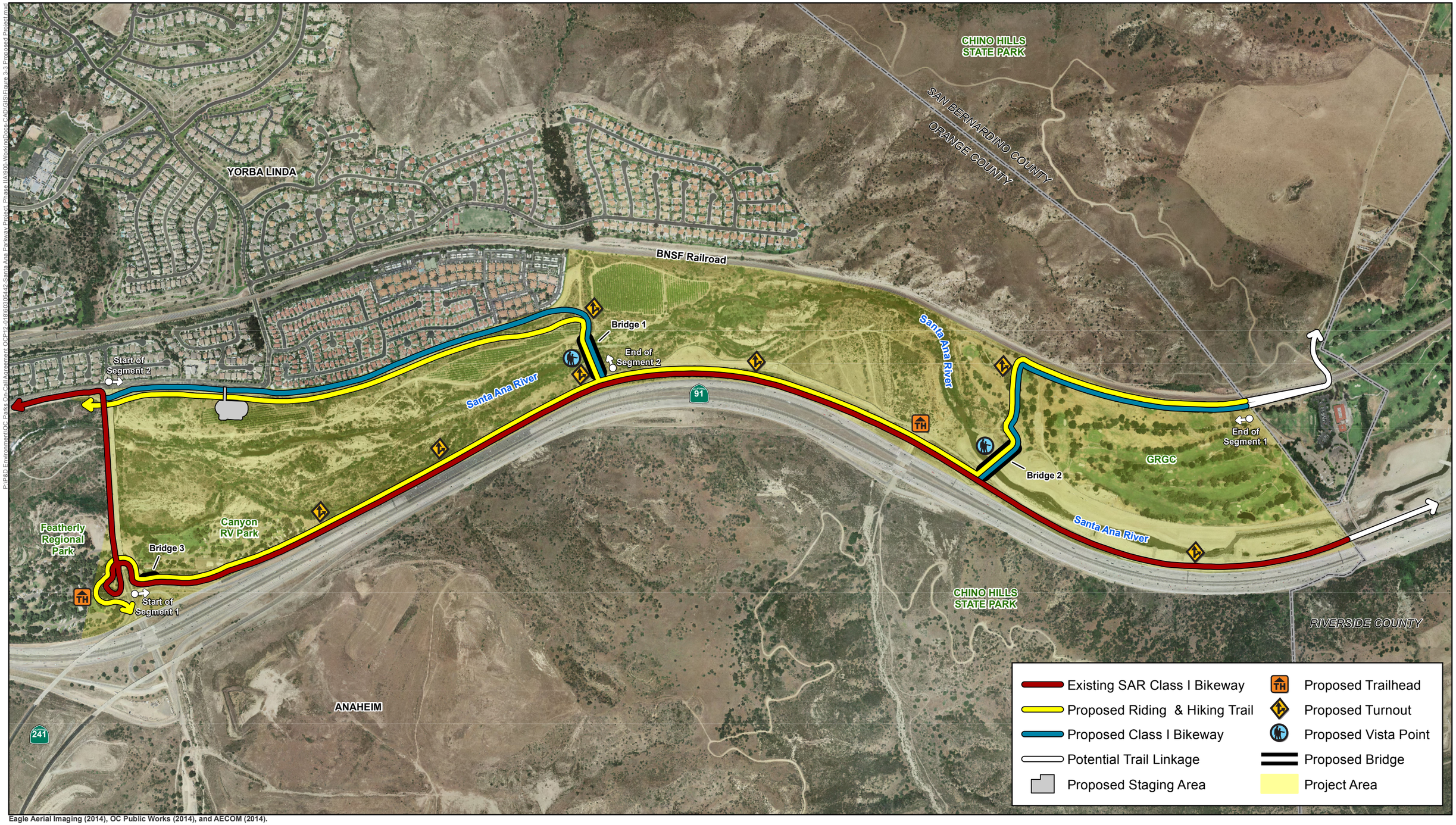
Areas adjacent to the project site include levees or elevated earthen benches, a portion of a regional railroad corridor, Canyon RV Park (within Featherly Regional Park), Chino Hills State Park (CHSP), and the Green River Golf Club (GRGC). Canyon RV Park is a private leasehold with RV hookups and cabins on a portion of Orange County Parks' (OC Parks) land just north of SR-91 and adjacent to Gypsum Canyon Road. The GRGC is owned and operated by the Orange County Flood Control District (OCFCD).

The Orange County portion of the SAR Parkway includes an existing Class I (off-road, paved) Bikeway (bikeway). The bikeway begins at the Pacific Ocean and extends inland 28 miles along the SAR, to the Orange County boundary. The bikeway arrives at the project site from the west on the SAR's north bank at Gypsum Canyon Road. The bikeway then crosses south over the SAR on the Gypsum Canyon Road Bridge. From the south side of the SAR, the bikeway extends east through the project site terminating at the Orange County boundary and Green River Road. This existing portion of the bikeway primarily utilizes the 12-foot paved river levee service road that follows the south bank of the SAR. The levee service road is adjacent to the SR-91. Access points are located along this portion of the bikeway, including connections to other existing regional riding and hiking trails located outside of the project site (i.e., Gypsum Canyon Riding and Hiking Trail and Coal Canyon Riding and Hiking Trail). Several wildlife corridors (e.g., Coal Canyon, Brush Canyon, Gypsum Canyon, etc.) are also located within and/or adjacent to the bikeway.

The Orange County portion of the SAR Parkway also includes an existing Riding and Hiking (unpaved) Trail, which currently extends inland 26 miles from the Pacific Ocean, and arrives at the existing bikeway from the west along the north bank of the SAR, and terminates at the Gypsum Canyon Road Bridge.

2.3 DESCRIPTION OF THE PROPOSED PROJECT

The proposed project includes the construction of a new Class I Bikeway, Riding and Hiking Trail, and associated amenities on the north and south banks of the SAR between Gypsum Canyon Road and the Orange County boundary (refer to Figure 1, Project Site Location Map). The total limits of disturbance for the proposed project encompass approximately 35.5 acres; however, there is an existing approximate 0.6-acre, paved service road on the northern bank of the SAR that is within these limits. As such, for the purposes of this LESA model, the project site is defined as the proposed project disturbance limits, excluding the existing paved service road, resulting in approximately 34.9 acres of land. The proposed project's main elements are described below.



P:\P&D Environmental\OC Parks On-Call\Assignment\OCP12_0\1803\05\42-Santa Ana Parkway Project Phase II\A900-Working\Docs_CAD\GIS\Figure 3-3 Proposed Project.mxd

Eagle Aerial Imaging (2014), OC Public Works (2014), and AECOM (2014).

Note: Project Elements Not Drawn to Scale

Figure 1
Project Site Location Map

Santa Ana River Parkway Extension Project

2.3.1 SEGMENT 1

A new 10-foot-wide Riding and Hiking Trail would be located parallel to the existing bikeway that is located on the southern bank of the SAR adjacent to the SR-91. The new Riding and Hiking Trail would begin at Gypsum Canyon Road in the southwestern-most portion of the project site. Within Canyon RV Park, at Featherly Regional Park, the new Riding and Hiking Trail would span, via Proposed Bridge #3, the existing Gypsum Canyon Channel located immediately east of Gypsum Canyon Road.

Eastward from Bridge #3, the proposed Riding and Hiking Trail would meander approximately 1.75 miles between the SAR and the existing bikeway to proposed Bridge #2, which would be located approximately 0.15 mile east from the Coal Canyon Road and would accommodate both the new Class I Bikeway and new Riding and Hiking Trail.

From Bridge #2, within the unincorporated Orange County portion of the bikeway, a new parallel 12-foot-wide Class I Bikeway and 10-foot-wide Riding and Hiking Trail would be constructed. The parallel Class I Bikeway and Riding and Hiking Trail would extend through a portion of the existing GRGC toward the BNSF Railroad. The new Class I Bikeway and Riding and Hiking Trail would then parallel the BNSF Railroad eastward to the Orange/San Bernardino County boundary. Approximately 3,000 linear feet of new paving would be required for the new Class I Bikeway to connect from Bridge #2 to the Orange/San Bernardino County boundary. Trailheads would be located at Featherly Regional Park and near the Coal Canyon Trail at CHSP.

Five turnouts, which are widened section of trail to allow faster traffic to pass or a side path that allows users to pull over and rest away from the main trail, would be provided along Segment #1 at various locations throughout the project site. In addition, one turnout would be provided along the existing bikeway on the south side of the SAR, between CHSP and the Orange/Riverside County boundary. A vista point, which is a type of turnout/rest area used for orientation that is specifically focused on scenic long-distance views, would be provided at the east end of the CHSP at the SAR overlook.

2.3.2 SEGMENT 2

A new parallel 12-foot-wide Class I Bikeway and 10-foot-wide Riding and Hiking Trail would be located on the northern bank of the SAR, adjacent to La Palma Avenue. The new Class I Bikeway would utilize the existing, paved County service road on top of the existing levee. The new Riding and Hiking Trail would be located on the SAR side of the new Class I Bikeway. The new parallel Class I Bikeway and Riding and Hiking Trail would extend eastward from Gypsum Canyon Road approximately 0.75 mile to the end of the paved portion of the existing County service road.

From this point, the new parallel Class I Bikeway and Riding and Hiking Trail would continue eastward and southward to proposed Bridge #1. Bridge #1 would cross the SAR and join Segments #1 and #2. A turnout would be provided at the north end of Bridge #1 and a vista point would be provided at the midpoint of Bridge #1.

A Staging Area is proposed adjacent to Segment #2, east of the La Palma Avenue and Gypsum Canyon Road intersection. It would be accessed by vehicles from La Palma Avenue. The Staging Area would be located at a lower elevation than La Palma Avenue. The staging area may include benches; picnic tables; bicycle racks; restrooms; shade structures; parking; a corral; and water for hikers, bikers, riders, and horses.

3.0 AGRICULTURAL RESOURCES SETTING

3.1 AGRICULTURAL LAND USE TRENDS

The project site is located in Orange County where substantial conversion from agricultural to urban land use has occurred. The decrease in agricultural use and the conversion of farmland into urban uses has been primarily due to the effects of urban expansion, lack of water, and economic considerations. According to the Resources Element of the Orange County General Plan, "urban areas encroach on agricultural lands throughout the county creating pressure to convert farmland to urban uses. The rising costs of irrigation water, agricultural land tax rates, labor costs, and damage from vandalism have increased production costs making it more difficult to have a successful agricultural operation. Growth projections through 2020 indicate the continued urbanization of the County. This urban development will continue to convert agricultural acreage to more intensive land uses" (County of Orange 2005).

The California Department of Conservation's (DOC's) 2012 Field Report for Orange County identifies the factors contributing to changes in agricultural land uses during the DOC 2010–2012 farmland conversion update cycle. According to the 2012 Field Report, the majority of irrigated Important Farmland (i.e., Prime Farmland, Farmland of Statewide Importance, or Unique Farmland) was converted to as a result of residential development, mainly in the cities of Irvine, Brea, Yorba Linda, San Clemente, and Rancho Santa Margarita. Irrigated Farmland was also converted to grazing land and other non-irrigated uses by leaving formerly irrigated land idle for three or more update cycles (DOC 2012).

3.2 PROJECT SITE AND VICINITY AGRICULTURAL LAND USE

The project site and vicinity contains Prime Farmland, Farmland of Statewide Importance, and Unique Farmland, as mapped per the Farmland Mapping and Monitoring Program (FMMP). Refer to Figure 3 (provided later in this report) for the location of Important Farmland land use categories within and adjacent to the bikeway. Table 1 provides the acreage associated with the mapped Important Farmland.

TABLE 1
PROJECT SITE AND VICINITY IMPORTANT FARMLAND

Land Use Category	**Acres**
Prime Farmland	14.19
Farmland of Statewide Importance	1.15
Unique Farmland	3.41
Farmland of Local Importance	0
Important Farmland Total	**18.75**
Source: DOC (2013)	

The Important Farmland Map for Orange County, produced by the DOC Division of Land Resource Protection (2013) identifies a total of 18.75 acres of Important Farmland occurs within and adjacent to the project site. An additional 4.27 acres of agricultural uses not mapped by the FMMP occur within and adjacent to the project site. Therefore, the amount of active agricultural lands uses within and adjacent to the project site totals approximately 23.0 acres. This farmland is associated with the cultivation of citrus crops by a private party which is permitted by the County through an encroachment permit, which the County may terminate at any time at its convenience.

3.2.1 FARMLAND MAPPING AND MONITORING PROGRAM

The FMMP was established by the State of California in 1982 to continue the Important Farmland mapping efforts begun in 1975 by the U.S. Soil Conservation Service (SCS) (now called the U.S. Natural Resources

Conservation Service, under the U.S. Department of Agriculture). The intent of SCS was to produce agricultural resource maps based on soil quality and land use across the nation. DOC sponsors the FMMP and also is responsible for establishing agricultural easements, in accordance with PRC Sections 10250–10255.

Important Farmland is classified by DOC as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. The following list describes these land use categories:

- **Prime Farmland**—Land that has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years before the mapping date.
- **Farmland of Statewide Importance**—Land similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the 4 years before the mapping date.
- **Unique Farmland**—Land of lesser quality soils used for the production of the state's leading agricultural cash crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the 4 years before the mapping date.
- **Farmland of Local Importance**—Land that is of importance to the local agricultural economy, as defined by each county's local advisory committee and adopted by its board of supervisors. Farmland of Local Importance either is currently producing or has the capability to produce, but does not meet the definition of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland.

3.3 CONVERSION OF IMPORTANT FARMLAND

Implementation of the proposed project would provide new trails and bikeways on the north and south banks of the SAR, three non-vehicular bridges, and other associated amenities. One of the non-vehicular bridges (Bridge #1) would be constructed on, and would bisect, existing Prime Farmland. The proposed project would result in approximately 0.22 acre of temporary impacts (i.e., disturbance associated with construction staging/laydown, access, and work area) and 0.13 acre of permanent impacts (i.e., permanent loss) to Prime Farmland. It is anticipated the Prime Farmland that is temporarily affected or removed during construction would continue to be available for agricultural use following construction of the proposed project.

It should be noted that the permanent staging area component of the proposed project (located on the north bank of the SAR, near La Palma Avenue just east of Gypsum Canyon Road) would also be located on land currently being used to cultivate citrus crops. Although these particular citrus crops are not situated on land designated as important farmland pursuant to the FMMP, they are located on high-quality soils suitable for agricultural uses (see Section 4.1.3, Project Site Soil Conditions). Construction of the proposed project would result in approximately 0.76 acre of temporary impacts and approximately 0.57 acre permanent impacts to this agricultural land.

In total, the proposed project would affect 0.35 acre of Prime Farmland and 1.33 acres of other active agricultural land, for an overall total of 1.68 acres of agricultural land, as shown in Table 2.

TABLE 2
TOTAL DISTURBANCE OF AGRICULTURAL LAND WITHIN THE PROJECT SITE

	Acreage of Impact	
Land Use Category	**Temporary**	**Permanent**
Prime Farmland[1] (0.35 acre)	0.22	0.13
Other Active Agricultural Land (1.33 acres)	0.76	0.57
Subtotal	**0.98**	**0.7**
Total	**1.68**	

Source: DOC (2013); data compiled by AECOM in 2015
Notes:
[1] The acreage of Prime Farmland was determined based on the California Department of Conservation's Important Farmland map for Orange County.

4.0 LAND EVALUATION AND SITE ASSESSMENT EVALUATION

As discussed above, the California LESA Model is created by defining and measuring two separate sets of factors:

- The LE factor measures the inherent soil-based qualities of land as they relate to agricultural suitability.
- The SA factor measures social, economic, and geographic attributes that also contribute to the overall value of agricultural land.

The following section describes the two LE factors (LCC Rating and Storie Index Rating) and four SA factors (Project Size Rating, Water Resource Availability Rating, Surrounding Agricultural Land Rating, and Surrounding Protected Land Rating) for the project site. The Surrounding Agricultural Land Rating is designed to provide a measurement of the level of agricultural land use for lands within the Zone of Influence (ZOI). The ZOI is defined as the amount of surrounding lands up to at least one-quarter mile from the project site boundary including parcels that are intersected by the quarter-mile buffer, which are included in their entirety.

4.1 LAND EVALUATION

The LE portion of the California LESA Model focuses on two main components that are separately rated:

- The LCC Rating indicates the suitability of soils for most kinds of crops. Soils are rated on a scale from Class I to Class VIII. Soils having the fewest limitations receive the highest rating (Class I) and those with most limitations the lowest (Class VIII).
- The Storie Index Rating provides a numeric rating (based on a 100-point scale) of the relative degree of suitability or value of a given soil for intensive agriculture use. This rating is based on soil characteristics only. Soils most suited for agricultural use receive the highest rating.

This section defines the LCC Rating and Storie Index Rating, identifies the soil conditions on the project site USDA-NRCS Geospatial Data Gateway and Web Soil Survey and provides the LCC Ratings and Subclass Ratings associated with soils on the project site.

4.1.1 LAND CAPABILITY CLASS SYSTEM

The LCC reflects the soil's ability to support common crops and pasture plants without compromising the soil's quality over the long term. As noted previously, the LCC system uses eight LCCs (I through VIII) to rank soils. Generally, yields and profits from agricultural uses are more difficult to obtain as the ratings of the capability classification system increases. Prime farmlands generally correspond to Land Capability Ratings of Class I or Class II. Class III soils are considered "good," and Class IV soils are considered "fairly good" for agricultural use. Soils in Classes V through VIII are generally unsuited for agriculture, although these soils may be used for range, watershed, wildlife, and other non-intensive agricultural uses. A description of soil classification, as defined by the NRCS, is provided in Table 3.

TABLE 3
LAND CAPABILITY CLASSIFICATION OF SOILS

Class	Definition
I	Soils have few limitations that restrict their use.
II	Soils have moderate limitations that reduce the choice of plants, or that require special conservation practices.

TABLE 3
LAND CAPABILITY CLASSIFICATION OF SOILS

Class	Definition
III	Soils have severe limitations that reduce the choice of plants, require conservation practices, or both.
IV	Soils have very severe limitations that reduce the choice of plants, require very careful management, or both.
V	Soils are not likely to erode but have other limitations; impractical to remove that limits their use largely to pasture or range, woodland, or wildlife habitat.
VI	Soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture, or range, woodland, or wildlife habitat.
VII	Soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture or range, woodland, or wildlife habitat.
VIII	Soils and landforms have limitation that preclude their use for commercial plant production and restrict their use to recreation, wildlife habitat, or water supply, or to aesthetic purposes.
Source: NRCS 2001	

Capability Subclass is the second category in the LCC system, which are designated by adding a Subclass (denoted by a small letter e, w, s, or c) to the Class numeral. A description of soil subclassification, as defined by the NRCS, is provided in Table 4.

TABLE 4
LAND CAPABILITY SUBCLASSIFICATION OF SOILS

Subclass	Definition
e	Soils for which the susceptibility to erosion is the dominant problem or hazard affecting their use.
w	Soils for which excess water is the dominant hazard or limitation affecting their use, such as poor soil drainage, wetness, a high water table, and overflow.
s	Soils that have soil limitations within the rooting zone, such as shallowness of the rooting zone, stones, low moisture-holding capacity, low fertility that is difficult to correct, and salinity or sodium content.
c	Soils for which the climate (the temperature or lack of moisture) is the major hazard or limitation affecting their use.
Source: NRCS 2001	

Within a capability Class, where the limitation types are essentially equal, the Subclasses have the following order: e, w, s, and c. In Class I, there are no Subclasses, because the soils of this Class have few limitations. Class V contains only Subclasses w, s, or c, because the soils in Class V are subject to little or no erosion. They have other limitations (such as poor soil drainage, low moisture-holding capacity, low fertility, and salinity or sodium content) that restrict their use to pasture, rangeland, forestland, or wildlife habitat (NRCS 2001).

The LESA Model assigns numeric ratings to each LCC classification and the numeric conversions of LCC classifications to LCC Ratings are shown in Table 5. Section 4.1.3 provides the LCC Ratings and Subclass Ratings associated with soils within the project site.

TABLE 5
NUMERIC CONVERSION OF LAND CAPABILITY CLASSIFICATIONS

LCC Classification	LCC Rating
I	100
IIe	90
IIs,w	80
IIIe	70
IIIs,w	60
IVe	50
IVs,w	40
V	30
VI	20
VII	10
VIII	0
Source: California Department of Conservation 1997:10	

4.1.2 STORIE INDEX RATING

The NRCS also assigns Storie Index Ratings, which rank soil characteristics according to their suitability for agriculture from Grade 1 soils, which have few or no limitations for agricultural production, to Grade 6 soils, which are not suitable for agriculture. Under this system, soils identified as less than prime can function as prime soils when limitations (such as poor drainage, slopes, or soil nutrient deficiencies) are partially or completely addressed. The six grades and definition of the grades for the project site soils, based on NRCS and Storie Index Rating systems, are described in Table 6. Section 4.1.3 identifies the Storie Index Ratings for soils on the project site.

TABLE 6
STORIE INDEX RATING SYSTEM

Grade	Index Rating	Definition
1—Excellent	80 to 100	Soils are well suited to intensive use for growing irrigated crops that are climatically suited to the region.
2—Good	60 to 79	Soils are good agricultural soils, although they may not be so desirable as Grade 1 because of moderately coarse, coarse, or gravelly surface soil texture; somewhat less permeable subsoil; lower plant available water holding capacity, fair fertility; less well-drained conditions, or slight to moderate flood hazards, all acting separately or in combination.
3—Fair	40 to 59	Soils are only fairly well suited to general agricultural use and are limited in their use because of moderate slopes; moderate soil depths; less permeable subsoil; fine, moderately fine or gravelly surface soil textures; poor drainage; moderate flood hazards; or fair to poor fertility levels, all acting alone or in combination.

TABLE 6
STORIE INDEX RATING SYSTEM

Grade	Index Rating	Definition
4—Poor	20 to 39	Soils are poorly suited. They are severely limited in their agricultural potential because of shallow soil depths, less permeable subsoil, steeper slopes, or more clayey or gravelly surface soil textures than Grade 3 soils, as well as poor drainage, greater flood hazards, hummocky micro-relief, salinity, or fair to poor fertility levels, all acting alone or in combination.
5—Very poor	10 to 19	Soils are very poorly suited for agriculture, are seldom cultivated, and are more commonly used for range, pasture, or woodland.
6—Nonagricultural	Less than 10	Soils are not suited for agriculture at all because of very severe to extreme physical limitations, or because of urbanization.
Source: USDA-NRCS 2015		

4.1.3 PROJECT SITE SOIL CONDITIONS

Soil data for the project site was obtained from the USDA NRCS Geospatial Data Gateway and Web Soil Survey (USDA-NRCS 2015). The NRCS provides official soil series descriptions that define specific soil series and serve as specifications for identifying and classifying soils. Figure 2, Project Site Soils Map, depicts the soil map units found within the project site. Table 7 details the varieties of soils found within the project site, along with their LCC and Storie Index Grade and Ratings.

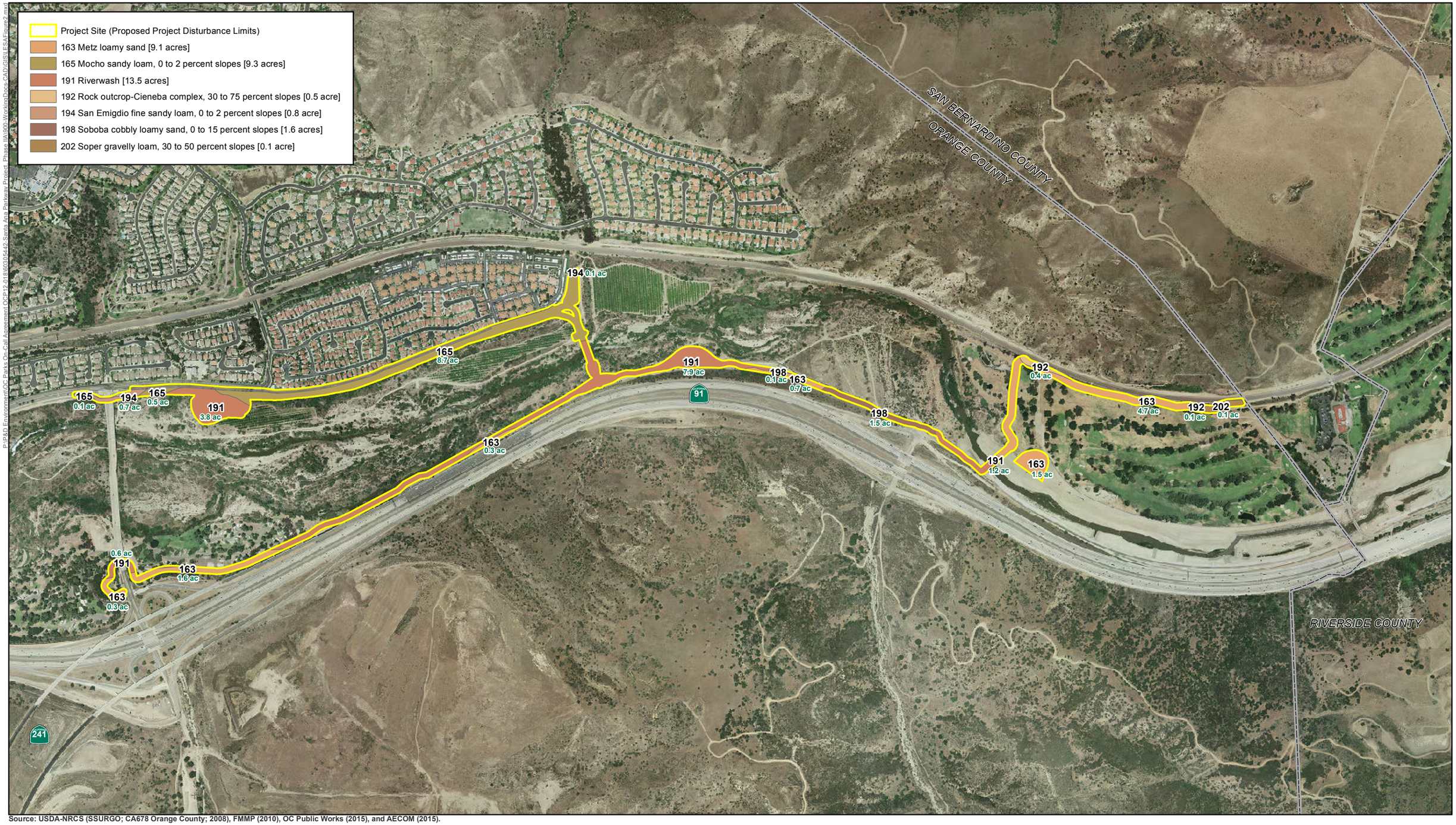
TABLE 7
SOIL DATA FOR THE PROJECT SITE

Map Unit Symbol	Map Unit Name	Land Capability Classification	Storie Index Grade	Storie Index Rating
163	Metz loamy sand	IIe	2	79
165	Mocho sandy loam, 0 to 2 percent slopes	Ic	1	95
191	Riverwash	VIIIw	N/A[1]	N/A[1]
192	Rock outcrop-cieneba complex, 30 to 75 percent slopes	VIIs	6	7
194	San Emigdio fine sandy loam, 0 to 2 percent slopes	Ic	1	98
198	Soboba cobbly loamy sand, 0 to 15 percent slopes	IVe	4	35
202	Soper gravelly loam, 30 to 50 percent slopes	VIIe	4	27

USDA-NRCS (2015), and AECOM (2015).
[1] USDA-NRCS Geospatial Data Gateway does not provide Storie Index Grade or Rating for the Riverwash soil unit.

4.1.4 LAND CAPABILITY CLASSIFICATION AND STORIE INDEX SCORES FOR THE PROJECT

The LE score for the proposed project is calculated based on the LCC and Storie Index Ratings shown above in Table 7. The LCC score is calculated by multiplying the proportion of the proposed project in each soil type by the soil type's LCC Rating (Column C x Column E = Column F). A Storie Index score is calculated by multiplying the proportion of the proposed project in each soil type by the soil type's Storie Index Rating (Column C x Column G = Column H).



Source: USDA-NRCS (SSURGO; CA678 Orange County; 2008), FMMP (2010), OC Public Works (2015), and AECOM (2015).

Scale 1 : 10,800
1" = 900 feet

0 450 900 1,800 2,700 Feet

Figure 2
Project Site Soils Map

Santa Ana River Parkway Extension Project

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Table 8 provides a summary of the LCC score and Storie Index score for the proposed project. The LCC score and Storie Index score for the project site is 55.0 and 50.2, respectively. The LCC and Storie Index scores shown on Table 8 are entered into the Final LESA Score Sheets to calculate the final LE subscores.

TABLE 8
LAND CAPABILITY CLASSIFICATION AND STORIE INDEX SCORE FOR SOILS WITHIN THE PROJECT SITE

A	B	C	D	E	F	G	H
Soil Name	**Acres**	**Proportion of Project Site**	**LCC**	**LCC Rating**	**LCC Score (C x E)**	**Storie Index Rating**	**Storie Index Score (C x G)**
Metz loamy sand	9.1	0.26	IIe	90	23.4	79	20.5
Mocho sandy loam, 0 to 2 percent slopes	9.3	0.27	I	100	27.0	95	25.7
Riverwash[1]	13.5	0.39	VIIIw	0	0	0	0
Rock outcrop-cieneba complex, 30 to 75 percent slopes	0.5	0.01	VIIs	10	0.1	7	0.1
San Emigdio fine sandy loam, 0 to 2 percent slopes	0.8	0.02	Ic	100	2.0	98	2.0
Soboba cobbly loamy sand, 0 to 15 percent slopes	1.6	0.05	IVe	50	2.5	35	1.8
Soper gravelly loam, 30 to 50 percent slopes	0.1	0.003	VIIe	10	0.03	27	0.1
Total	**34.9**	**1.00**	**--**	**--**	**55.0**	**--**	**50.2**

Source: USDA-NRCS 2014; data compiled by AECOM in 2015
Notes:
[1] USDA-NRCS Geospatial Data Gateway does not provide Storie Index Rating for the Riverwash soil unit.

4.2 SITE ASSESSMENT FACTORS

The California LESA Model includes four SA factors that are separately rated: Project Size Rating, Water Resources Availability Rating, Surrounding Agricultural Land Rating, and Surrounding Protected Resource Land Rating. This section defines these four SA factors and provides the project site scores for these factors.

4.2.1 PROJECT SIZE RATING

The Project Size Rating recognizes the role of farm size in determining the viability of commercial agricultural operations. With the exception of very high value crops, larger farming operations provide greater flexibility in farm management and marketing decisions. In addition, larger operations that involve crops with significant labor demands for harvesting and processing tend to have greater impacts upon the local economy through direct employment, as well as impacts upon supporting industries and food processing industries.

With regard to agricultural productivity, the size of the farming operation can be considered not just from its total acreage, but the acreage of different quality lands that comprise the operation. Lands with higher quality soils lend themselves to greater management and cropping flexibility and have the potential to provide greater economic return per acre unit. For a given project, instead of relying on a single acreage figure in the Project Size Rating,

the project is divided into three acreage groupings (Classes I and II, Class III, and Classes IV – VIII) based upon the LCC Classes that were previously identified in Table 3 under Section 4.1, "Land Evaluation."

Under the Project Size Rating, relatively fewer acres of high-quality soils are required to achieve a maximum Project Size Score. Alternatively, a maximum score on lesser quality soils could also achieve a maximum Project Size Score. The Project Size Score is determined first by adding the acreage of each soil type within the project site using the three acreage groupings (Classes I and II, Class III, and Classes IV – VIII) then applying the appropriate scores. As shown on Table 9 below, the Project Size Rating for the project site is 30.

TABLE 9
PROJECT SIZE RATING FOR THE PROJECT SITE

Soil Name	**Acres**	**LCC**	**LLC Class I or II**	**LCC Class III**	**LCC Class IV-VIII**
Metz loamy sand	9.1	IIe	9.1	--	--
Mocho sandy loam, 0 to 2 percent slopes	9.3	I	9.3	--	--
Riverwash	13.5	VIIIw	--	--	13.5
Rock outcrop-Cieneba complex, 30 to 75 percent slopes	0.5	VIIs	--	--	0.5
San Emigdio fine sandy loam, 0 to 2 percent slopes	0.8	Ic	0.8	--	--
Soboba cobbly loamy sand, 0 to 15 percent slopes	1.6	IVe	--	--	1.6
Soper gravelly loam, 30 to 50 percent slopes	0.1	VIIe	--	--	0.1
Total Acres	**34.9**	**--**	**19.2**	**--**	**15.7**
Project Size Score			**30**	**--**	**0**

Source: California Department of Conservation 1997:14
Notes:
[1] See Table 3 of the LESA instruction manual for project size scoring.

4.2.2 WATER RESOURCES AVAILABILITY RATING

The Water Resource Availability Rating is based on the various water sources that may supply a given property, and then determining whether agriculture is feasible, and if any physical or economic restrictions exist, during both drought and non-drought years. A physical restriction is an occasional or regular interruption or reduction in a water supply, or a shortened irrigation season, that forces a change in agricultural practices. An economic restriction is a rise in the cost of water to a level that forces a reduction in consumption.

Approximately 1.68 acres of active, irrigated agricultural uses (approximately 0.05 percent) occur within the 34.9-acre project site. The irrigated farmland portion of the project site is completely served by onsite groundwater wells and groundwater supplies are available to meet irrigation demands even in dry and multiple-dry water years. There are no physical or economic restrictions with regard to water availability. Therefore, the Water Resources Availability Rating for the farmland portion of the project site is 100 (see Table 5 of the LESA instruction manual). The remainder of the project site does not support active agricultural uses and there is no existing irrigation system. In addition, relying on only rainfall to support agricultural production is not feasible in dry and multiple-dry water years. Therefore, the Water Resources Availability Rating for the remainder of the project site is 0 (see Table 5 of the LESA instruction manual). As shown in Table 10, the Water Resources Availability rating for the project site is 5.

TABLE 10
WATER RESOURCES AVAILABILITY RATING FOR THE PROJECT SITE

A	B	C	D
Water Source	**Proportion of the Project Site**	**Water Availability Score**	**Weighted Availability Score (B x C)**
Irrigated	0.05	100	5
Not irrigated	0.95	0	0
Total Water Resources Availability Score			**5**

Source: California Department of Conservation 1997:16
Notes:
1 Assumes 1.68 acres of irrigated active agricultural land within the 34.9-acre area.

4.2.3 SURROUNDING AGRICULTURAL LAND RATING

The Surrounding Agricultural Land Rating is designed to provide a measurement of the level of agricultural land use for lands within the ZOI of the project site. The ZOI is the amount of surrounding lands up to at least one-quarter mile from the project site boundary. Parcels that are intersected by the quarter-mile buffer are included in their entirety. Figure 3, Santa Ana River Parkway Extension Zone of Influence, identifies the ZOI and shows the distribution and amount of land used for agricultural uses within the project site and a quarter-mile of the project site. To calculate the ZOI, the smallest rectangle was drawn around the project boundary to completely encompass the project site (shown as Rectangle A on Figure 3). A second rectangle was drawn around the project boundary (shown as Rectangle B on Figure 3), which extends one-quarter mile on all sides beyond the first rectangle. The ZOI includes all parcels that are contained within or are intersected by the second rectangle, less the area of the project itself. Based on the percentage of agricultural land in the ZOI, the proposed project site is assigned a "Surrounding Agricultural Land" score.

The LESA Model rates the potential significance of the conversion of an agricultural parcel that has a large proportion of surrounding land in agricultural production more highly than one that has a relatively small percentage of surrounding land in agricultural production. As shown in Figure 3, lands in agricultural production are located adjacent to the project site. No other active agricultural lands are located within the ZOI. Based on the percent of agricultural land in production within the ZOI (i.e., less than one percent) and the LESA scoring thresholds, the Surrounding Agricultural Land score for the project site is 0.

4.2.4 SURROUNDING PROTECTED RESOURCE LAND RATING

The Surrounding Protected Resource Land Rating is essentially an extension of the Surrounding Agricultural Land Rating and is scored in a similar manner. Protected resource lands are those lands with long-term use restrictions that are compatible with or supportive of agricultural uses of land. Included among them are the following:

- Williamson Act contracted land;
- Publicly owned lands maintained as park, forest, or watershed resources; and
- Lands with agricultural, wildlife habitat, open space, or other natural resource easements that restrict the conversion of such land to urban or industrial uses.

Based on review of the DOC's Williamson Act Contract Map for Orange County, there are no Williamson Act contract lands within the ZOI. Publicly owned lands maintained as park and lands that restrict the conversion of land to urban uses within the ZOI include Coal and Brush canyons, which are designated wildlife movement corridors that direct wildlife through the project area and provide connections between the Cleveland National

P:\P&D Environment\OC Parks On-Call Agreement\OCP12-0186\3054\2-Santa Ana Parkway Project_Phase II\A\000\Working\Docs-CAD\GIS\LESA\Figure3.mxd

Project Site (Proposed Project Disturbance Limits)
Rectangle A
Rectangle B (Zone of Influence)
Prime Farmland
Farmland of Statewide Importance
Unique Farmland
Other Active Farmland

Source: USDA-NRCS (SSURGO; CA678 Orange County; 2008), FMMP (2010), OC Public Works (2015), and AECOM (2015).

Scale 1 : 12,000
1" = 1,000 feet

0 500 1,000 2,000 3,000 Feet

Figure 3
Santa Ana River Parkway Extension Zone of Influence

Forest and Santa Ana Mountains (to the south) and Chino Hills State Park (to the north); the Chino Hills State Park; the Habitat Management Area associated with the Santa Ana Canyon Habitat Management Plan; and conservation easements associated with the Central-Coastal Natural Communities Conservation Plan/Habitat Conservation Plan. These areas comprise approximately 80 percent of the ZOI. Based on LESA scoring thresholds and the percent of protected land in the ZOI, the Surrounding Protected Resource Land Rating score for the project site is 90.

5.0 CONCLUSIONS

This section presents the final LESA scores for the proposed project, defines the California LESA Model scoring thresholds, and determines the significance of agricultural lands on the project site based on the final LESA scores and California LESA Model scoring thresholds.

5.1 CALIFORNIA LESA MODEL SCORING THRESHOLDS

Scoring thresholds are based on the total LESA score as well as the component LE and SA subscores. In this manner, the scoring thresholds are dependent on the attainment of a minimum score for the LE and SA subscores so that a single threshold is not the result of heavily skewed subscores (i.e., a site with a very high LE score, but a very low SA score, or vice versa). Table 11 presents the California LESA Model scoring thresholds.

TABLE 11
CALIFORNIA LESA MODEL SCORING THRESHOLD

Total LESA Score	Scoring Decision
0 to 39 Points	Not considered significant.
40 to 59 Points	Considered significant only if Land Evaluation (LE) and Site Assessment (SA) subscores are each greater than or equal to 20 points.
60 to 79 Points	Considered significant unless either LE or SA subscore is less than 20 points.
80 to 100 Points	Considered significant.
Source: California Department of Conservation 1997:31	

5.2 FINAL LESA SCORE SUMMARY FOR THE PROPOSED PROJECT

A single LESA score is generated for a given project after all of the individual LE and SA factors have been scored and weighted. The California LESA Model is weighted so that 50 percent of the total LESA score of a given project is derived from the LE factors, and 50 percent from the SA factors. Individual factor weights are listed below in Table 12, with the sum of the factor weights required to equal 100 percent. Table 12 presents the final LESA score for the proposed project. As shown in Table 12, the project site has a LE subscore of 26.4 and a SA subscore of 9.8; therefore, the final LESA score for the proposed project is 36.2. As shown in Table 11 above, a final LESA score of 0 to 39 points is not considered significant. Therefore, the proposed project is not considered to have a significant impact on agricultural resources.

TABLE 12
FINAL LESA SCORE SUMMARY FOR THE PROJECT SITE

	Factor Rating (1-100 Points)	Factor Weighting[1]	Weighted Factor Rating
Land Evaluation (LE)			
Land Capability Classification (LCC) Rating	55.0	0.25	13.8
Storie Index	50.2	0.25	12.6
LE Subtotal		**0.50**	**26.4**
Site Assessment (SA)			
Project Size Rating	30	0.15	4.5
Water Resources Availability Rating	5.0	0.15	0.8
Surrounding Agricultural Land Rating	0	0.15	0
Surrounding Protected Resources Lands Rating	90	0.05	4.5
SA Subtotal		**0.50**	**9.8**
Total			**36.2**

Source: Data compiled by AECOM in 2015
Notes:
[1] The LE and SA factor weights are shown on page 29 of the LESA instruction manual (California Department of Conservation 1997)

6.0 REFERENCES

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